Foundation Ownership and Sustainability
International Evidence[1]

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Abstract

The increasing focus on corporate social responsibility and sustainability has inspired a search for institutional arrangements that promote responsible business behavior. In this study, we focus on foundation ownership, which is observed in large companies like Bosch and Bertelsmann (Germany), Maersk and Novo Nordisk (Denmark), Hershey (US), the Wallenberg companies (Sweden) and the Tata Group (India). Foundation ownership seems to be an institution suited to foster responsible business behavior because of muted profit incentives and long-term commitment to philanthropy and promotion of the company. Based on environmental, social, and governance (ESG) data from Asset4, Bloomberg and S&P Global and a unique dataset of publicly listed firms from 28 countries over the period 2003-2020, we investigate empirically, whether foundation-owned firms (FOFs) are more socially responsible and environmentally sustainable than firms with more conventional ownership structures. We find that FOFs exhibit higher ESG performance than matched family firms, and they do no worse than matched investor-owned firms. For identification we , use the 2008 financial crisis as a cut-off point in a difference-in-difference test. We show that foundation-owned companies' sustainability engagements is better able to withstand this negative shock.

Keywords: Ownership, Blockholder, Enterprise Foundations, Sustainability, Environmental, Social, and Governance (ESG), Corporate Governance.

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1. Introduction

The extent to which corporations rise to the challenge of business sustainability encompassing not just climate action, but also other UN sustainable development goals and corporate social responsibility broadly defined has emerged as a key strategic issue for managers. The business sector has been criticized for unsustainability (Sjåfell 2020), inequality (Piketty 2020), gender discrimination (European Parliament 2020) and greed (Collier and Kay 2020). Even Larry Fink, CEO of Blackrock, the largest asset management company globally, has called for action by companies to confront climate change and embrace the needs of a broad range of stakeholders (Fink, 2020).

In response, firms have implemented various CSR programs and sustainability initiatives, which have – however – often been separated from their core businesses, and which have not necessarily been very effective, as many business scandals show. This has led to suggestions for reforming the way companies work through a new corporate purpose (Edmans 2020, Henderson 2020, Mayer 2018, 2020, Business Roundtable, 2019) and more long-term governance (EU Commission 2020).

Enterprise foundations – foundations that own companies – have been mentioned as a paradigmatic example of sustainable governance. In this unique model, a controlling stock position is held by the non-profit foundation in a for-profit business company[4]. Foundations are entities without private economic incentives but aim to contribute to society by philanthropy and responsible business ownership. They are governed by the purpose articulated in the foundation charter, and as perpetuities, they take a long-run view of their business activities. This unique governance structure of enterprise foundations has recently attracted attention as an alternative to conventional for-profit ownership. A large number of well-established and highly successful companies are owned in this way – Novo Nordisk (Denmark), Ikea (Netherlands, Lichtenstein), Rolex (Switzerland), Associated British Foods (United Kingdom), Tata (India), or the Swedish Wallenberg companies.

Enterprise foundations enable continuous investments into R&D and human capital (Thomsen et al., 2018). Foundation-owned firms encourage better employee treatment and they tend to have better reputations than conventional companies (Børsting and Thomsen, 2017). Given these attractive characteristics as well as their pervasiveness, it is interesting to examine how foundation-owned companies might differ from their non-foundation-owned counterparts regarding sustainability performance. Do they promote responsible business behavior? Do they exhibit better sustainability than return-seeking investors or personal-benefit guided families?

Research on foundation ownership was previously focused primarily on financial viability and shareholder sustainability (Thomsen, 1996, 1999; Hermann & Franke, 2002; Thomsen & Rose, 2004; Dzansi, 2012; Hansmann & Thomsen, 2013; Børsting et al., 2014; Kuhn & Thomsen, 2015; Draheim & Franke, 2015; Achleitner et al., 2020; Block et al., 2020). So far, most studies

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[4] Strictly speaking, a foundation is a self-owning non-profit entity, which does not have outside owners and is created by the founder's irrevocable donation of shares or other assets to the foundation. It is governed by an independent board supervised by private courts or government regulators. Foundations which own a controlling share in a business company are defined as enterprise foundation regardless of their purpose (charity, business continuity, family support, etc.).

have focused on the implications of foundation ownership for profitability and valuation, although these metrics may not be the main objective of a firm, whose owner cares more about social welfare and survival. Thus far, there have been no empirical studies to examine whether foundation-owned firms are associated with greater environmental and social sustainability. In this paper, we aim to fill this gap. Using a unique, hand-collected dataset on listed foundation-owned companies matched with family- and investor-owned companies, we test whether foundation ownership is related to sustainability performance. In line with previous research in corporate governance (e.g., Chang et al. 2014; Eccles et al. 2014) and capital markets (Bassen & Senkl, 2011), we use environmental, social, and governance (ESG) ratings as measurement instruments to capture companies sustainability practices. We focus in particular on how foundation ownership is associated with corporate environmental and social sustainability (the E and S in ESG).

This study makes an important contribution to contemporary corporate governance research by testing whether enterprise foundations function as an institutional arrangement for more sustainable governance. Academic research has shown that firms forego sustainability investments in to meet short-term financial targets (Graham et al., 2005). The European Commission is currently contemplating legislation intended to reform European corporate governance to address this problem based on a recent report prepared by EY (EU Commission, 2020)[5]. Given that foundation-owned companies are closely related to discussions around long-termism and company purpose (Thomsen et al., 2018; Edmans, 2020; Henderson, 2020; Mayer, 2020; Business Roundtable, 2019), as well as the fact that enterprise foundations account for a large part of the market capitalization in some countries[6], it is important to examine whether they can promote corporate governance that is more conducive to sustainability. More broadly, in this study, we offer insights to regulators and policymakers, who intend to improve business sustainability.

The remainder of the paper is structured as follows: Section 2 reviews the current state of the literature revolving around corporate ownership and sustainability. Section 3, establishes the theoretical foundations and develops testable hypotheses on the sustainability of FOFs. Section 4 clarifies the process of data collection and construction of variables for the econometric analysis. In Section 5, the descriptive statistics are presented and the results of the statistical regressions are reported and analyzed. Section 6 provides a concluding discussion and suggests avenues for future research.

2. Literature review

A long-standing debate has been held about whether companies should make socially responsible investments. The classic agency perspective suggests that a good social performance reflects managerial agency problems since valuable resources are misused instead of being invested in value-adding (i.e. positive NPV) projects or being returned to shareholders (Friedman, 1970; Jensen and Meckling, 1976). Thus, the company should designate its resources to maximize shareholder wealth, which is its sole responsibility (Friedman, 1970).

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[5] According to the Commission, "the Study found a clear trend of short-termism in the focus of EU companies" (EU Commission, 2020).
[6] At the end of 2020, enterprise foundations accounted for approximately 40% of national market capitalization in Denmark.

By contrast, adherents of the stakeholder perspective argue that firms need to consider the interests of society at large, including those of employees, suppliers, and clients (Jensen, 2002, Freeman, 1984). To achieve the firms' ultimate goal of increasing long-term financial value firms cannot mistreat any important stakeholder group (Jensen, 2002). A related concept of shared value creation was introduced by Porter and Kramer (2011)[7].

More recent governance literature on company purpose (Mayer, 2020; Edmans, 2020; British Academy reports 2018, 2019) seems to suggest that the ultimate goal of companies is to create value for society as a whole rather than to maximize profits per se. Whereas the stakeholder model assumes that firms are instrumentally motivated to increase long-term profits, the purpose model assumes that firms are purpose-driven and intrinsically motivated to serve a societal need by providing goods and services (Mayer, 2019, 2020; Edmans, 2020; British Academy reports 2018, 2019). Purposeful firms recognize ways of solving problems and produce profits as a byproduct of serving the purpose (Mayer, 2019, 2020). Although the definition of such purpose varies, it often relates to the firm's raison d'etre, the problems it wants to solve, or what it wants to be. Such a purpose may also include good stakeholder treatment.

Foundation-owned companies have been mentioned as archetype models of the purposeful company in this discussion (Mayer, 2020). Although they generate profits for their shareholders just like other firms, their rationale is the fulfillment of their purpose by creating value for society in general. Unlike in public benefit corporations, the purpose articulated in the foundation charter is legally binding, and therefore, enterprise foundations constitute an ideal testing ground for investigating the social and environmental consequences of governance by company purpose.

The study of enterprise foundations is a relatively novel strand of research located within the general research area of corporate ownership, which also includes investor ownership, family business, coops, and other ownership forms (Hansmann, 1996). This branch of research compares the effects of alternative ownership structures on corporate behavior and performance. Governance research has associated corporate ownership with firm strategy and performance (Shleifer & Vishny, 1986; Thomsen & Pedersen, 2000). Thomsen and Pedersen (2000) posit that ''to match corporate strategy to corporate governance, strategists need to take into account the risk perceptions, time preferences, business relations, and social goals of large owners'' (Thomsen and Pedersen, 2000, p. 703). Academic evidence suggests that it is common in many countries to have large shareholders who actively exercise influence over corporate strategy and are involved in corporate decision-making (La Porta et al., 1999; Villalonga, 2018). Large shareholders have the incentives and ability to monitor firm decisions (Jensen & Meckling, 1976; Shleifer & Vishny, 1986). Examples of such shareholders encompass families, mutuals and pension funds, private equity firms, employees, and enterprise foundations. The cost of investments into sustainability initiatives is borne by these large owners (Cox et al., 2004) and they have the capacity to promote or restrict them.

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[7] Porter and Kramer (2011) define shared value creation as "policies and operating practices that enhance the competitiveness of a company while simultaneously advancing the economic and social conditions in the communities in which it operates''.

Therefore, owners are likely to be an important driver behind firm sustainability[8]. Empirically, Rees and Rodionova (2013) show that sustainability investments depend on owner identity and the particular ESG dimension.

Different owners typically have different goals and preferences for the firm. These, for the most part, depend on the time horizon of their investments. For instance, institutional investors seek to maximize financial returns on behalf of their constituents, family owners often seek to maximize their socio-economic wealth, and governments aim to improve societal welfare. At the same time, enterprise foundations usually seek the "longevity and independence" of the company explicitly or implicitly as their main purpose. Owners are an especially important driver of responsible business conduct to the degree that such behavior may be at the cost of financial returns (Villalonga, 2018).

Detached from corporate ownership, a substantial body of empirical literature links sustainability as reflected in ESG ratings to financial performance. Agency theorists would argue that strong social performance may causes the company to incur additional costs; effectively reducing shareholder welfare (Waddock & Graves, 1997). At the same time, research suggests that sustainability investments aid companies in maintaining a good corporate reputation, acquiring social legitimacy and developing trust amongst key stakeholder groups (Jo & Harjoto, 2012; Godfrey, 2005). However, it is unclear whether corporatye sustainability results in net value creation at the firm level and the perception of a trade-off between financial returns, and social performance may deter profit-driven owners from engaging in it. A review by Margolis et al. (2009) of 251 studies addressing the link between sustainability to financial performance shows that the overall impact is positive but small, with even smaller findings for the 106 studies from the most recent decade[9].

Bénabou and Tirole (2010), argue that "doing well by doing well" holds because high sustainability decreases the likelihood of accidents, improves a company's competitive market position, and attracts socially responsible stakeholders willing to exchange money for moral values. They suggest that socially responsible investors aim for long-term value creation and they take action to correct short-termism arising from inappropriately crafted incentives (e.g. executive pay).

Although the impact of foundation ownership on sustainability as reflected in publicly available scores of the environmental, social and governance (ESG) performance of firms remains unexplored, there is burgeoning literature on how different types of owners influence sustainability outcomes. A plethora of studies are concerned with the relationship between sustainability and ownership by families and investors. In the related literature on family ownership and sustainability, the results appear to be mixed. Cruz et al. (2014) on a sample of 598 listed firms find that family firms have a positive effect on social dimensions linked to external stakeholders, whereas they harm internal stakeholders. Butler and Roundy (2017) on

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[8] Although owners are likely to be important drivers of sustainability engagements, the extent to which owners succeed in implementing their varying preferences and agendas may depend on stakeholders and other shareholders (Villalonga, 2018).

[9] It is worth noting that these studies often suffer from methodological flaws including the measurement of sustainability as well as measurement errors in the dependent variables (ROE, ROA, and Tobin's Q) (Gregory, 2021).

a sample of 70 Fortune 500 firms covering the period 1994-2006 find that family firms underperform on the environmental and social dimension, while they outperform in diversity-related aspects. By contrast, Rees and Rodionova (2015) on a large sample from 46 countries over the period 2002–12 show that family ownership is negatively associated with sustainability on all dimensions. Dal Maso et al. (2020) provide evidence that a lack of investment into training and development explains almost half of the negative relationship between family blockholders and environmental performance. Theoretically, a salient argument for a positive link between family ownership and sustainability is the inherent long-term orientation of family owners, which is similar to the long time horizon of enterprise foundations, and should enable these firms to avoid losses due to short-termism and to engage in mutually beneficial implicit contracts with stakeholders (Cremers et al., 2016; Uhlaner et al., 2007). However, unlike enterprise foundations, family firms have return-seeking shareholders (the family) with the desire to protect socio-economic wealth and to appropriate private benefit; suggesting a potentially negative relationship between family ownership and sustainability engagement.

As regards the relationship between institutional ownership and sustainability, Dyck et al. (2018) find that institutional investors in 41 countries drive sustainability in particular in those countries where environmental and social issues are important. Mitra et al. (2018) provide empirical support to the argument that institutional investors act as promoters of sustainability in emerging market contexts. However, it is still unclear to which degree investors adhere to fully engaged impact investing instead of utilizing negative screening sustainability strategies.

With regards to the nature of institutional ownership, a growing body of research indicates that long-term institutional ownership positively affects the firm's sustainability engagements (e.g. Meng & Wang, 2020; Erhemjamts & Huang, 2019; Oikonomou et al., 2020; Gloßner, 2019), whilst short-term institutional ownership reduces sustainability engagements (Oikonomou et al., 2020; Des Jardine, 2019).

Previous research on foundation ownership is relatively sparse and has primarily focused on the consequences of foundation ownership for financial performance (Thomsen, 1996, 1999; Hermann & Franke, 2002; Thomsen & Rose, 2004; Dzansi, 2012; Hansmann & Thomsen, 2013; Børsting et al., 2014; Kuhn & Thomsen, 2015; Draheim & Franke, 2015; Achleitner et al., 2020; Block et al., 2020). In general, this literature concludes that the financial performance of foundation-owned firms is approximately the same as that of conventional companies. More recently, however, researchers have started to investigate other aspects of behavior including employment and governance by enterprise foundations. Børsting and Thomsen (2017) on a sample of Danish companies find that enterprise foundations have better reputations and are regarded as more responsible in corporate image ratings. Thomsen et al. (2018) find that foundation-owned companies have more stable governance with regards to management and ownership continuity, more conservative capital structures, lower return volatility, and higher R&D investments. They also show that foundation-owned companies have markedly longer survival rates - on average the length of life of a foundation-owned company is around three times longer than that of other firms. In other words, foundation-owned companies differ from conventional firms by emphasizing the survival of the company and by being less sensitive to short-termism. Hansmann and Thomsen (2021) investigate how the governance structure of enterprise foundations is related to their economic performance. They find that independence

between foundation board and company board, as well as other governance distance indicators, are associated with higher business profitability.

Notwithstanding, there is still a lot we do not know about the behavior of foundation-owned companies, in particular, whether they systemically display responsible business behavior. Our paper is foused on sustainability and therefore goes beyond Børsting and Thomsen (2017), who focus on labour relations. Also, compared to Børsting and Thomsen (2017), we study an international sample in a multi-country setting.

3. Theory development and hypotheses

In line with theoretical and empirical research (e.g. Berrone et al., 2010), we postulate that coporate owner are essential to corporate strategy and in turn to sustainability outcomes. Large shareholders actively control company management and therefore they are a major force for embedding sustainable policies into strategic planning processes (Villalonga & Amit, 2009). Enterprise foundations, who conduct their ownership with patience and a sense of responsibility, might be more inclined to make sustainability investments than e.g. financial investors, who seek to maximize the profitability of the firm in accordance with the mandate from their principals. Drawing on theories of committed ownership (Mayer, 2013; Mayer, 2018) and non-profit theories (Hansmann, 1980; Glaeser & Shleifer, 2001), we postulate that foundation ownership can be viewed as a binding commitment not to maximize profits at the expense of other stakeholders. We propose that there is a theoretical connection between ethical behavior and non-profit enterprise so that firms free of profit incentives act in a more socially responsible manner than profit-seeking counterparts.

3.1 The social orientation of enterprise foundations

Following Hansmann (1980), we argue that not-for-profit enterprises have muted incentives because they are barred from paying dividends. When consumers are uncertain about the quality of a product or service provided (information asymmetry), the producer can charge excessive prices for inferior goods because a reduction in quality cannot be detected by consumers, and consequently, a market failure occurs. If, however, consumers deal with a non-profit producer they might be considerably better off since it lacks the motive (i.e. incentive) to raise prices or reduce product quality; thereby facilitating contracting and improving societal welfare. Commitment to a non-profit status softens the incentives to maximize profits and, therefore, reassures the buyer that implicit promises will be upheld (Glaeser & Shleifer, 2001). Consequently, consumers may prefer dealing with non-profit firms. This argument ranges beyond customer relations, to relations with other economic stakeholders that are characterized by information asymmetries, including those with employees and suppliers. Although subsequent research shows that technological progress attenuates information asymmetries (Ben Nerr, 2002), contract failure is still a dominant rationale for the existence of non-profit organizations (Jegers, 2008).

Foundations have no profit-driven residual claimants and thus they could serve the same function (Thomsen, 2017). Although enterprise foundations are not non-profits in the conventional sense because they own profitable business companies, the non-profit foundation, which owns the (for profit) business company often has philanthropic goals. In the language of game theory (Schelling, 1960, 2005), foundation ownership can be seen as a commitment device sanctioned by government regulation. Theoretically, foundation-owned firms should be

more likely to honor explicit and implicit contracts with employees, suppliers or customers because they attach less weight to the extra profits (Thomsen, 2017). Since foundation ownership implies a very strong ownership commitment, stakeholders may prefer to contract with foundation-owned companies (Mayer, 2013). Stakeholders may also be more willing to invest in firm-specific skills at foundation-owned companies because these firms have fewer incentives to cut wages or other prerequisites.

The general charitable purpose of most enterprise foundations points in the same direction. For purpose-driven owners, it holds that economic rents are a means to an end rather than ends of themselves. Many foundation-owned companies pursue social as well as commercial goals. Although it is critical for enterprise foundations to earn profits to maintain their existence and finance their expansion (Alter, 2006; Boschee, 2006), their defining objective is often to solve social needs, contribute to the welfare of society and give back to their community. Campbell and Yeung (1991) suggest that purposeful firms produce more sustainable firm behavior than profit-driven counterparts. The pursuit of social goals emphasizes the use of resources for stakeholders' well-being and discourages firms from boosting short-term profits at the expense of stakeholders. It is worth noting that in some cases, provisions in the foundation charter obligate the foundation to take stakeholders' interests into account. As a result, foundation ownership is uniquely suited to commit to responsible business behavior.

3.2 Long-term Commitment and Sustainability

In line with Roe (2013), we argue that short-term ownership is a key determinant of short-term decision-making. Owing to institutional or behavioral biases the attention of decision-makers may be concentrated on present conditions while future conditions, fundamentals and long-term value creation are not taken into account. This adversely affects the environmental and social conduct of firms and prevents them from achieving sustainable development goals and business sustainability. Committed long-term owners have the power and incentives to take into account the long-run effects of their behavior including their sustainability since they are more likely to be around to face the consequences of their decisions (Thomsen et al., 2018). Bãnabou and Tirole (2010) develop a theoretical concept on the positive influence of long-term ownership on sustainability. They suggest that a socially responsible stance maximizes inter-temporal profits. Graves and Waddock (1994) duly note that sustainability is incompatible with the behavior of short-term-oriented firms. Benz et al. (2020), Erhemjamts and Huang (2019) and Oikonomou et al. (2020) empirically confirm that long-term ownership significantly encourages sustainability investments. As a result, social responsibility critically depends on the investment horizon. Companies with a more long-time horizon are more likely to make environmentally and socially responsible investments.

Enterprise foundations are long-term owners, by design, since their charters oblige them to company survival and long-term ownership (Thomsen et al., 2018). Building on previous work by Schelling (1960, 1985), foundation ownership may be regarded as a commitment to get future generations to irrevocably strive for the continuation of the company. Enterprise foundations are perpetuals, whose most important goal is to preserve their endowment (i.e. the business company) (Thomsen, 2017). Unlike firms, foundations cannot be dissolved (except in bankruptcy) as long as the purpose is still valid. Since ownership remains with the foundation, the travails of succession to new generations of the founding family are avoided or reduced. A myriad of business decisions involve a choice between impatient short-run options (e.g.

reducing sustainability investments to boost profits) and long-run options (e.g. continuous sustainability investments). Enterprise foundations will likely choose the long-run option in such situations since they have no dividend-demanding residual claimants, who favor short-run profitability over long-run survival and sustainability. Empirically, Thomsen et al. (2018) show that foundation-ownership is highly stable and long-term with fewer replacements in management, lower financial leverage, more constant financial returns, and growth rates as well as higher survival rates. They show that foundation-owned companies have longer time horizons than family firms, which have been found to have longer time horizons than investor-owned firms. Popadak (2013) finds that more patient capital is associated with a more productive corporate culture with less focus on short-term profits and greater a focus on customer satisfaction and integrity. Hillman and Keim (2001) argue that high sustainability can be value-creating in the long run as the firm builds strong stakeholder relationships. By analogy, survival-maximizing foundation-owned firms should make a substantial effort to increase sustainability. Chen et al. (2021) and Lin et al. (2021) show that ESG performance declines when managerial short-term incentives become stronger; which lends credence to the view that short-termism is brought about by agency-theory based compensation. The directors of an enterprise foundation generally do not receive incentive pay (e.g. stock-based compensation), which along with their long-term orientation is likely to foster virtues oriented towards future rewards including the engagement or investment in sustainability activities rather than the narrow focus on current profits.

### 3.3 Risk aversion and sustainability

Based on previous empirical work, we argue that sustainability investments by companies provide insurance against future risks[10](Hong & Liskovich, 2016; Rajhi & Albuquerque, 2017; Servaes & Tamayo, 2013). Jo and Harjoto (2012) show that by investing in ESG a firm can avoid costly stakeholder conflicts. Bhattacharya et al. (2020) provide evidence that ESG initiatives serve as a purchase risk mitigation function for clients. It is suggested that clients have greater confidence in the product and services of firms investing in ESG. Kuo et al. (2017) empirically show that risk-averse CEOs invest more in ESG activities. From a stakeholder perspective, the disregard of implicit stakeholder claims may lead to elevated risk (i.e. more uncertain explicit claims) in the contemporary litigious business environment (McGuire et al., 1988). By contrast, firms with high sustainability may benefit from good relationships with stakeholders including regulators, which contributes to the mitigation of regulatory risks. Consumer's preference for products and services of socially responsible firms over those of irresponsible ones is tenuous and therefore high sustainability firms may benefit from reduced earnings fluctuations owing to the accumulated reputational capital. At the same time, a growing number of capital providers consider a firm's sustainability as they conduct social responsibility screens (McGuire et al., 1988). Hence, low sustainability could restrict a firm's access to capital, which in turn contributes to greater financial risk. As a result, socially and environmentally responsible firms may be better positioned to attract capital and decrease the variability of their business returns.

If risk reduction is possible through sustainability engagements, then these could be particularly valuable for risk-averse firms. Enterprise foundations retain majority ownership in a single firm

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[10] The risk-reducing effect of sustainability investments is frequently referred to as "risk mitigation hypothesis".

and hence they bear idiosyncratic risk. Consequently, they should theoretically be more risk-averse than investor-owned companies (Fama & Jensen, 1985). Empirical research on Danish enterprise foundations confirms that foundation-owned firms have lower performance volatility (Hansmann and Thomsen, 2013) as well as lower financial risk (Thomsen et al., 2018). The preference for firm survival, which is often implicitly or explicitly expressed in the foundation charter points in the same direction. Unusually risky issues put the survival of the firm at risk and consequently, foundation-owned companies may employ risk mitigation through sustainability initiatives. If there is a trade-off between risk and return, it seems possible that foundation-owned firms will accept lower financial returns to increase their survival chances, for example by investing in long-term sustainability activities. Børsting and Thomsen (2017) find that foundation-owned firms have better reputations, which at least partly reflect better stakeholder evaluations. By maintaining a favorable reputation amongst stakeholders, not the least the employees, enterprise foundations can align interests toward the defined purpose and build lasting relationships; allowing for greater 'firm commitment' (Mayer, 2013). Turban and Greening (1997) and Dögl and Holtbrügge (2014) show a positive association between CSR and reputation. As a result, the good reputations of foundation-owned companies may reflect social and environmental responsibility.

Figure 1. A Conceptual framework for the effect of Foundation Ownership on Sustainability Engagement
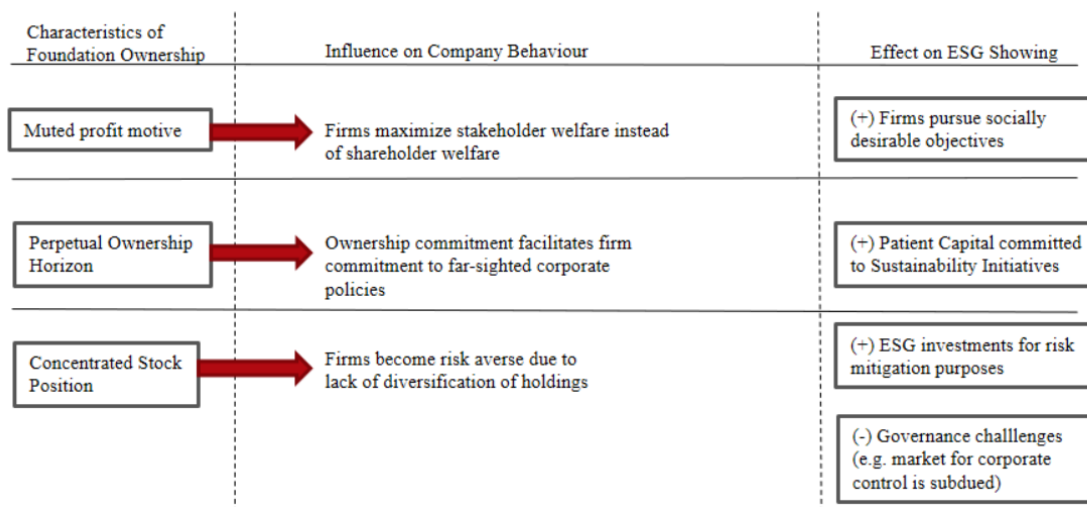
3.4 Hypotheses

One anecdotal illustration of responsible and long-sighted business behavior is provided by Robert Bosch. As a foundation-owned company, Bosch is sheltered from the quarterly pressure of investors, and its objective to ensure its company's survival through meaningful development is anchored in its purpose statement. Without the pressure from investors, Bosch could focus on fulfilling its purpose, and invest a larger part of its earnings into more expensive, green technologies decades before they became a trend. Although these investments significantly lowered the company's profitability in the short-term, they gave Bosch a market advantage and ensured its leading position in the field of industrial and technological

innovations in the long-term. Likewise, it reinforced Bosch's reputation as a good corporate citizen and as a trusted supplier[11].

While the case for foundation ownership and sustainability appears compelling, we acknowledge that there are potential counterarguments, which could make foundation-owned companies less sustainable. For example, the unwillingness to dilute ownership could cause foundation-owned companies to lay off employees and cut social expenditures under dire economic circumstances. However, empirical research shows that foundation-owned companies have greater cash buffers (i.e. more conservative capital structures), which should make them more resilient to demand shocks (Thomsen et al., 2018).

Based on structural factors (including long-term commitment, attenuated economic incentives and risk aversion) as well as anecdotal evidence it seems possible that foundation-owned firms display more responsible and sustainable business practices reflected in higher ESG scores. Hence, the following hypothesis is formulated:

Hypothesis (H1): *Foundation-ownership positively affects a firm's ESG performance, such that foundation-owned companies will display more socially responsible behavior than other comparable firms.*

Foundations can either be charitable or private foundations[12]. Families maintain at least some influence over the firm in private foundations and this structure is often used to avoid family conflicts (Achleitner et al., 2020). Family foundations are created to secure and promote the wealth of the descendants of the founder (Thomsen, 2017). Often the family receives the dividends from the foundation and frequently they are involved in the governance and management of the foundation (Block et al. 2020). Since families can obtain private benefits (e.g. dividend payments) they could be more inclined to extract value from revolving stakeholders such as employees and thereby violate implicit contracts. Previous research on family ownership and sustainability demonstrates that this is indeed the case (e.g. Rees and Rodionova, 2015). In contrast to family foundations, the objective of charitable foundations is to serve a societal need, its purpose is often to contribute to the achievement of social, ecological or scientific goals. For this reason, charitable foundations are expected to exhibit a higher level of stakeholder commitment and more responsible business behavior. We formulate the following hypothesis for empirical testing:

Hypothesis (H2): *Firms owned by a charitable foundation will display higher ESG performance than firms owned by a private foundation.*

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[11] As with any large enterprise, Bosch is not perfect across every dimension and was involved as a supplier in the diesel scandal led by VW (2015).

[12] Although most foundation-owned companies serve charitable purposes, the heterogeneous nature of the group of foundation-owned companies could affect firm sustainability, and, should therefore be studied separately.

4. Data and Methodology

In this section, we describe the sample selection and define the key variables of interest: foundation ownership and sustainability performance. Moreover, this section provides details on the data sources, control variables and regression models.

4.1 Data

Since sustainability ratings are in many cases restricted to listed companies, the sample contains listed foundation-owned firms from around the world, of which approximately 200 have been identified so far. Foundations with government-linked activities are removed, consistent with Thomsen et al. (2018) because business concerns may be secondary. Since the fundamentals of financial (SIC codes from 6000 to 6999) and utility (SIC codes from 4900 to 4999) companies are subject to heavy regulatory supervision, and therefore do not necessarily reflect the underlying economic characteristics, these firms have been excluded. Among the 57 foundation-controlled firms in our sample, 46 are controlled (in part) by a charitable foundation, while 11 are controlled (in part) by a private foundation.

To facilitate a fair comparison, listed foundation-owned companies are benchmarked with matched control groups of listed family and investor-owned companies. We use the nearest-neighbour matching method in terms of firm size (as measured by total assets) and industry (as measured by the two-digit standard industrial classification code). To illustrate the procedure, we matched Carlsberg, where the Carlsberg Foundation holds a majority stake, with Heineken, controlled by the Heineken family. Both firms focus on the sale and production of beverages and they are among the top four players in the brewery sector worldwide (Plenborg & Kinserdal, 2021). From these perspectives, they appear to be comparable[13].

The data on sustainability performance comes from Refinitiv Asset4, which has been widely used in international corporate governance studies (e.g. Surroca et al., 2010; Rees& Rodionova, 2015; Chatterji et al., 2016). Asset4 gathers information from annual reports, websites, sustainability as well as corporate governance reports, and has a wide coverage of the area of environment, social, and governance of publicly traded companies. Asset4 enjoys a relatively high, however, not the best level of credibility according to international rating agencies [14](Rahdari & Anvary Rostamy, 2015; SustainAbility&GlobeScan Inc., 2013). Notwithstanding, Asset4 has been utilized as the main data source in a plethora of research articles because it is readily available and very transparent with respect to the underlying methodology (Drempetic et al., 2020). In particular, we chose the Refinitiv Asset4 database because it provides the broadest coverage of publicly listed firms worldwide for the most extensive time series. Asset4 provides data on the individual ESG pillars and their sub-categories as well as on the aggregate level. The total ESG score can be defined as an aggregated value of the individual environmental, social, and governance factors and implies z-scoring and comparisons with the data points of other firms resulting in a relative measure of ESG performance. The ESG scores fall between 0 (lowest rank) and 100 (highest rank).

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[13] Nonetheless, we acknoweledge that in some cases it proofed more difficult to find a suitable peer company with conventional ownership structure. For example, we had to match the shipping conglomerate A. P. Møller-Maersk with Hapag Loyd (family-owned) and Nippon Suisan Kaisha (investor-owned), both of which are less known and of smaller firm size.

[14] To address concerns of single data source reliance raised in the literature (e.g. Chaterri et al., 2016), we cross-validate our results with alternative ESG data providers including Bloomberg and S&P Global.

Because consistent coverage by Asset4 begins in 2003, the sample ranges from 2003 to 2020 year-end. Finally, financial data has been obtained from Bloomberg. The final dataset is an unbalanced panel of 178 publicly listed firms (57 FoFs and 121 nFoFs) from 28 countries.

4.2 Variables

Dependent variables

To achieve the objective of this study and investigate the effect of foundation ownership on sustainability the following dependent variables are used: the ESG score as well as the ESG category scores ("Environmental", "Social" and "Governance"). In additional tests, we introduce firm-level variables including CO_2 Emission Intensity (CO_2/Revenue), the waste-recycling ratio and the Lost Time Injury Rate (LTIR), which are arguably more tangible measures of a company's environmental and social impact.

Independent and Control variables

The main independent variable is foundation ownership, which is measured by a dummy variable that assumes a value of 1 if a foundation is the largest owner in the company or 0 otherwise. To capture how the heterogeneous group of listed foundation-owned firms differs in terms of sustainability (H2) a foundation purpose dummy is introduced, which equals 1 for charitable foundations and 0 for private foundations.

Data on ownership was collected from annual reports as well as from Orbis, a Bureau van Dijk database, which obtains ownership information from press releases, regulatory bodies, and other external information providers. This study defines ownership based on voting rights, which can be obtained directly or indirectly through a chain of holdings. A company is defined as foundation-owned if a foundation is the largest shareholder, who owns at least 10% of the voting rights. In order to account for changes of ownership over the sample period and to validate for possible mismeasurement of the foundation-owned status, we manually inspected the annual and governance reports of each entity[15].

We control for additional variables which may affect firm sustainability to avoid model misspecification. Following previous research in this area, we the size of the firm measured by total assets both by matching and by statistical controls since larger firms arguably have more resources for sustainability investments (Graves & Waddock, 1994). To correct for skewness in the multivariate analysis the natural logarithm of total assets is taken. Since firms in better financial shape could possibly make larger sustainability investments we control for profitability measuered by return on assets (ROA), an accounting-based performance measure, computed by the ratio of EBITDA to total assets. We also use firm value, a market-based variable, measured by the sum of the stock market capitalization and the book value of debt as a ratio of total assets, as a control variable. It is frequently used in the financing and accounting literature and is defined as the ratio between a physical asset's market value and replacement value. In line with an extensive body of research, it is also important to control for financial leverage. More levered firms are likely to disclose more CSR information to mitigate agency

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[15] In addition, we cross-check ownership information of companies in our sample with the Holdings database, which has ownership data, however, with a focus on Nordic equity markets.

costs and effectively curtail their cost of capital (Jensen and Meckling, 1976). We measure leverage as (short and long-term) debt to total assets. Additionally, we control for knowledge intensity by scaling R&D expenditures by sales revenue. We control for cash holdings by scaling cash and short-term investments by the book value of total assets. These control variables have been employed in prior literature on firm sustainability (e.g. Bernardi&Stark, 2018; Aouadi&Marsat, 2018).

Next to these economic variables, to capture macroeconomic fluctuations and variation in the output over time year dummies (fixed effects) are introduced. Similarly, to control for industry variation industry dummies are introduced, which is determined by the two-digit numeric standard industrial classification (SIC) code. Finally, to control for variation due to the country-specific context country dummies are used. Appendix M provides a more detailed definition of the variables and data sources.

4.3 Baseline Regression

The estimation of the panel data with fixed effects is not possible due to the time-invariant nature of the ownership variable[16] and consequently, we use pooled OLS regression with standard errors clustered at the firm level to adjust for heteroscedasticity and firm-specific autocorrelation in estimation errors.

For testing the hypotheses, a pooled panel ordinary least squares (OLS) is estimated according to the following equation:

$ESG\ perf._{i,t} = \beta 0 + \beta 1\ FOF_{i,t} + \beta 2\ Firm\ Size_{i,t-1} + \beta 3\ Firm\ Value_{i,t} + \beta 4\ Leverage_{i,t} + \beta 5\ ROA_{i,t} + \beta 6\ Cash\ holdings_{i,t} + \beta 7\ R\&D/Sales_{i,t} + \beta 8\ Industry + \beta 9\ Country + \beta 10\ Year + \varepsilon_{i,t}$, where ESG, our dependent variable, is one of the ESG scores, FOF, our independent variable, is a dummy variable which is equal to 1 if the controlling owner is a foundation and 0 otherwise, followed by the control variables and the error vector. Industry, country and year are the respective fixed effects. The standard errors are clustered for firm effects.

5. Descriptive Statistics and regression results

As a preliminary analysis, the dataset will be introduced and, subsequently, the regression results will be discussed. Figure 2 shows the mean ESG performance over time. Notably, there is an upwards trend in the mean ESG score of all sample firms, which increases from 34 (2003) to 58 (2020). Foundation-owned firms experience a large improvement in ESG performance between 2008 and 2010. Altogether, on average, foundation-owned companies show significantly better ESG performance than their non-foundation-owned counterparts.

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[16] Nonetheless, by interacting the foundation ownership variable with a time-varying variable, we run a fixed effects model as a robustness test.

Figure 2. ESG Development FoFs vs nFoFs
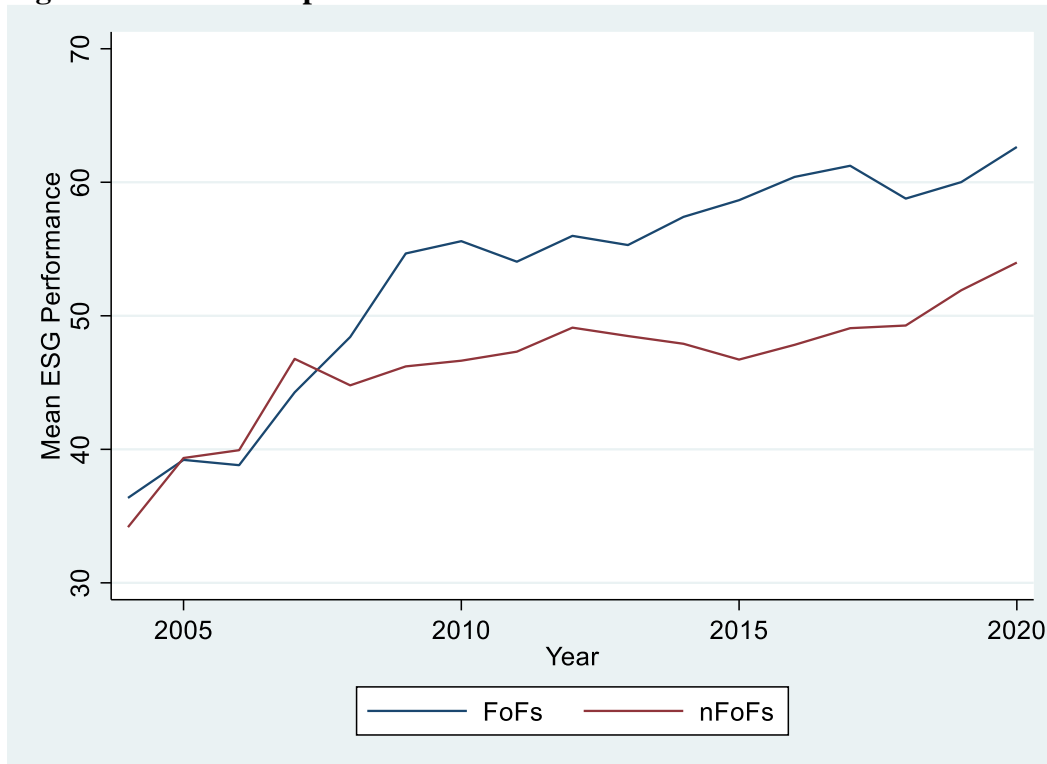
Table A displays the Pearson correlation matrix for the dependent and independent variables, which helps to check the statistical relationship and whether there is any sign of collinearity. At first glance, we see from the bolded numbers that foundation ownership is positively correlated with ESG performance. The correlation coefficient between ESG and foundation ownership is 0.172 statistically significant at the 1% level. Similarly, the individual environmental and social scores are positively correlated with foundation ownership, not, however, the governance dimension. Notably, the magnitude of the correlation coefficient is largest on the social dimension (0.203). In addition to the correlations, we also computed variance inflation factors (VIF). The results indicate that multi-collinearity is unlikely to be an issue for our study. The average VIF is 1.4 and the maximum is 2.1 (firm value variable). The correlations support our argument that foundation-owned companies are more likely to encourage sustainability investments.

Table A. Pairwise Correlation Coefficients of Key Variables

Variables	VIF	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) FOF	**1.1**	1.000										
(2) ESG		**0.172**	1.000									
		(0.000)										
(3) ENV		**0.170**	**0.872**	1.000								
		(0.000)	(0.000)									
(4) SOC		**0.203**	**0.906**	**0.728**	1.000							
		(0.000)	(0.000)	(0.000)								
(5) GOV		0.002	**0.651**	**0.379**	**0.402**	1.000						
		(0.922)	(0.000)	(0.000)	(0.000)							
(6) ROA	**1.71**	**0.107**	0.006	**0.050**	-0.034	-0.004	1.000					
		(0.000)	(0.807)	(0.048)	(0.182)	(0.886)						
(7) Firm Value	**2.14**	0.039	**-0.072**	**-0.078**	-0.043	**-0.091**	**0.080**	1.000				
		(0.120)	(0.004)	(0.002)	(0.092)	(0.000)	(0.002)					
(8) Leverage	**1.27**	**-0.144**	-0.002	**-0.058**	-0.010	**0.082**	-0.005	**-0.047**	1.000			
		(0.000)	(0.921)	(0.021)	(0.681)	(0.001)	(0.831)	(0.063)				
(9) R&D/Sales	**1.37**	0.012	-0.007	-0.039	0.024	-0.017	**-0.480**	**0.409**	-0.040	1.000		
		(0.635)	(0.802)	(0.131)	(0.365)	(0.518)	(0.000)	(0.000)	(0.126)			
(10)Cash holdings	**1.2**	**-0.083**	**-0.175**	**-0.183**	**-0.158**	**-0.073**	**-0.140**	**0.345**	**-0.183**	**0.180**	1.000	
		(0.001)	(0.000)	(0.000)	(0.000)	(0.005)	(0.000)	(0.000)	(0.000)	(0.000)		
(11) Firm size	**1.18**	**0.043**	**0.480**	**0.447**	**0.409**	**0.323**	**-0.052**	**-0.300**	**0.133**	**-0.078**	**-0.152**	1.000
		(0.089)	(0.000)	(0.000)	(0.000)	(0.000)	(0.039)	(0.000)	(0.000)	(0.003)	(0.000)	

Correlations with statistical significance are highlighted in bold

Unsurprisingly, ENV, SOC, and GOV as components of the aggregated ESG score are positively and significantly linked to each other. The social and environmental dimensions show a much stronger correlation with the aggregated score (0.87 and 0.91 respectively) than the governance dimension does with the aggregated score (0.65). Regarding firm-level variables, the figure displays a positive correlation between foundation ownership and accounting profitability (ROA) and firm size, an insignificant link of foundation ownership to R&D/Sales and a negative, significant link to leverage and cash holdings. None of the inter-correlations among the independent variables appear problematic as their range falls comfortably between -0.5 and 0.5, far below the critical value of 0.8 defined by Gujarati (2009).

Table B. Descriptive statistics by Owner Type

Foundation	N	mean	median	min	max	sd
ESG	498	55.073	56.509	3.204	93.569	19.288
ENV	498	53.655	56.166	0	98.346	25.59
SOC	498	58.972	62.568	1.61	98.029	22.698
GOV	498	49.562	49.76	2.407	98.472	22.14
ROA	497	.141	.119	-.255	.578	.088
Firm value	492	1.792	1.206	.36	12.253	1.639
Leverage	496	.221	.207	0	.646	.129
R&D/Sales	464	.045	.016	0	.558	.067
Cash holdings	469	.107	.08	.008	.589	.089
Firm size	497	8.732	8.532	3.727	12.462	1.338
Family						
ESG	496	45.751	46.143	3.61	92.384	20.063
ENV	496	44.416	47.685	0	94.588	27.242
SOC	496	46.423	46.283	.684	97.467	23.161
GOV	496	45.693	44.442	4.318	93.474	22.063
ROA	495	.126	.123	-.193	.439	.07
Firm value	490	1.473	1.179	.311	8.235	1.097
Leverage	496	.265	.248	.002	.955	.169
R&D/Sales	452	.03	.01	0	.552	.054
Cash holdings	470	.129	.095	0	.643	.102
Firm size	496	8.679	8.64	6.207	11.649	1.11
Investor						
ESG	590	48.9	48.901	6.372	92.325	20.88
ENV	590	42.645	42.291	0	96.915	29.182
SOC	590	50.125	48.544	1.647	96.164	24.458
GOV	590	52.602	54.66	2.861	94.337	21.343
ROA	588	.11	.111	-1.749	.468	.136
Firm value	583	1.774	1.166	.127	35.524	2.393
Leverage	588	.27	.255	0	1.033	.152
R&D/Sales	552	.047	.012	0	7.506	.324
Cash holdings	565	.124	.09	.004	.908	.12
Firm size	589	8.561	8.508	5.092	11.465	1.318

Table 1 shows summary statistics of the main variables used, including the key dependent variables (ESG, ENV, SOC and GOV) as well as explanatory variables (Size, ROA, Leverage, R&D/Sales, Firm Value and Cash holdings).

Table B shows the descriptive statistics of the variables included in the regression model. Notably, on the aggregate level, foundation-owned firms have slightly higher median ESG performance ratings (57) than family-owned firms (46) and investor-owned firms (49). The mean and median values of the dependent variable ESG are relatively similar denoting a normal distribution. However, it is noticeable that there is a relatively high divergence in ESG levels across firms in the sample as the minimum is 0 and the maximum 98 in various instances. This discrepancy suggests that various companies are still reluctant to assume environmental/social responsibility and good governance, while few firms embrace best-practice sustainability standards. The observed ESG values are similar to the works of Ioannou and Serafeim (2012) and Pekovic and Vogt (2020), who have also utilized Asset4 data.

The analysis of the firm-level financial characteristics shows that compared to both investor-owned and family-owned firms, foundation-owned firms use significantly less leverage consistent with Thomsen et al. (2018), hold less cash but are more profitable (in terms of ROA). Also, foundation-owned firms tend to be more knowledge-intensive and tend to have higher firm values than family-owned firms.

To test whether the differences between foundation-owned companies and control firms are statistically significant, we perform a univariate analysis consisting of a parametric test (t-test) and a non-parametric test (Mann-Whitney U-Test). The results of these tests are presented in Appendix A. Both tests show that the differences are statistically significant on the aggregate level. When we decompose the total ESG score into the individual dimensions, we find that foundation-owned firms do significantly better (p<.001) on the social and environmental dimensions (58 and 54 respectively) than their non-foundation-owned counterparts (48 and 43 respectively). However, consistent with the descriptive statistics shown above we do not find significant differences in the dimension of governance between the owner groups. This might be due to the unconventional governance practices of foundation-owned firms involving the employment of shares with superior voting rights as well as a self-appointed board of directors.

Table C. Regression Results FoFs vs. Family Firms

VARIABLES	(1) ESG	(2) ENV	(3) SOC	(4) GOV
FOF	10.05**	9.853*	13.08***	5.501
	(4.576)	(5.611)	(4.428)	(6.271)
Leverage	1.528	-6.232	-0.00327	7.501
	(8.752)	(14.15)	(10.64)	(11.30)
Firm size	9.548***	10.09***	9.985***	8.795***
	(1.064)	(1.580)	(1.158)	(1.525)
Cash holdings	-37.26***	-52.46***	-39.64***	-20.06
	(11.50)	(16.03)	(12.64)	(15.82)
Firm value	0.833	1.117	0.274	1.097
	(1.053)	(1.387)	(1.274)	(1.464)
R&D/Sales	38.09	29.02	48.91	21.04
	(25.53)	(28.63)	(32.04)	(24.90)
ROA	26.16*	45.21*	36.74**	-9.654
	(15.01)	(26.57)	(17.70)	(18.73)
Constant	-73.69***	-73.18***	-77.78***	-68.60***
	(13.08)	(19.15)	(13.37)	(17.67)
Time (year) eff.	Yes	Yes	Yes	Yes
Country effects	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes
Observations	868	868	868	868
R-squared	0.666	0.612	0.645	0.483

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

This panel presents the results of OLS estimations of ESG performance for the period 2003 to 2020. Firm-clustered standard errors are reported in the parentheses. The dependent variables are the ESG, environmental (ENV), social (SOC) and governance (GOV) variables over the sample period. The control group consists of family-owned firms. Control variables are leverage, profitability (ROA), firm value, firm size (natural logarithm of total assets), Cash holdings, R&D/Sales and industry, country and year fixed effects.

Table C presents the initial results of the panel data analysis of the environmental, social, and governance performance of foundation-owned firms. The benchmark group consists of firms with personal ownership (i.e. family-owned firms). Consistent with the univariate results reported earlier, foundation ownership is found to be positively associated with ESG

performance with statistical significance at a 5% level. Since the dependent variable (ESG) is standardized on a scale from 0 to 100, the coefficient is directly interpretable as a percentage. That is, on average foundation-owned firms receive an ESG score that is 10 percent higher relative to their industry peers after controlling for observable firm characteristics. The regressions reveal that foundation-owned companies typically conduct business in a more responsible way than personal-benefit guided families. The result is consistent with past research on foundation ownership (e.g. Børsting and Thomsen, 2017). Besides, this result provides empirical support for hypothesis 1. Consistent with previous studies (e.g. Rees & Rodinova, 2015) a positive result is found for firm size (as proxied by the natural logarithm of assets) and a negative, statistically significant result is found for cash holdings. Insignificant effects are denoted for leverage, ROA, firm value and knowledge intensity.

Next, the individual ESG components are examined. Empirically, the question is posed: Where does the base finding come from? The construction of the Asset4 aggregated score makes it possible to break it down into the individual environmental, social and governance areas. Overall, it is shown that there is an economically and statistically significant positive effect of foundation ownership on the individual social and environmental dimensions, indicating that foundation ownership encourages better social behavior and higher environmental responsibility. On the social dimension, the magnitude of the coefficient is a respectable 13 with significance at the 1% level. In the dimension of governance we find a positive, but a statistically insignificant estimate. As discussed previously the insignificant estimate on the governance dimension is not entirely surprising given the peculiar governance characteristics of enterprise foundations (e.g. foundation-owned companies often use dual class shares and use their votes to prevent takeovers). The overall positive effect of foundation ownership is found to be mainly driven by the "Social" dimension. This is intuitive since enterprise foundations are bound to be socially responsible owners by their charter. Moreover, from the output, it can be seen that the independent variables can explain 67% of the changes in the dependent variable ESG (Model 1), while the predictive power is as low as 48% on the governance dimension.

To further investigate, whether our results are driven by particular elements of the ESG metrics provided by Refinitiv Asset4, we substitute the aggregated ESG dimension scores with their sub-components (Appendix E). Although we have access to the underlying elements, which are utilized to compute the aggregated ESG scores, we prefer the use of the main scores because they were created to meet the needs of institutional investors. The environmental score is composed of three components, namely, emissions, production innovation and resource use (Refinitiv, 2021). The social score consists of four components: workforce, human rights, community and product responsibility. Lastly, governance is composed of three dimensions: management, shareholders, and CSR strategy.

On the social dimension, we find that the human rights variable is significantly positively associated with foundation ownership. The foundation ownership coefficient is of considerable magnitude and statistically significant at a 5% level suggesting that the average foundation-owned firm has 15 points more on the human rights dimension. This suggests that foundation-owned companies have higher effectiveness in terms of respecting fundamental human rights conventions. Similarly, product responsibility and workforce have a significant positive relationship with foundation ownership (at the 1% and 10% level respectively). In principle, a high product responsibility score reflects a strong capacity to produce quality goods and

services, while a high workforce score reflects the effectiveness of foundation-owned firms in terms of providing job satisfaction and equal opportunities or development opportunities for their workforce. Consistent with the findings in table C, we see an insignificant relation between foundation ownership and all elements on the corporate governance dimension (management, shareholders and CSR strategy).

Altogether, foundation ownership appears to foster more socially responsible business behavior. The empirical findings lend credence to the hypothesis laid forward by Hansmann (1980) and Glaeser and Shleifer (2001) on non-profit enterprise and commitment. All else being equal, a foundation-owned firm appears to be less prone to renege on implicit contracts with stakeholders.

Appendix C shows the regression results when the benchmark group consists of investor-owned firms. The foundation ownership coefficient is statistically irrelevant on the aggregated as well as on the individual dimensions (except marginal significance on the governance dimension) suggesting that the ESG performance of foundation-owned firms is similar to that of matched investor-owned firms after controlling for observable firm characteristics.

A possible explanation for this finding is that financial investorscan choose to invest in companies with high ESG ratings whereas foundation-owners are generally stuck with a particular firm, in which they are bound by their foundation charter to be the majority or at least a dominant shareholder. Thus, foundation-owned firms might be less pressured to disclose ESG figures for investor relation management by investor groups. Given that ESG performance critically depends on the disclosure of ESG information, lower levels of ESG disclosure among foundation-owned firms might, in part, explain the insignificant performance difference.

Table D. Alternative Measures of Sustainability Engagements (FoFs vs nFoFs)

VARIABLES	(1) Employee satisfaction	(2) C02 Emmissions Intensity	(3) Waste Recycling ratio	(4) CSR committee	(5) LTIR (Employees)	(6) LTIR (All Contractors)
FOF	4.282**	-59.11**	0.0547**	-0.521**	-1.611***	-0.828**
	(1.925)	(25.09)	(0.0229)	(0.235)	(0.499)	(0.402)
Firm Size	-0.272	-1.559	-0.0157*	0.885***	-0.791***	-0.675***
	(0.768)	(9.002)	(0.00834)	(0.0716)	(0.133)	(0.148)
Leverage	5.223	117.4	-0.139**	1.094**	1.060	1.884*
	(5.260)	(88.14)	(0.0619)	(0.473)	(1.100)	(1.118)
Firm value	-0.395	-18.34**	0.0412***	0.136**	-0.585***	-0.474***
	(0.490)	(8.829)	(0.0105)	(0.0573)	(0.167)	(0.152)
ROA	34.73***	-7.855	0.393**	2.249**	8.113***	8.353***
	(10.26)	(203.3)	(0.159)	(0.993)	(2.036)	(2.102)
Cash holdings	-2.882	-334.1***	-0.574***	-2.821***	-5.579***	-6.008***
	(7.690)	(98.33)	(0.0846)	(0.755)	(1.832)	(2.307)
Constant	45.96***	335.3***	-0.142	-23.52***	29.12***	22.22***
	(6.002)	(92.89)	(0.144)	(1.404)	(10.17)	(4.299)
Time (year) eff.	Yes	Yes	Yes	Yes	Yes	Yes
Country effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	311	1,395	864	2,173	801	884
R-squared	0.582	0.596	0.621		0.614	0.575

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

This panel presents the results of panel OLS estimations (except a Logit for model 4) of Sustainability Performance Measures for the period 2003 to 2020. The dependent variables are employee satisfaction, CO2 Emissions Intensity, Waste Recycling Ration, LTIR (employees) and LTIR (all stakeholders) over the sample period. The control group consists of family-owned firms. Control variables are leverage, profitability (ROA), firm value, firm size (natural logarithm of total assets), Cash holdings, and industry, country and year fixed effects.

Table D presents results for other outcomes that we expect to be related to business sustainability. In particular, we examined whether foundation ownership is associated with employee satisfaction, CO2 emissions intensity, the waste-recycling ratio, CSR committees and the lost time injury rate (LTIR). Consistent with our previous findings, job satisfaction is found to be significantly higher in foundation-owned companies. In Model 1, the coefficient estimate is 4.3, meaning that on average, and after controlling for observable firm characteristics, employees of foundation-owned firms are 4.3% more satisfied. Because of limited data availability on employee satisfaction our sample size is reduced by more than a half. In addition, we find that CO2 emission intensity, a measure that speaks directly to climate change issues, decreases with foundation ownership. Moreover, model 3 suggests that foundation-owned companies are more efficient in recycling their waste. At the same time, the marginal effects shown in Appendix K suggest that foundation-owned companies are 7% less likely to have a sustainability committee than other firms. In conjunction with the previous

results, this finding questions the relevance of CSR committees in achieving sustainability goals.

Finally, we examine the Lost Time Injury Rate (LTIR) for employees as well as for all of the firm's contractors. The estimations reveal that foundation-owned companies have a significantly lower occurrence of injuries among their employees (Model 5) as well as among the pool of all contractual partners including suppliers, employees and sub-contractors (Model 6).

One explanation for our finding that foundation ownership is beneficial to sustainability is that ownership commitment by enterprise foundations facilitates firm commitment to long-sighted, sustainable corporate policies.

Foundation Purpose

In Appendix D, we examine the impact of foundation purpose on ESG performance. The coefficient of determination shows that the independent variables explain around 76% of the variation in the dependent variable "ESG" (Model 1). It can be seen that the charitable foundation coefficient is positive (except for the governance dimension, Model 4). A charitable foundation purpose has a positive, statistically significant effect ($p<.05$) on the environmental showing of foundation-owned companies. This might be because family members in private foundations are inclined to extract value in the form of dividend payments rather than to re-invest in environmental initiatives.

However, on the other dimensions, the charitable foundation coefficient is statistically irrelevant after controlling for observable firm characteristics. This result shall be interpreted with caution given the very limited number of firm-year observations (N=72) of entities owned by family foundations in our sample.

Insofar the empirical results only in part support our hypothesis 2.

Identification: Evidence from the Financial Crisis

Studying the relationship between foundation ownership and firm sustainability gives rise to an endogeneity problem. More specifically, the causal effect of foundation ownership on firm sustainability is uncertain since selection effects may be at work. In the case of foundation ownership, founders of sustainable and socially responsible firms could be more prone to establish enterprise foundations and hence ESG performance may drive foundation ownership rather than vice versa[17]. Empirical identification of the effect of foundation ownership on sustainability is challenging because foundation ownership is very stable so it is difficult to use changes over time to estimate causal effects. In order to mitigate the endogeneity difficulty inherent in conventional regression modelling, we have to devise an identification strategy. For this purpose, we use the financial crisis of 2008 to set up a difference-in-difference analysis. We estimate the following model to examine whether there is a significant change in the relation between foundation ownership and sustainability engagements after the global economic crisis.

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[17] Nevertheless, one should take into account that most entprise foundations were formed decades ago before our sample period for reasons unrelated to sustainability issues, which tend to be more recent.

$$ESG\ Perf_t\ =\ \beta 0\ +\ \beta 1 FoF_t\ +\ \beta 2 Post-Crisis\ t\ +\ \beta 3 Post-Crisis\ t \times FoF_t\ +\ X_t$$
$$+\ Year\ Fixed\ Effects\ +\ \epsilon i$$

where ESG Performance is our outcome variable, FOF is a dummy variable for foundation-owned firms, Post is a dummy variable set to one in the period after the crisis (2009-2014)[18] and X is a vector of control variables. The control variables are the firm financial characteristics introduced in section 4.2. We include time and firm-fixed effects and cluster standard errors at the firm-level.

The global economic meltdown

Against a backdrop of the global financial crisis, there has been a backlash of globalization and free-trade (Colantone et al., 2021), a jump in populism (Guiso et al., 2021), and a credit contraction (Bijlsma Dubovik & Straathof 2013; Giebel & Kraft 2020). The period of challenge called for cost efficiency and an ensuing reduction in funding of projects that are not sufficiently tied to the immediate bottom line. The 2008 global crash had profound effects on a firm's investments into sustainability initiatives since firm behavior is presumed to become more conservative and defensive in times of crisis (Cheney et al., 1990). Shareholder-value maximizing firms, under financial constraints, were under pressure to reduce costs in order to maintain financial performance at an acceptable level (Yelkikanat & Kose, 2012). The immediate consequences for firms trying to meet shareholder's expectations (budget cuts, financial value maximization) may be the cancellation or delay of many sustainability efforts.

At the same time, enterprise foundations continued to be committed to sustainability initiatives since they are protected from shareholder pressure to maximize short-term profits, which possibly withheld these firms from undertaking significant budgets cuts with regards to social and environmental initiatives. Additionally, given that firm survival is the most important objective for enterprise foundations (Thomsen et al., 2018), it is a key concern for them to not breach stakeholder trust in downsizing and reducing employee benefits to avoid adverse reputational implications (Love and Kraatz, 2017). Based on the above, we argue that the effect of the financial crisis on sustainability engagements is moderated by the firm's ownership type, that is, foundation-owned or not.

Results

It is important to our identification strategy that the parallel trend assumption holds and that the crisis was not anticipated. Figure 3 and Table E lend support to the parallel trend assumption suggesting that prior to the economic meltdown foundation-owned firms were performing on-par with their non-foundation-owned counterparts and that they only started to fare significantly better after the financial crisis had already materialized. The Granger causality test indicates that there is no effect in anticipation of the treatment (Appendix L).

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[18] Although different countries were affected by the financial crisis in different time periods and with varying intensity, we define 2008 as the crisis year, where the financial crisis was on its peak. 2009-2014 is considered as the post-financial-crisis period.

Table E. ESG Performance surrounding the Crisis

| | N | FoFs | | nFoFs | | | |
		Mean	N		Mean	Difference in means	t-stat
ESG (Pre-crisis)	22	45.222	52		44.304	0.91801	0.998
ESG (Post-Crisis)	132	59.074	312		53.771	5.303***	2.874***

*Note. This table presents t-tests of means on the ESG performance of FOFs (as well as the control group) surrounding the global financial crisis***, ** and * denote significance at the 1%, 5% and 10% levels, respectively.*

We estimate the regression model of ESG performance during the crisis as a function of firm ownership type and a number of control variables. Our variable of interest is foundation ownership, in particular, the interaction term *Post-Crisis × FOF* is used to test whether foundation-owned companies' sustainability engagements were more resilient to the global economic shock than those of their non-foundation-owned counterparts. We expect the interaction term to be significantly positive because foundation-owned companies should be under lower shareholder pressure to slow down or even cancel sustainability engagements. As shown in columns 1-2 in Table F, we find a positive and significant coefficient of the interaction term, indicating that foundation-owned companies increased their efforts towards addressing sustainability issues significantly more than their non-foundation-owned counterparts. The results provide statistical support for the crisis effects exhibited in figure 2. In terms of economic significance, the estimated coefficient suggests that foundation-owned firms increased their ESG performance by on average 5.4 (Model 1) or 5.8 (Model 2) percent after the financial crisis compared with the reference group of profit-seeking investors and individuals.

Overall, the results in Table F suggest that foundation-owned continue to increase their environmental and social engagements even during times of economic malaise. This supplements our evidence in Tables C and D and is consistent with foundation ownership impacting sustainability performance and not the reverse.

Table F. Difference-in-differences analyses on ESG Performance

	Model 1 (Full)	Model 2 (Restricted)
FOF×Post-Crisis	5.389**	5.819**
	(2.653)	(2.671)
Firm Controls	Yes	Yes (except the firm age variable)
Year effects	Yes	Yes
Firm Fixed Effects	Yes	Yes
Standard errors clustered by	Firm	Firm
Observations	563	479

*Notes. This table examines FOF's sustainability engagements around the global financial crisis regressing ESG performance (dependent variable) on foundation ownership (FOF) along with other control variables (but we omit the coefficients for brevity). Firm controls include leverage, profitability (ROA), firm value, firm size (natural logarithm of total assets), Cash holdings and age (Model 2). The sample period is 2007-2014. Robust standard errors (in parentheses) are clustered at the firm-level. *, **, and *** denotes significance at the 10%, 5%, and 1% level, respectively.*

Robustness checks

To test the robustness of our findings, in particular, the regressions shown in Table C, we have applied four alterations to our estimations. Firstly, we check for potential issues stemming from selection by estimating a similar set of regressions using a two-stage Heckman procedure. We ran a Probit regression model with the binary foundation-ownership dummy as a dependent variable, which equals 1 if the firm is foundation-owned and 0 otherwise, considering relevant firm level predictors from the baseline model (leverage, firm size, ROA, cash holdings, firm value and R&D/Sales). Heckman's estimator necessitates an exogenous variable that is correlated with a firm's probability of being foundation-owned but not correlated with ESG performance (outcome variable). We utilize firm age (in years) based on previous research by Thomsen et al. (2018), which has shown that foundation-owned firms have a higher probability of survival. By using the inverse Mills ratio (IMR) as an independent variable, the regression adjusts for endogeneity regarding foundation ownership. The IMR is computed from the Probit model and is included in the second-stage regression as an additional regressor. Appendix F reports the second-stage regression results of the Heckman model. Notably, when the IMR is included foundation ownership still has a significant, positive impact on ESG performance (including the environmental and social dimension) demonstrating that foundation ownership encourages the firms' willingness to engage in sustainability activities. The IMR is statistically significant in the model, where environmental performance is the dependent variable, implying that single-equation estimates are biased. Because of the presence of IMR in our baseline equation, the estimated foundation owner effect is assumed to be unbiased. It, therefore, offers a further layer of support of a resilient effect of foundation ownership on firm sustainability.

Secondly, we checked the results with the combined ESG score from S&P Global. S&P Global provides a combined ESG evaluation score falling between 0 (lowest rank) and 100 (highest rank). In contrast to other rating agencies, S&P Global does not only focus on public information, rather it completes the rating with questionnaires. The verification and evaluation of the questionnaires possibly ensure a higher data quality than only relying on public information (Drempetic et al., 2020). At the same time, purely relying on data from the company raises reliability concerns (Windolph, 2011; Dando, 2003). S&P supplements the survey data with an analysis of events and issues that surfaced in the media and online channels (S&P, 2020). S&P Global relies on, for instance, the Global Reporting Initiative (GRI) and the Climate Disclosure Project for the sourcing of the data, which both comprise highly trusted sources. This robustness test serves as a confirmation that the results are not driven by the particular composition of the ESG data provided by Asset4. Considering appendix I, in models 1 to 2 we investigate the impact of foundation ownership on the aggregated ESG score and find a strong and significant positive relationship when benchmarked with comparable family firms. It is, however, worth noting that firm size has a lower effect on the ESG score, which can be observed in the lower magnitude of the firm size coefficient (3.8). This suggests that the questionnaires provided by S&P Global somewhat favor larger firms less than the methodology adopted by the Asset4 database, which only requires public information.

In addition, we utilize the ESG disclosure ratings provided by Bloomberg for robustness, which range from 0 (no disclosure) to 100 (complete disclosure). Bloomberg's proprietary ratings reflect all publicly available information on firm sustainability practices. In appendix I (Models 3 to 6), we can see that there is a positive and significant effect of foundation ownership on "ESG Disclosure" and the "Social Disclosure" score. Notably, the magnitude of the foundation

ownership coefficient is considerably lower, which we interpret as evidence that foundation-owned firms are somewhat reluctant to report on their ESG activities.

At the same time, in Appendix J, we find an insignificant relation between foundation ownership and ESG when the benchmark group is comprised of investor-owned firms, consistent with the results in Appendix C. The results suggest that the ESG performance of foundation-owned firms is not significantly different from that of investor-owned counterparts.

Thirdly, in Appendix G, a similar set of panel regressions have been estimated, however with a different estimation technique (company fixed effects). Given that the fixed-effects specification can only comprise time-varying entries and variables, a time-constant variable such as foundation ownership, which varies only by company, would without interaction drop out in panel data estimation. Hence, these models include an interaction term constructed by multiplying the foundation ownership dummy with the ratio between total equity and total assets. The idea is that foundation ownership yields a higher increase in ESG performance for firms with a higher equity share. In line with the financial constraint hypothesis, the relationship between ESG and equity share is expected to be positive (Tan et al., 2021). Previous research by Thomsen et al. (2018) has shown that foundation-owned companies operate with a higher equity share. The interaction term for foundation-owned firms is statistically significant at the 5% level in Models 1, 3 and 4 indicating that foundation-owned firms conduct business more responsibly using higher equity shares than family-owned counterparts. The high equity share adopted by enterprise foundations is an indicator of long-termism since short-term profit maximizers are likely to leverage up to boost profits at the expense of elevated financial risk. Congruent with our expectations, foundation-owned firms have greater risk aversion, which might in part be attributable to their long-term ownership commitment and concentrated stock position.

Fourthly, random effect GLS regressions are employed to test the robustness of the results shown in Table C (Appendix H). As can be seen the results are qualitatively similar to those estimated by OLS, however, the magnitude of the foundation ownership coefficient on the aggregated ESG score as well on the social and governance dimensions has increased and the effect of foundation ownership on governance is now statistically significant at a 10% level.

In sum, our main results are robust to reverse causality considerations, the employment of alternative econometric estimators as well as alternative measures of sustainability.

Discussion and Conclusion

The sustainability of corporations in the form of ESG performance has received an increasing amount of attention from managers and policymakers alike. Our empirical analysis contributes to the current discussion pertaining to the impact of corporate ownership on responsible business conduct. More specifically, we examined how purpose-driven enterprise foundations, which are observed around the world, impact sustainability outcomes using a hand-collected dataset on publicly listed firms.

Altogether, the empirical evidence suggests that foundation-owned firms outperform matched family firms in terms of sustainability and they do as well as matched investor-owned firms. Using the 2008 financial crisis as a setting for a difference-in-difference design, we find that firms owned by enterprise foundations have significantly higher post-crisis period ESG performance (between 5 and 6 percentage points). This appears to show that the sustainability

commitments by foundation-owned companies weather a negative shock and supports a causal interpretation of our baseline findings. Hence, our results are more in line with foundation ownership promoting sustainability engagements rather than founders of "green companies" deciding to set up an enterprise foundation.

In this sense, we find evidence consistent with the literature that stresses the fundamental importance of ownership in embedding sustainability and points to foundation ownership as a mechanism for ownership commitment (e.g. Thomsen et al., 2018). These findings show an empirical connection between serving a social purpose and delivering social and environmental outcomes. We conjecture that compared with shareholder-value maximizing owners, foundations appear to act as steward owners, thereby facilitating commitment to the well-being of stakeholders. Ownership commitment, in turn, has the potential to enable mutual commitment (implicit contracts) and trust with stakeholders (employees, customers, authorities, etc.).

As we find evidence that enterprise foundations positively affect social and environmental outcomes, foundation ownership may increase the competitiveness of a corporate entity. For example, financiers increasingly see unsustainability as a risk factor to long-term performance and therefore sustainably governed foundation-owned enterprises are arguably better positioned to reduce their capital costs.

This analysis is not only relevant for research but also regulators. Given that foundation ownership is a choice, an alternative to family ownership or sale of the firm, based on the findings from this paper, we argue that barriers to foundation ownership may be removed if policymakers want to create a level playing field underpinned by fair competition between various ownership structures. Policy options should be analyzed relative to other ownership forms.

Our study has the following limitations:

Our study suffers from a relatively small sample size as the number of enterprise foundations is still very limited around the world and because many foundation-owned firms do not receive sustainability evaluations from prominent rating agencies.

As a second limitation of our analysis, it should be noted that our results are only applicable for the specific period of time (2003-2020) analyzed in this paper and to firms in the countries that are represented in the dataset.

A third avenue for further research concerns the consequences of sustainability investments made by enterprise foundations for financial performance. For example, do foundation-owned firms benefit financially from their sustainability engagements? Also, more qualitative research is required to gain a better understanding of the drivers behind the ESG performance of enterprise foundations as owners. Finally, we focus on publicly listed foundation-owned companies. Further studies, which include non-listed companies in analyzing the social and environmental performance of enterprise foundations and the plethora of firms they own, are needed.

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Appendix

Appendix A Univariate Analysis

Parametric Test

	Number of Observations		Means			Differences in means
Variables	FOFs	nFoFs	FOFs	nFoFs	t-stat	FoF-nFoF
ESG	498	1,086	55.07	47.49	7.12	7.59***
ENV	498	1,086	53.65	43.45	7.39	10.20***
SOC	498	1,086	58.97	48.43	8.09	10.54***
GOV	498	1,086	49.56	49.45	0.10	0.12

Non-parametric test

	Number of Observations		Rank Sum			Differences in rank sum
Variables	FOFs	nFoFs	FOFs	nFoFs	Z	nFoFs-FoFs
ESG	498	1,086	452283.5	803036.5	6.817	350753***
ENV	498	1,086	449475.5	805844.5	6.486	356369***
SOC	498	1,086	463977.5	791342.5	8.201	327365***
GOV	498	1,086	394390	860930	-0.033	466540

Note: This table elucidates the results of the univariate analysis. The analysis consists of two steps: 1. Parametric test (T-Test) and 2. Non-parametric Test (Mann-Whitney-U-Test). The variables tested are the ESG performance variables (ESG and individual pillars) used for regression analysis.*** p<0.01, ** p<0.05, * p<0.1

Appendix B: Summary Statistics by foundation purpose

Private	N	mean	Median	min	max	sd
ESG	72	54.181	52.748	20.94	87.889	17.615
ENV	72	55.061	59.203	1.603	91.18	24.487
SOC	72	55.246	51.927	16.522	95.236	21.582
GOV	72	51.83	52.487	13.921	92.857	22.789
Leverage	407	.219	.203	0	.844	.171
Firm size	416	6.082	5.823	.727	12.462	2.434
Firm value	363	1.313	.987	.131	10.463	1.151
R&D/Sales	333	.04	.007	0	1.159	.098
ROA	413	.075	.109	-.845	.953	.158
Charitable						
ESG	426	55.224	57.418	3.204	93.569	19.572
ENV	426	53.417	55.806	0	98.346	25.792
SOC	426	59.601	63.781	1.61	98.029	22.846
GOV	426	49.179	49.167	2.407	98.472	22.033
Leverage	1426	.24	.197	0	8.679	.438
Firm size	1460	7.168	7.337	-.008	11.313	1.951
Firm value	1282	5.026	1.127	.166	1567.682	61.649
R&D/Sales	1207	.116	.004	0	58.267	1.818
ROA	1455	.118	.117	-3.515	.578	.166

Appendix C Regression Results FoFs vs Investor-owned Firms

VARIABLES	(1) ESG	(2) ENV	(3) SOC	(4) GOV
FOF	-0.797	5.244	-0.584	-9.461*
	(5.608)	(9.229)	(6.800)	(5.339)
Leverage	-5.835	-5.457	-6.852	-0.338
	(6.471)	(10.84)	(8.330)	(8.478)
Firm size	9.423***	11.18***	10.70***	5.626***
	(0.946)	(1.366)	(1.165)	(1.543)
Cash holdings	-16.78	-49.67***	-14.63	8.924
	(12.03)	(17.32)	(14.83)	(14.70)
Firm value	0.290	0.465	0.387	-0.757
	(0.519)	(0.782)	(0.732)	(0.871)
R&D/Sales	8.018**	11.41**	12.47**	2.912
	(3.612)	(5.529)	(5.577)	(5.203)
ROA	31.46***	45.23**	37.74**	15.17
	(11.31)	(17.82)	(16.18)	(12.08)
Constant	-65.62***	-119.9***	-68.42***	15.77
	(16.31)	(23.81)	(17.94)	(19.63)
Time (year) eff.	Yes	Yes	Yes	Yes
Country effects	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes
Observations	962	962	962	962
R-squared	0.708	0.682	0.697	0.422

Appendix D Regression Results Charitable vs. private foundations

VARIABLES	(1) ESG	(2) ENV	(3) SOC	(4) GOV
Charitable f.	4.632	19.57**	2.254	-6.377
	(4.899)	(7.412)	(8.046)	(11.24)
Leverage	-28.13	-37.08*	-23.93	-21.97
	(17.27)	(20.60)	(20.76)	(23.32)
Firm size	6.408***	6.090**	7.109***	5.835***
	(1.809)	(2.489)	(2.242)	(2.049)
Cash holdings	-25.29*	-67.62***	-19.67	2.423
	(14.42)	(17.04)	(21.22)	(24.54)
Firm value	1.463	2.267	1.470	0.104
	(1.303)	(1.375)	(1.683)	(1.889)
R&D/Sales	-50.51***	-50.47**	-51.11***	-40.51
	(16.55)	(22.74)	(18.02)	(35.71)
ROA	0.521	-11.96	20.01	-17.05
	(18.86)	(21.86)	(21.35)	(30.21)
Constant	-23.80*	-25.09	-34.94*	-9.840
	(14.05)	(20.09)	(18.25)	(18.71)
Time (year) eff.	Yes	Yes	Yes	Yes
Country eff.	Yes	Yes	Yes	Yes
Industry eff.	Yes	Yes	Yes	Yes
Observations	436	436	436	436
R-squared	0.756	0.751	0.707	0.587

Robust standard errors in parentheses

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

This table presents the results of OLS regressions of ESG performance for the period 2003 to 2020 where the dependent variable is the social, environmental, and governance score as assessed by ASSET4. Control variables are leverage, firm value, ROA, R&D/Sales, Cash holdings and year, industry and country fixed effects

Appendix E Regression Results FoFs vs. Family firms Sub-categories

	Env. Category			Soc. Category				Gov. Category		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
VARIABLES	Ressource use	Emissions	Env. innovation	Workforce	Human rights	Community	Product resp.	Management	Shareholder rights	CSR Sttrategy
FOF	9.278	11.12	-1.438	9.368*	14.84**	6.863	16.94***	9.095	-7.167	5.273
	(7.747)	(7.564)	(5.884)	(5.364)	(5.936)	(6.976)	(4.878)	(8.086)	(7.164)	(6.463)
Leverage	-11.54	-9.639	15.55	-14.29	24.29	-11.25	-2.581	8.432	19.28	-18.11
	(15.71)	(17.79)	(16.99)	(12.86)	(16.68)	(12.25)	(12.44)	(15.46)	(17.90)	(13.95)
Firm size	12.49***	10.64***	5.958**	6.674***	12.04***	9.484***	8.591***	10.24***	-0.264	15.52***
	(1.846)	(1.660)	(2.672)	(1.528)	(1.710)	(1.754)	(1.961)	(2.060)	(2.040)	(1.894)
Cash holdings	-71.14***	-73.24***	-11.23	-67.70***	-29.21	-46.61***	-23.23	-8.388	-37.38*	-49.59**
	(21.12)	(19.27)	(23.96)	(15.65)	(19.90)	(15.83)	(17.93)	(23.92)	(22.08)	(18.93)
Firm value	-0.00982	1.501	0.647	2.254	0.552	0.0146	-2.351	2.344	-3.270*	1.435
	(1.627)	(1.758)	(2.505)	(1.843)	(2.032)	(1.169)	(1.755)	(1.879)	(1.666)	(1.622)
R&D/Sales	57.22	31.05	-35.09	47.69	-1.606	111.2***	41.26	6.508	64.77**	26.04
	(45.12)	(40.06)	(36.41)	(42.92)	(50.39)	(30.88)	(36.51)	(34.56)	(30.90)	(34.73)
ROA	45.35	27.14	41.17	4.744	25.88	46.27**	86.95***	-17.32	-14.46	33.25
	(31.10)	(31.67)	(31.83)	(24.15)	(25.80)	(21.54)	(24.15)	(24.22)	(25.77)	(23.40)
Constant	-96.08***	-57.36***	-55.56*	-24.31	-116.1***	-36.87	-122.0***	-91.87***	53.40**	-127.9***
	(24.92)	(21.10)	(29.71)	(18.20)	(26.48)	(29.78)	(21.96)	(23.74)	(20.85)	(19.44)
Time (year) eff	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country eff.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry eff.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	868	868	868	868	868	868	868	868	868	868
R-squared	0.552	0.533	0.542	0.507	0.626	0.507	0.510	0.418	0.363	0.600

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

This table presents the results of OLS regressions of ESG performance for the period 2003 to 2020 where the dependent variable are the sub-categories of the Environmental category score (Resource use, Emissions, and environmental innovation), Social category (workforce, human rights, community, and product responsibility) as well as the Governance category (Management, Shareholder rights and CSR Strategy) as assessed by ASSET4. Control variables are leverage, firm value, ROA, R&D/Sales, Cash holdings and year, industry and country fixed effects.

Appendix F (Robustness test 1): 2nd Stage Regression Results of Heckman Two-stage Method (FoFs vs Family Firms)

VARIABLES	(1) ESG	(2) ENV	(3) SOC	(4) GOV
FOF	12.18*	14.10*	17.08***	0.390
	(6.398)	(7.386)	(5.975)	(7.378)
Leverage	-2.047	-19.43	-9.256	22.31
	(12.71)	(16.83)	(14.62)	(17.43)
Firm size	10.19***	9.284***	11.14***	8.959***
	(1.395)	(2.201)	(1.540)	(1.625)
Cash holdings	-34.05**	-48.21**	-23.91	-38.81**
	(15.15)	(18.47)	(17.47)	(15.91)
Firm value	0.244	-0.175	1.218	-1.244
	(1.818)	(2.190)	(2.288)	(1.156)
R&D/Sales	20.07	8.081	13.10	42.23
	(35.15)	(41.75)	(40.96)	(29.74)
ROA	7.748	10.78	0.0117	22.50
	(19.54)	(28.53)	(20.74)	(23.88)
Inv. Mills	-4.933	-11.86*	-5.539	0.0966
	(5.351)	(6.257)	(5.614)	(6.861)
Constant	-71.42***	-44.32*	-81.40***	-72.51***
	(16.34)	(23.48)	(17.17)	(21.73)
Time (year) eff.	Yes	Yes	Yes	Yes
Country effects	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes
Observations	496	496	496	496
R-squared	0.691	0.626	0.677	0.547

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Notes. (1) ***, **, * indicates significance levels at 0.01, 0.05, and 0.10, respectively (2) In parentheses standard errors that are clustered at the firm-level and that are robust to heteroscedasticity are reported.

Appendix G (Robustness test 3): Firm Fixed Effects FOFs vs. Family Firms (With Interaction Effects)

VARIABLES	ESG	ENV	SOC	GOV
Equity share	-0.131	9.766	-8.747	-0.322
	(6.478)	(9.182)	(8.354)	(9.582)
FOF×Equity share	22.38**	2.296	30.29**	33.73**
	(9.250)	(13.11)	(11.93)	(13.68)
Firm size	4.167***	4.524***	7.321***	-2.411
	(1.007)	(1.428)	(1.299)	(1.490)
Cash holdings	4.229	-0.225	8.043	-2.651
	(6.273)	(8.891)	(8.090)	(9.279)
ROA	1.923	-4.498	12.59	-11.71
	(5.967)	(8.457)	(7.695)	(8.826)
Constant	-13.09	-21.84*	-40.20***	49.24***
	(8.928)	(12.65)	(11.51)	(13.21)
Firm fixed effects	Yes	Yes	Yes	Yes
Time (year) effects	Yes	Yes	Yes	Yes
Observations	935	935	935	935
R-squared	0.847	0.821	0.816	0.729

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix H (Robustness test 4): GLS random effect FoFs vs. Family Firms

VARIABLES	(1) ESG	(2) ENV	(3) SOC	(4) GOV
FOF	12.08**	9.746	14.06***	10.66*
	(4.717)	(6.113)	(4.129)	(6.337)
Leverage	-13.69	-13.30	-10.28	-18.32
	(8.701)	(12.96)	(11.23)	(11.43)
Firm size	6.663***	7.371***	8.866***	2.930
	(1.626)	(2.115)	(1.910)	(1.834)
Cash holdings	5.460	-0.663	8.913	-1.366
	(8.588)	(14.42)	(12.67)	(11.14)
Firm value	-1.140	-0.655	-0.812	-2.136**
	(0.792)	(1.296)	(0.991)	(1.087)
R&D/Sales	18.10	8.397	9.994	31.45
	(17.79)	(25.95)	(13.20)	(30.26)
ROA	8.418	3.406	12.43	2.951
	(9.226)	(14.38)	(11.37)	(11.29)
Constant	-47.67***	-49.42**	-68.03***	-15.70
	(14.81)	(19.92)	(17.01)	(16.47)
Time (year) eff.	Yes	Yes	Yes	Yes
Country eff.	Yes	Yes	Yes	Yes
Industry eff.	Yes	Yes	Yes	Yes
Observations	868	868	868	868
Number of i	112	112	112	112

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix I (Robustness test 2): ESG Performance FoFs vs. Family Firms S&P Global data (Models 1 and 2) and Bloomberg data (Models 3 to 6)

VARIABLES	(1) ESG (SP)	(2) ESG (SP)	(3) ESG (BLM)	(4) ENV(BLM)	(5) SOC(BLM)	(6) GOV (BLM)
FOF	10.16*	8.875*	3.331*	3.005	3.292*	1.523
	(5.936)	(4.528)	(1.791)	(2.331)	(1.871)	(0.970)
Leverage	-12.69	-16.66	-1.451	-4.006*	-3.193*	1.094
	(16.08)	(15.12)	(1.626)	(2.284)	(1.739)	(0.832)
Firm size	3.394	3.774**	3.641***	3.385***	3.083***	2.338***
	(2.190)	(1.619)	(0.586)	(0.788)	(0.563)	(0.336)
Cash holdings	-16.09	-44.33**	-20.54***	-27.84***	-28.82***	-2.020
	(20.25)	(18.93)	(6.034)	(9.170)	(7.608)	(3.966)
Firm value	-0.793	-1.264	0.672	0.569	1.472*	0.305
	(1.406)	(1.479)	(0.517)	(0.853)	(0.787)	(0.319)
R&D/Sales	-20.94	67.36*	1.515**	-27.25	-7.365	0.329
	(46.59)	(38.04)	(0.652)	(23.74)	(19.67)	(0.444)
ROA	41.42	71.68**	12.57*	14.40	12.32	3.817
	(29.15)	(28.18)	(6.653)	(14.65)	(12.05)	(3.863)
Industry avg.		0.492**				
		(0.197)				
Country avg.			0.721***	0.778***	0.754***	0.859***
			(0.172)	(0.255)	(0.170)	(0.104)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	No	No	No	No
Industry fixed effects	Yes	No	Yes	Yes	Yes	Yes
Constant	2.631	-28.94	-18.71***	-24.35***	-13.94*	-11.84*
	(17.12)	(20.58)	(6.790)	(7.669)	(7.791)	(6.263)
Observations	537	537	1,475	1,251	1,344	1,475
R-squared	0.547	0.461	0.528	0.407	0.451	0.450

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Appendix J (Robustness test 2): ESG Performance FoFs vs. Investor-owned Firms S&P Global data (Models 1 and 2) and Bloomberg data (Models 2 to 5)

VARIABLES	(1) ESG (SP)	(2) ESG (BLM)	(3) ENV(BLM)	(4) SOC(BLM)	(5) GOV (BLM)
FOF	-4.611	-0.675	0.302	-0.667	-1.048
	(11.79)	(2.333)	(2.902)	(2.617)	(1.918)
Leverage	-13.47	-0.654	-0.291	-1.729	0.864
	(12.04)	(1.531)	(2.000)	(1.338)	(0.806)
Firm size	6.978***	5.120***	5.307***	3.807***	2.835***
	(2.188)	(0.506)	(0.710)	(0.535)	(0.270)
Cash holdings	-38.04**	-11.80**	-22.45***	-13.92***	-3.964
	(17.65)	(4.623)	(7.700)	(4.656)	(3.176)
Firm value	-0.0156	0.575	-0.249	0.962**	0.284
	(1.609)	(0.358)	(0.609)	(0.413)	(0.236)
R&D/Sales	-43.99	0.0917	15.70	-0.201	0.0418
	(46.62)	(0.0568)	(19.25)	(0.215)	(0.0277)
ROA	40.29*	4.339	28.20***	9.884**	1.381
	(24.11)	(4.678)	(10.08)	(4.207)	(2.434)
Constant	-38.23	-39.61***	-14.76	-35.19***	-11.24***
	(25.40)	(6.919)	(11.16)	(6.838)	(4.163)
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Country fixed eff.	Yes	Yes	No	No	No
Industry fixed eff.	Yes	No	Yes	Yes	Yes
Observations	787	2,106	1,733	1,926	2,106
R-squared	0.526	0.599	0.479	0.568	0.535

Robust standard errors in parentheses.*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Appendix K Marginal Effects (Table D, Model 4)

```
-------------------------------------------------------------------------
Sustainability
Committee                Marginal effect
-------------+-----------------------------------------------------------
FOF                      (-0.070811)**
-------------------------------------------------------------------------
```

Figure 3. Financial Crisis effects by Ownership Type
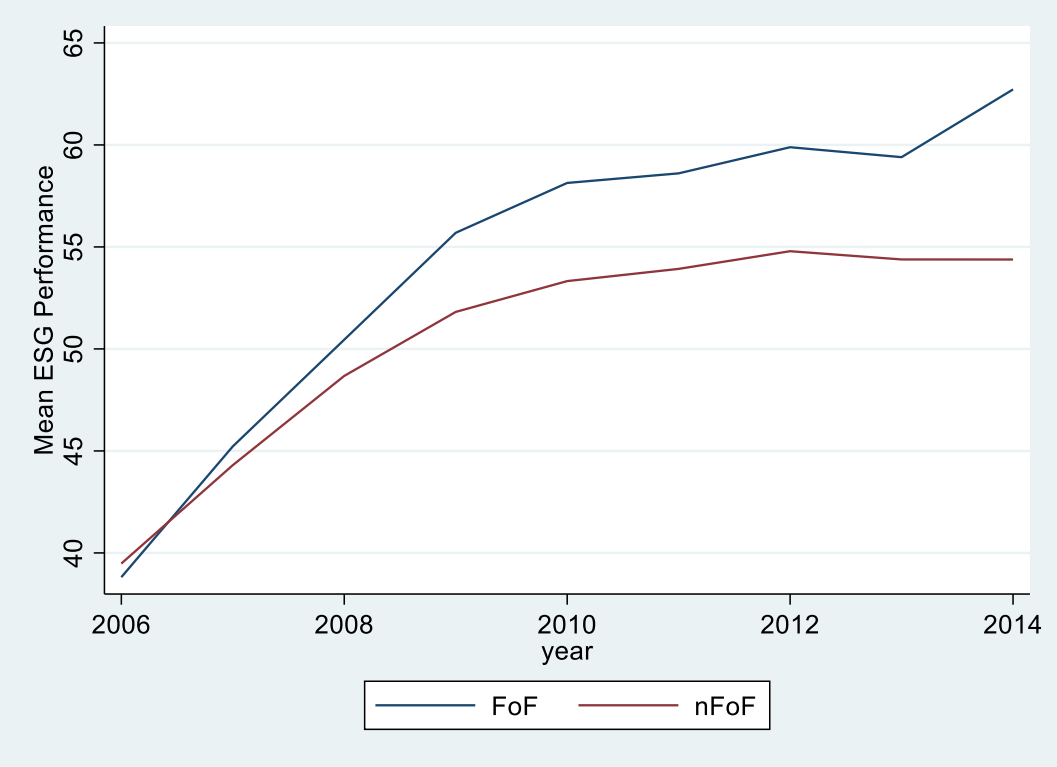
Appendix L

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Granger causality test
H0: No effect in anticipation of treatment

F(2, 73) =    0.35
Prob > F = 0.7055
```

Appendix M. List of Variables and Data Sources

Variable	Description	Source (s)
FOF	(dichotomous variable; if a foundation is the largest shareholder in a company foundation owner = 1 and FOF = 0 otherwise)	Annual reports, BvD Orbis
Charitable foundation	(dichotomous variable; if a charitable foundation is the largest shareholder in a company foundation owner = 1 and charitable foundation = 0 otherwise)	Annual reports, BvD Orbis
Firm Value	(Market capitalization+ Book value of total debt)/Total Assets	Bloomberg
Leverage	Total Debt/Total Assets	Bloomberg
Cash holdings	(Cash and Equivalents+ Short-term-investments)/Total Assets	Bloomberg
Firm Age	Year of incorporation	Refinitiv (Datastream)
ROA	EBITDA/Total Assets	Bloomberg
Firm size	Natural logarithm of Total Assets	Bloomberg
R&D intensity	R&D/Sales	Bloomberg
ESG	Refinitiv's ESG Score is an overall company score .	Refinitiv (Datastream)
ENV	Environmental performance	Refinitiv (Datastream)
SOC	Social performance	Refinitiv (Datastream)
GOV	Governance performance	Refinitiv (Datastream)
ESGDISC	ESG Disclosure	Bloomberg
ENVDISC	Environmental Disclosure	Bloomberg
SOCDISC	Social Disclosure	Bloomberg
GOVDISC	Governance Disclosure	Bloomberg
Employee Satisfaction	The percentage of employee satisfaction as reported by the company.	Refinitiv (Datastream)
CO2 Emission Intensity	CO_2 and CO_2 equivalents emission in tonnes scaled by Revenue	Refinitiv (Datastream)
Waste-recycling ratio	Waste Recycled/Waste Total	Refinitiv (Datastream)
CSR Committee	(dichotomous variable; if firm has a CSR committee = 1 and CSR committee = 0 otherwise	Refinitiv (Datastream)
LTIR (Employees)	Lost Time Injury Rate Employees. Total number of injuries that caused the employees to lose at least a working day relative to one million hours worked.	Refinitiv (Datastream)
LTIR (All contractors)	Lost Time Injury Rate Total.Total number of injuries that caused the employees and contractors to lose at least a working day relative to one million hours worked.	Refinitiv (Datastream)

Foundation Ownership and Financial Performance - a Global Analysis[1]

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Abstract

Some of the largest listed firms around the world are in part owned by foundations. Examples include Anheuser Busch, ThyssenKrupp, Hershey, Lindt, Tata Consultancy, Evonik, Maersk, and Associated British Foods. However, so far, there is little empirical research about foundation-controlled companies outside Northern Europe. This study aims to close the gap by examining the financial performance of foundation-owned firms from 26 countries around the world. We compare them to more conventional ownership structures like family business and investor ownership matched by industry and firm size. We use both accounting measures (ROA, sales growth) and market-based measures (firm value and stock returns) of performance. Contrary to the agency-theory view that firms without residual claimants cannot succeed financially, we show that foundation-owned firms perform at least as well as matched family firms and investor-owned firms. Further, using an event study method, we find that foundation-owned firms are efficient acquirers. Hence, our findings suggest that foundation ownership is financially competitive with conventional ownership structures.

Keywords: Financial Performance, Blockholder, Ownership Structure, Foundation-owned firms, Event Study, Global.

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1. Introduction

Despite the prevalence of foundation-owned firms and enterprise foundations[4] in many countries around the world, there is a lack of systematic knowledge in governance and finance research of how corporate decision-making and financial performance are influenced by foundation control. This study addresses fundamental questions regarding the value creation by enterprise foundations. Does foundation ownership foster economic value creation? Can foundation-owned firms compete successfully with conventional firms? Some of Europe's largest and most successful companies are in part controlled by a foundation – Novo Nordisk, Carlsberg, Bosch, Ikea, Rolex or the Swedish Wallenberg companies. Many are also listed on the stock market (e.g. William Demant, Fresenius, Carl Zeiss, Lundbeck and the Tata companies).

The special characteristics of firms controlled by foundations are that these lack a residual claimant and are motivated by purpose (as stipulated in their charters) rather than by profits. They counteract rising economic inequality since their wealth is owned by the foundations rather than by private individuals. Therefore, it is particularly interesting to examine how the financial performance of foundation-owned firms differs from publicly held firms or firms with personal ownership.

In this paper, we compare the accounting and market returns of foundation-owned companies to matching non-foundation-owned firms.[5] As an additional test of economic efficiency, we examine stock market reactions to acquisitions by foundation-owned firms compared to other ownership categories. Acquisitions provide a useful lens through which to explore the business efficiency of foundation-owned firms since they are closely related to corporate performance and they tend to provide clear evidence of agency problems (Shleifner & Vishny, 1997)[6].

In the absence of residual claimants, foundation ownership constitutes an enigma to standard economic theory (Fama and Jensen 1983, 1985). Based on agency theory, foundation ownership should reduce economic performance because of the apparent lack of profit incentives. In contrast to these expectations, multiple studies, but not all, have concluded that foundation-owned firms produce competitive financial returns (Thomsen, 1996, 1999; Hermann & Franke, 2002; Thomsen & Rose, 2004; Dzansi, 2012; Hansmann & Thomsen, 2013; Børsting et al., 2014; Kuhn & Thomsen, 2015; Draheim & Franke, 2015; Achleitner et al., 2020; Block et al., 2020). The recent literature on company purpose (Mayer 2019, 2020; Edmans, 2020; British Academy reports 2018, 2019) also suggests that purpose-based organizations could perform as well as firms that aim to maximize shareholder value while doing more good for society as a whole. Thus far, most empirical foundation research contributions stem from data that focuses on Denmark and the DACH region[7]. However, there are many enterprise foundations in other parts of the world, in particular in Sweden, Norway, Finland, Italy, the Netherlands, Spain and India, and therefore it seems interesting to examine

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[4] Enterprise foundations are defined as foundations with business ownership (Thomsen, 2017). A non-profit organization (the foundation) holds a controlling stock position in a listed for-profit business company.

[5] The control firms consist of investor-owned and family-owned firms in the same size category and industry.

[6] Shleifner and Vishny (1997) suggest that if the stock price of a firm falls when an acquisition is announced, then then this action must serve the interests of managers rather than those of the shareholders.

[7] The DACH region comprises three German-speaking countries in Europe: Germany (D), Austria (A) and Switzerland (CH).

the performance of foundation-owned companies on the global level. While most studies focus on private (unlisted) foundation-owned firms, publicly listed foundation-owned firms offer a particularly promising avenue for research not only because of data availability but also because they uniquely combine capital market exposure with the social orientation of the controlling owner (the foundation) (Villalonga, 2018).

This study addresses gaps in existing empirical foundation research by analyzing the accounting and market performance of listed foundation-owned companies globally. Our study makes three contributions: 1) it offers novel empirical evidence on the economic value creation by purposefully governed entities 2) it systematically analyses the market and accounting performance of listed foundation-owned firms 3) it examines the shareholder value implications of acquisitions by foundation-owned firms.

Our primary research focus is to determine whether publicly listed foundation-owned firms are financially competitive on standard accounting and market-based performance measures. As additional tests, we analyze whether there are performance differences between firms owned by charitable foundations and those owned by private foundations, which might have a stronger profit focus. We also study stock market reactions to events, particularly acquisition announcements by foundation-owned companies.

Our study contributes to an improved understanding of an increasingly relevant owner type, namely, enterprise foundations. Foundation-owned firms are seen as examples of purposeful organizations (Mayer, 2019, 2020) and they constitute a good testing ground for investigating the economic consequences of governance by company purpose. By investigating publicly held firms with significant ownership from a non-profit foundation, we also contribute to the literature about the performance effects of hybrid organizations that combine aspects of philanthropy with business [8](Grossi et al., 2017; Battilana & Lee, 2014; Siebold, 2021). To the best of our knowledge, our paper is the first to extend the study of foundation-owned companies beyond Europe. We are the first to systematically compare and analyze the performance of foundation-owned acquirers versus non-foundation-owned acquirers. Based on the increasing relevance and special characteristics of enterprise foundations (e.g. focus on purpose fulfillment) compared to conventional ownership types (e.g. focus on profit maximization), a detailed performance assessment of this ownership type is important.

The paper proceeds as follows: Section 2 provides a definition of enterprise foundations and reviews relevant literature and studies. Section 3 develops testable hypotheses on the value creation and market performance of globally listed foundation-owned firms (FOFs). Section 4 describes the data and regression models. Section 5 presents the empirical results as well as the results from the robustness tests. Section 6 provides a concluding discussion and suggests avenues for future research.

2. Research Context and Literature Review

2.1 Research Context on Enterprise foundations

Enterprise foundations are defined as self-governing, non-profit organizations with a large ownership stake, often a voting majority, in a business company (Thomsen, 1999; Thomsen,

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[8] For example, charitable foundations are sometimes referred to as social purpose organizations (Siebold, 2021).

2017). Kronke (1988) and Thomsen (2017) define enterprise foundations by the following characteristics:

- Creation by donation ("Endgültige Trennung von ausgesetzten Gütern ")
- Independence (no owners, no members)
- A foundation purpose ("Stiftungszweck")
- A foundation endowment ("Stiftungsvermögen")
- Foundation organization and charter ("Stiftungsorganisation und Stiftungsverfassung")
- Ownership of a majority of the shares of a business company

Creation by donation: An enterprise foundation is created when an individual (the founder) endows a foundation with ownership rights to a business company. Thus, for enterprise foundations to exist, a gift or donation of a majority of the voting rights is presupposed. The irreversibility of this endowment differentiates enterprise foundations from family trusts since the latter can be conversely dissolved and ownership can be reverted to the beneficial owners.

Independence: Enterprise foundations are sometimes referred to as "self-owning institutions" since they are private (non-government) institutions with no owners or members. The legal personality highlights the irreversibility of the decision to establish a foundation. It guarantees the independence and long-term security of a firm.

Foundation organization and charter: A charter is the heart of enterprise foundations and formally governs their activities. The charter prescribes the core purpose of the foundation as well as its organization. It represents the founder's will and may obligate the foundation to maintain majority ownership of the company. The charter may also stipulate the composition of the foundation's board e.g., whether it is self-elected or elected by outsiders.

Foundation purpose (will of the founder): the foundation's purpose is often the most important point in its charter since the foundation's assets are geared to the fulfilment of its purpose. In enterprise foundations (which own companies) the "longevity and independence" of the company are usually (explicitly or implicitly) the main purpose. The foundation acts as a steward-owner to facilitate this purpose (e.g. by electing the company board).

Foundation endowment: The independence requires a certain initial wealth, endowment, or access to a source of future income, such as capital rights to a company owned by the foundation. Once established, the foundation will be a self-perpetuating entity that will continue to execute the founder's will for eternity.

Ownership of a majority of the shares in a business company: A controlling stock position in a business company separates "enterprise foundations" from other foundations. The objective of the foundation is to in effect control the firm and to protect it against (hostile) takeovers. In this study, a foundation has to be the largest owner and needs to hold 20% or more of the voting power of a company to be considered a controlling owner.

2.2 Literature Review

Neoclassical economic theory assumes that owners aim to maximize economic profits (Thomsen & Pedersen, 2000). Asset managers and some categories of institutional investors act in a similar manner, thus, their primary objective is expected to revolve around the maximization of financial returns. However, owners that are seen as long-term oriented and purpose-driven tend to not have financial returns as their main objective. As non-profit organizations without a personal profit motive, it is likely to believe that decisions are not made

on a pure profit-maximizing basis in enterprise foundations. As follows, enterprise foundations deviate from the standard economic assumption. Managers in foundations are not fully compensated for their performance and therefore the incentive efficiency is in principle reduced (Thomsen, 1996). Therefore, enterprise foundations are often assumed to be incentive inefficient (Jensen & Meckling, 1976; Fama & Jensen, 1983). Furthermore, enterprise foundations pose a fundamental challenge to the widely-held corporation since they commonly concentrate their stock holdings on a single company or business group. As the charter often obligates enterprise foundations to maintain their ownership share, the market for corporate control is subdued, and agency problems might be expected to flourish (Manne, 1965; Thomsen, 2017). Consequently, according to standard agency theory, companies owned by enterprise foundations would be expected to perform worse financially than firms with more conventional ownership structures.

In contrast, an emerging view stemming from the literature on corporate purpose and performance suggests that purposeful firms, including foundation-owned companies, could be more efficient (Mayer 2019, 2020; Edmans, 2020; British Academy reports 2018, 2019). Mayer (2020) suggests two reasons why a company that focuses on delivering purpose beyond mere-shareholder-value including value to stakeholders could outperform. The first relates to the response of the beneficiaries of trust-based companies, and the second is the response of the regulators of other firms. Companies with an ownership and governance structure that show a commitment to solving problems and not profiting at the expense of others may genuinely be perceived as more trustworthy by the parties with whom they transact (Mayer, 2020). The rationale is that trust can be built to a greater extent through benevolent or other-regarding preferences rather than through self-interest. Mayer (2020) postulates that trustworthiness translates into confidence in counterparties and leads to superior firm performance. Consequently, trust-based firms and systems are a source of competitive advantage.

The corporate purpose adherents advocate that the ultimate goal of companies is to create value for society as a whole rather than to maximize profits per se. While the definition of this purpose varies across firms, it often refers to the core good or service that they offer to customers, their raison d'etre or to the way they do business. Purposeful firms recognize ways of solving problems and generating profits by serving the purpose (Mayer, 2019, 2020). Foundation ownership has been related to the purpose model, including purposeful ownership, since foundations are independent, irrevocably self-owned legal entities that are legally bound by their charters to pursue their purpose and to be responsible long-term owners of their companies. Hence, foundation ownership implies a strong ownership commitment to the purposes stipulated in the foundation charter (Mayer, 2013). Ownership commitment and the commitment to a long-term purpose enable organizational commitment (implicit contracts) and the building of trust with stakeholders (employees, customers, authorities etc.) as well as long time horizons (patient capital).

Based on the recent literature on purpose and performance (Mayer, 2020; Edmans, 2020), foundation-owned firms are expected to do well in comparison with other firms, whereas the classical agency theory posits that foundation-owned companies are inherently inefficient and will not survive (Fama and Jensen, 1983).

Given these contradictory theoretical rationales, the ex-ante relationship between foundation ownership and financial performance is unclear, which is ultimately an empirical question of interest to contemporary discussions of capitalist firms.

2.3 Foundation ownership and Corporate Performance

At least since Berle and Means (1932), economists have highlighted the connection between corporate ownership and performance[9]. A myriad of studies has investigated the relationship between conventional ownership structures (i.e., family and investor ownership) and performance with often conflicting outcomes (e.g. Anderson & Reeb, 2003a; Morck et al., 2000; Claessens et al., 2000). Nonetheless, so far only a relatively small branch of research has compared the financial performance of foundation-owned firms against non-foundation-owned firms. Thomsen (1996) is the first study examining the consequence of foundation ownership for financial performance. It benchmarks the performance of foundation-owned companies to investor-owned and family-owned companies and employs accounting data from the 300 largest Danish companies from 1982 to 1992, and finds no differences in accounting returns (ROE, ROA) between foundation-owned companies and non-foundation-owned firms. Thomsen (1999) finds that monopoly rents, tax advantages and monitoring by minority investors or creditors cannot explain this result. Herrmann and Franke (2002) compare foundation-owned companies to publicly listed German companies. Their sample consists of 178 firms between 1990 and 1992. They show that accounting profitability tends to be slightly higher in foundation-owned firms. Thomsen and Rose (2004) investigate the stock market valuation of foundation-owned companies listed on the Copenhagen Stock Exchange from 1996 to 1999. Their findings indicate that the performance of foundation-owned companies does not differ from other listed companies in terms of accounting returns, risk-adjusted returns and firm value. Dzansi (2011) compares the performance of foundation-controlled firms with other firms listed on the Stockholm Stock Exchange from 1995 to 2005[10]. He finds no effect of foundation ownership on firm value. Hansmann and Thomsen (2013) find that listed Swedish and Danish foundation-owned firms outperform listed non-foundation-owned firms matched by industry and size between 2003 and 2009. Draheim and Franke (2015) on a sample of 164 German firms between 2003 and 2012 find that German foundation-owned companies tend to have lower ROA; however, the difference is small and not always statistically significant.

Achleitner et al. (2020) use an event study method to study the effect of foundation ownership on shareholder value based on a sample of firms listed on the German stock market from 1991 to 2015. Examining stock exchange announcements that foundations to increase or decrease their equity stakes in foundation-owned companies, they find a positive market reaction when the foundation signals a decrease in its ownership share, and they show that this effect is particularly pronounced when the foundation holds an equity stake of 25% or above. They argue that equity markets seem to be skeptical about enterprise foundations as controlling shareholders. Equity markets may be concerned about the foundation's ability to effectively monitor the firm, the divergent goals between the foundation and the firm, the hybrid nature of

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[9] Berle and Means (1932) postulate an inverse relationship between the dispersion of shareholdings and performance.

[10] Foundation control is defined based on a lower threshold of 20% of the capital rights (Dzansi, 2011).

the foundation's goals, or legal restrictions associated with this particular form of ownership (Achleitner et al., 2020).

Block et al. (2020) go one step further and investigate the role of purpose (family vs charitable), stock market listing, and family involvement based on a sample of 142 German foundation-owned firms between 2006 and 2016. They find that firms owned by a family foundation have better accounting performance than comparable firms owned by a charitable foundation. In addition, Block et al. (2020) find performance-enhancing effects when the family is engaged in the firm's management or supervisory board. At the same time, they do not observe significant performance differences between private and publicly listed foundation-owned companies.

Hansmann and Thomsen (2021) investigate how the governance structure of enterprise foundations is related to the economic performance of the firms they control. They find that independence between foundation board and company board, as well as other governance distance indicators, are associated with higher business profitability.

Altogether a small but growing body of research investigates the performance of foundation-owned companies. The pertinent literature seems to have yielded mixed results. Foundation-owned firms in German-speaking countries are sometimes found to have lower accounting performance (Draheim & Franke, 2015) and market performance (Achleitner et al., 2020), while studies with samples consisting of Scandinavian foundation-owned firms typically do not find significant performance differences or slightly better performance outcomes (Thomsen, 1996; Thomsen & Rose, 2004). This may be due to varying institutional, legal and regulatory environments[11]. Therefore, it seems natural to investigate foundation-owned companies in a multi-region, even global, setting if the full width of consequences of foundation ownership for financial performance is to be understood.

Moreover, except Thomsen (2017), only one study has addressed the heterogeneous nature, enterprise foundations, namely Block et al. (2020). Lastly, the existing literature fails to address the impact of foundation ownership on acquirer performance adequately. Acquisitions constitute an interesting setting in which the shareholder wealth implications of foundation ownership can be explored. Acquisition decisions by foundation-owned companies are related to corporate strategy and hence to financial performance. Thus, it is crucial to investigate the foundation ownership effects on acquirer returns. More generally, our paper aims to examine the impact of foundation ownership on firm performance and thereby contribute to the empirical question concerning the economic viability of foundation-owned companies.

3. Hypotheses

This section develops testable hypotheses about the financial performance of foundation-owned companies. Hypothesis 1 concerns the accounting and market performance of foundation-owned companies. Hypothesis 2 concerns the performance effects of the foundation's purpose. Hypotheses 3 and 4 concern the acquirer performance of foundation-owned companies.

Enterprise foundations are typically large shareholders (Thomsen, 2017), and consequently, they should have the incentives and ability to monitor firm decisions (Jensen & Meckling, 1976; Shleifer & Vishny, 1986). However, most enterprise foundations have no residual

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[11] For example, differences in jurisdictions and differently developed capital markets.

claimants on their ownership stake, and therefore, they are likely to induce agency conflicts instead of ameliorating them. Foundations are created as an irrevocable donation by founding entrepreneurs, who are often no longer alive. The dividends received by foundations are used for charitable projects or are distributed to families and individuals. Due to the missing residual claimants, enterprise foundations have fewer incentives for monitoring their companies. According to the classical agency view, foundation-owned firms should exhibit ceteris paribus lower economic performance than companies with personal ownership (i.e. family-owned firms and shareholder-owned firms).

Directors in foundations face incentive challenges due to the unavailability of pay-for-performance mechanisms such as stock options (Thomsen, 1996). Managers of foundation-owned companies, in turn, may be more prone to invest below the cost of capital to the detriment of shareholders. In a similar vein, many enterprise foundations have multiple objectives and may pursue social goals more strongly than monetary goals. Although enterprise foundations need to make profits to finance their existence and expansion (Alter, 2006; Boschee, 2006), their defining objective is often to solve social needs, contribute to society's welfare, and give back to their community. By construction, foundation-owned firms are held accountable to their non-selfish purpose stipulated in their charter. They are more likely to emphasize purpose over profits, possibly resulting in stock price discounts by financial analysts. Hence, the pronounced focus on generating social benefits and the weakened profit motive may suppress the economic performance of foundation-owned companies.

Notwithstanding, many studies have concluded that foundation-owned firms perform as well as their equivalent non-foundation-owned counterparts (e.g. Thomsen, 1996, 1999; Hermann & Franke, 2002). Research also shows markedly longer survival rates for foundation-owned companies - on average, the length of life of a foundation-owned company is around three times longer than that of other companies (Thomsen et al., 2018). The continuing survival and financial success of foundation-owned companies may be attributable to their long-term-oriented strategy, which may benefit shareholder welfare. Enterprise foundations are long-term (in principle perpetual) owners because they are obliged to ensure company survival by their foundation charters (Thomsen et al., 2018). Stein (1988) introduces a formal model in which companies with a longer time horizon are less susceptible to managerial myopia and are less prone to sacrifice investments into employee development and innovation to boost short-term profits. For example, while managers in short-term-oriented firms may sell off undervalued, productive assets to improve their immediate bottom line, managers in long-term-oriented firms have no reason to do so. This is because, in the long-term, the productive assets will yield profits (Stein, 1988). Hence, managers in firms with a longer time horizon do not have to dedicate resources to ensure the correct pricing of their stock (Stein, 1988). He suggests that this should lead to more efficient investment decisions primarily based on NPV considerations. The Kay report (Kay, 2012) shows that concerns about short-termism and managerial myopia are genuinely observed in contemporary capital markets. Hence, theoretically, foundation-owned companies could have the capacity to pursue more long-term strategies supporting the long-term development of the company and are better able to maintain competitive advantages (Draheim, 2016). In this respect, foundation-owned companies may benefit from a long-term business strategy.

Moreover, the purpose enshrined in the foundation charter frequently obligates foundation-owned firms to focus on their core business. The business purpose often relates to companies

building useful products or providing useful services. For example, the brewery Carlsberg aims to "develop the art of beer-making to the greatest possible degree of perfection." The hearing-aid manufacturer William Demant aims to "make life-changing differences through hearing health." The food producer and retailer Associated British Foods aims to "provide safe, nutritious, affordable food and clothing that offer great value for money." The business purpose is well-connected to the success and survival of the firm. Leaner companies, including foundation-owned firms, who focus on their core business as stipulated in their purpose statement, could be particularly profitable. As was theorized by Mayer (2020), the pursuit of a non-selfish purpose extending beyond profit-making may encourage loyalty, engagement, reliability and support on the part of key stakeholder groups and could mean a competitive advantage that would lead to higher economic performance.

Nonetheless, foundation-owned companies lack the focus on financial returns found in conventional for-profit enterprises since they pursue hybrid goals and need to balance many parties' interests. In the absence of powerful residual claimants, they are likely to pursue a strong stakeholder orientation and survival as opposed to shareholder value and profitability. In other words, stakeholders may fill in the void and pursue their own agenda at the expense of shareholder welfare, endangering foundation-owned firms' financial success. For example, Draheim and Franke (2018) show that foundation-owned firms are more employee-oriented than other companies, as seen in overstaffing and pay. They argue that executives in foundation-owned companies absorb the power released by residual claimants. This might lead to weak corporate governance and the prevalence of agency problems in the form of financial mismanagement – executives or employees are more concerned about their own welfare than the pursuit of shareholder value. Due to the inflexible nature of the foundation charter, foundation-owned companies are less open to (hostile) takeovers (Thomsen& Rose, 2004) that may result in layoffs and downsizing and an ensuing reduction in stakeholder welfare. Similarly, the rigidity of the charter imposes a timeless mandate on the enterprise foundation to pursue the will of the founder regardless of its contemporary relevance [12](Bothello et al., 2019). This may be detrimental to firm value and profitability. Moreover, foundation-owned companies may forgo entrepreneurial growth opportunities because they tend to avoid debt as well as the sale of new equity stakes based on their special ownership characteristics and the potential loss of control through the dilution of shares (Block et al., 2020). Hence, they mainly grow through internal sources of financing, which may be a serious limitation relative to other companies. Additionally, foundation-owned companies listed on the stock market are uniquely challenged by a lack of transparency for investors due to their unique governance structure and the absence of any legal obligation to make the foundation charter publicly available, which might lead to stock price discounts (Achleinter et al., 2018).

Taken together, corporate governance in foundation-owned companies is sufficiently at odds with conventional shareholder value maximization. The classical agency theory posits that high agency costs associated with foundation ownership result in corporate governance problems and lower profitability. The relatively strong hybridity of goals in foundation-owned companies causes further conflicts related to the monitoring of the company, which could mean a competitive disadvantage. Hence, listed foundation-owned companies might be less competitive because of a violation of agency principles, a focus on stakeholder rather than

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[12] Although there is some degree of flexibility in amending the stipulations, the core philanthropic causes cannot be changed (Bothello et al., 2019).

shareholder welfare as well as lower performance incentives. Thus, we formulate the following hypothesis for empirical testing:

Hypothesis 1: *Listed foundation-owned companies will have lower market performance (firm value, stock returns) and accounting performance (ROA, sales growth) than other companies.*

As an additional test of the agency theory view, we examine whether ownership by private foundations is associated with better performance than ownership by charitable foundations. Families maintain at least some influence over the firm in private (family) foundations, and this structure is often used to avoid family conflicts (Achleitner et al., 2020). The firm pays dividends to the foundation, which, in turn, may (or may not) distribute these to family members. In this case, the family assumes the role of an economic owner, and consequently, the governance structure is more similar to family ownership. In some cases, the dividend-receiving founding family is even represented in firm management (see Block et al., 2020).

By contrast, in charitable foundations, the foundation, for the most part, uses dividends for philanthropic causes in accordance with the stipulations made by the charter. A relatively well-known example of a charitable foundation is the Carl Zeiss foundation, which donates most of its proceeds from equity ownership to scientific research. It features very little to no family involvement on the board, as dividend recipient or with respect to the founder's wishes (Bothello et al., 2019). With limited or no voting and control rights, the influence of charitable foundations on firm strategy and management is expected to be less than in private foundations[13]. According to standard agency theory, with fewer financial incentives, charitable foundations might be less efficient at monitoring the management of the foundation-owned firm. Interest alignment between the shareholder (the foundation) and the company's management might also be lower. Conceivably, agency problems including managerial entrenchment, empire-building etc. might proliferate. Moreover, board members of charitable foundations may have a background in the non-profit sector (Franke and Draheim, 2015; Block et al., 2020), and therefore lack the necessary expertise and financial literacy required for effectively controlling managerial decision-making, which could allow for opportunistic behavior by management[14]. Hence, according to agency theory, it is expected that poor management in firms owned by charitable foundations negatively affects profitability, which is empirically supported in the context of German unlisted foundation-owned firms by Block et al. (2020). Conversely, private foundations have a greater incentive to monitor and maximize the firm's financial value because the wealth of their dividend-receiving beneficiaries depends on the enterprise's profitability. Thus, they may act, in part, as economic owners, and they could, in principle, constrain the pursuit of non-shareholder welfare-maximizing endeavors by other stakeholders. As follows, the agency costs are expected to be lower in firms owned by private foundations. These arguments lead us to our second hypothesis:

Hypothesis 2: *Listed foundation-owned firms owned by a private foundation will have better market performance (firm value and stock returns) and accounting performance (ROA, sales growth) than listed foundation-owned firms owned by a charitable foundation.*

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[13] We acknowledge that there are important differences across countries regarding the legal nature of enterprise foundations. For example, in Denmark enterprise foundations need to contribute to the public interest, whereas in Germany they have no obligation to do so (except if they want to benefit from tax exemptions). Hence, a foundation can serve the founding family without almost no philanthropic purpose (Bothello et al., 2019).

[14] In publicly listed foundation-controlled firms minority investors may, in part, compensate for a lack of technical know-how by members of charitable foundations.

To further evaluate the effectiveness and efficiency of foundation-owned companies, we conduct a performance test by investigating the impact of foundation ownership on acquirer performance. The examination of acquisition announcements allows us to observe the direct value effect attributed to foundation ownership instead of relying on performance proxies in the form of annual financial data. Therefore, acquisitions provide a unique opportunity to investigate the impact of foundation ownership on financial performance. Ownership is likely to be an important determinant of performance in acquisitions because large owners have the influence to accept and reject acquisition deals. Acquisitions are susceptible to agency problems since they constitute important corporate decisions. If foundation-owned companies are indeed subjected to high agency costs and weak corporate governance, we expect to see the depletion of free cash flows on wealth-diminishing acquisitions proposed by management. Grounded in the free cash flow theory (Jensen, 1986), managers may desire to increase the resources under their control or improve their reputation by establishing a bigger firm. Without powerful shareholders acting as a force of constraint, managers of foundation-owned firms might become entrenched and might be more likely to pay a high premium for target firms. Research suggests a negative link between the premiums paid and acquirer returns (Data et al., 1992; Haunschild, 1994; Hayward & Hambrick, 1997). To the extent that foundation ownership raises agency costs, permitting non-value-maximizing acquisitions, abnormal acquirer returns upon acquisition announcements should be more negative for firms controlled by enterprise foundations. In other words, standard agency theory predicts an inverse relationship between foundation ownership and stock price changes upon deal announcement. We, therefore, propose that:

Hypothesis 3: *Listed foundation-owned firms will earn lower cumulative abnormal returns in acquisitions than do other companies.*

Finally, we test for differences between private and charitable foundations with regard to acquisition performance. Assuming boards of charitable foundations prioritize non-profit objectives and lack the entrepreneurial know-how to scrutinize acquisition deals effectively, firms owned by private foundations might outperform firms owned by charitable foundations in acquisitions. In particular, because acquisitions dilute ownership concentration (if financed via stock), the descendants of the firms' founder, who typically govern private (family) foundations, may have the incentives and the capabilities to assess the anticipated costs and benefits associated with the transaction. Similarly, in acquisitions using cash financing, the dividend claims by the founding family are likely to be affected, which should provide an economic incentive to undertake efficient acquisitions. Firms acquired by private foundations might be more prone to experience wealth redistribution from stakeholders to shareholders, as postulated by Shleifer and Summers (1989). Thus, equity markets may have more confidence in acquirers owned by private foundations because they expect these to make more efficient use of target assets. Therefore, equity markets may react more positively toward acquisition announcements by firms owned by private foundations.

Hypothesis 4: *Listed foundation-owned firms owned by a private foundation will earn higher cumulative abnormal returns in acquisitions than do firms owned by a charitable foundation.*

4. Data

4.1 Sample selection

Our sample consists of panel data of publicly listed foundation-controlled and non-foundation-controlled benchmark firms. The following describes how the sample has been selected.

We collected all publicly listed firms in which enterprise foundations are controlling owners. In the absence of systematic register information, we hand-collected this information from annual reports and corporate proxy statements and, if possible, verified it with information from the BvD Orbis database. During the data collection, we were able to identify approximately 200 listed firms in which enterprise foundations are controlling shareholders. Foundations with government-linked activities were removed, consistent with Thomsen et al. (2018), because business concerns may be secondary. Since the fundamentals of financial (SIC codes from 6000 to 6999) and utility (SIC codes from 4900 to 4999) companies are subject to heavy regulatory supervision, and therefore do not necessarily reflect the underlying economic characteristics, these firms were also excluded. Moreover, since we define foundation-owned firms as firms in which a foundation holds at least 20% of the voting rights, we remove foundation-owned companies with less than 20% of the voting rights held by the foundation to ensure the enterprise foundations assert significant control. This voting threshold is consistent with the one suggested by La Porta et al. (1999). Among the 106 foundation-controlled firms in our sample, 76 of those are controlled (in part) by a charitable foundation, while 30 firms are controlled (in part) by a private foundation. We constructed control groups of family-owned and shareholder-owned companies in the same industry and size category to facilitate a fair comparison. Hence, we followed a one-to-one matching approach by industry (proxied by two-digit SIC codes) and size (proxied by total assets) following other papers (e. g. Strebulaev & Yang, 2013). Balance sheet, income statement information, as well as market information, have been collected from Bloomberg. The investigated period is restricted to annual data between 2000 and 2020. The final sample consists of unbalanced panels of 318 publicly listed firms (106 companies from each owner category) from around the world.

4.2 Dependent variables

We use four different performance measures- namely return on assets (ROA), Firm value (market value + debt over total assets), Stock returns, and sales growth to test the relationship between foundation ownership and financial performance. A central nuance in literature around financial performance is that between accounting and finance measures. While accounting measures build on historical numbers (i.e. backward-looking), finance measures concern market values that reflect the fundamental value of the corporate entity given by share prices. Nonetheless, stock market performance measures are susceptible to significant fluctuations due to macroeconomic conditions and investor exuberance[15], which are outside the firm's control.

Consistent with the above, the first dependent variable is ROA, a commonly used accounting-based measure of firm performance, representing the firm's profitability in relation to its assets. In this study, we measure ROA as EBITDA scaled by the book value of total assets. The benefit of using EBITDA rather than EBIT is that EBITDA is unaffected by different tax treatments of depreciation and amortization across countries. Since accounting variables are often affected by earnings management decisions (Choi & Wang, 2009)[16] we include a market-based performance measure (Firm value). Firm value is measured by the sum of the stock market

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[15] Investor optimism could drive up valuations to levels not supported by fundamentals.
[16] Accounting figures may also be difficult to use to benchmark the economic performance across companies because of the different accounting policies prevalent in different countries within our data.

capitalization and the book value of debt as a ratio of total assets[17]. Given the unavailability of the market value of debt and because the market values of debt do not tend to deviate significantly from the book values of debt, book debt is utilized in the computation of the market-based item (Firm value). We also compute stock returns, which equal the ratio of share price and the end of the year plus dividend per share divided by the share price at the beginning of the year minus 1. Lastly, we will use sales growth as an additional accounting-based performance measure. The selection of these variables is mainly consistent with previous studies examining the accounting and market performance of foundation-owned companies (e.g., Thomsen & Rose, 2004; Hansmann & Thomsen, 2013; Block et al., 2020).

4.3 Independent and Control Variables

The key variables of interest in this study are foundation ownership and foundation purpose. To capture the independent variables, we employ two dummy variables. First, the foundation-owned variable equals 1 for foundation-owned companies and 0 otherwise[18]. Second, the dichotomous charitable foundation variable indicates whether the foundation is a charitable or a private foundation.

To capture other factors that affect financial performance as well as to avoid model misspecification, we include a number of control variables. Consistent with previous research, we control for effects related to the firm's size (measured by the logarithm of total assets) (Kuhn & Thomsen, 2015). The debt-to-assets ratio is used to control for effects relating to financial leverage. Moreover, to alleviate variations in knowledge intensity, a variable for R&D is introduced (R&D expenditures scaled by revenue). We further include the fixed assets ratio (PP&E/Revenue) to control for accounting distortions caused by time-based depreciation rates (Cui & Mak, 2002). The findings of previous research by Fich and Shivdasani (2006) and Bhagat and Bolton (2013) show that growth is an important driver of firm performance. Consequently, the variables sales growth and intangibility (measured by the ratio of intangible to total assets) are used in models assessing profitability as proxies for growth prospects and investment opportunities. Furthermore, firm age (in years) is included to control for effects related to the life cycle of the firm. Next to these economic variables, we control for year-fixed effects to capture macroeconomic fluctuations and variations in the output over time. Similarly, we control for industry variation industry type (industry dummy, FE) using the two-digit numeric standard industrial classification (SIC) code. Finally, to control for variation due to the country-specific context a country dummy (FE) is introduced.

4.4 Statistical model

Given that the nature of data in this study is unbalanced panel data of different numbers of companies over a 20-year period, we utilize panel estimation to exploit both the time series and cross-sectional dimensions. We estimate the following equation:

$$Perf._{i,t} = \beta 0 + \beta 1\, FOWNED\ or\ Purpose_{i,t} + \beta 2\, Firm\ Size_{i,t} + \beta 3\, Growth_{i,t} +$$
$$\beta 4\, Leverage_{i,t} + \beta 5\, Research\ Intensity_{i,t} + \beta 6\, Fixed\ Assets +$$
$$\beta 7\, Firm\ Age + \beta 8\, Intangibility + \beta 9 Country_{FE} + \beta 10\, Industry_{FE} + \beta 11\, Year_{FE} +$$

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[17] The firm value performance measure is criticized for not including the firm's investments into intangible assets in the denominator (replacement costs of the firm's assets), which may distort performance comparisons of firms that rely in varying degrees on intangible capital (Demetz & Villalonga, 2001).

[18] The minimum foundation ownership threshold is 20% of voting rights. This is consistent with La Porta et al. (1999), who estimate that 20% is the stake required to assert control.

$\varepsilon i, t$, where FOWNED/Purpose is the binary variable for foundation ownership and foundation purpose respectively, followed by control variables and the error vector. In order to test our hypotheses, we run different linear regressions. Although OLS does not allow to take the unobserved heterogeneity into account, the OLS is quite applicable for estimating the ownership effects on performance since it includes the cross-sectional (between firms) variance for ownership structure, which is more important than the time-series variance. Moreover, by nature, the fixed effects estimator requires longitudinal variation in the data, and because only a few firms change their foundation ownership status or ownership share over the sample period, a fixed-effect model cannot be estimated. For coefficient estimates, standard errors are clustered at the firm level to adjust for heteroscedasticity and serial correlation by the firm.

5. Empirical results

5.1 Univariate analysis

Descriptive Statistics by Owner Type (Table 1)

Foundation	N	mean	Median	p25	p75	skewness
ROA	1674	.118	.118	.083	.163	-3.042
Firm Value	1493	1.659	1.053	.744	1.801	2.726
Stock Return	1323	.195	.127	-.09	.392	1.327
Sales Growth	1585	.077	.059	-.032	.163	1.203
PPE/Sales	1680	.438	.275	.15	.523	4.976
R&D/Sales	1309	.041	.005	0	.022	18.75
Leverage	1657	.215	.199	.079	.319	.793
Firm size	1689	6.903	7.002	5.436	8.247	-.226
Firm age	1289	47.11	41	18	73	.433
Intangibility	1602	.178	.103	.022	.269	1.215
Family						
ROA	1749	.098	.11	.066	.157	-3.786
Firm Value	1554	1.421	1.008	.695	1.628	3.557
Stock Return	1426	.191	.121	-.113	.406	1.211
Sales Growth	1684	.091	.066	-.029	.18	1.288
PPE/Sales	1777	.521	.287	.146	.511	3.872
R&D/Sales	1357	.126	.003	0	.032	6.611
Leverage	1771	.229	.214	.082	.341	.612
Firm size	1797	6.809	6.888	5.394	8.229	-.23
Firm age	1492	29.191	22	11	43.5	1.179
Intangibility	1684	0.172	0.113	0.13	0.272	1.156
Investor						
ROA	1942	.092	.101	.06	.143	-4.538
Firm Value	1861	1.309	.912	.653	1.483	3.592
Stock Return	1757	.144	.086	-.108	.319	1.33
Sales Growth	1830	.061	.047	-.04	.133	1.605
PPE/Sales	1924	.37	.245	.121	.404	5.116
R&D/Sales	1679	.076	.005	0	.021	9.132
Leverage	1932	.229	.214	.094	.325	.741
Firm size	1948	7.429	7.429	6.339	8.543	-.313
Firm age	1739	42.473	36	18	65	.487
Intangibility	1907	0.17	0.062	0.011	0.285	1.275

Table 1 shows the 25%-quartiles, medians, 75%-quartiles, means and skewness for the key variables (ROA, Firm Value, Stock Returns and Sales Growth, Size, Leverage, R&D/Sales, PPE/Sales, Firm Age and Intangibility). To avoid reliance on extreme outliers, we winsorize these variables at the 0.5[th] and 99[th] percentile.

The descriptive statistics for the full sample are shown in Table 1. Overall the descriptive statistics reveal higher average values in the financial performance measures for foundation-owned firms, more specifically in terms of ROA and firm value than in investor-owned and family-owned firms. The mean firm value of foundation-owned firms is 1.7 compared to 1.4 and 1.3 for their family-owned and investor-owned counterparts respectively. The mean ROA of foundation-owned firms is 11.9% compared with 9.8% and 9.2% for their family-owned and investor-owned counterparts respectively. Foundation-owned firms are older than their counterparts and they have lower growth rates than matched family-owned firms; suggesting that they are, on average, later in the life cycle of the firm[19]. This is consistent with the evidence presented by Thomsen et al. (2018) on the longevity and survival of foundation-owned firms. The mean and median values of the dependent variables are relatively similar, denoting a normal distribution.

Table 2 shows that the correlations between the variables lie within the normal range. The positive relation between foundation ownership and ROA is relatively strong with statistical significance at the 5% level. In addition, we also calculated variance inflation factors (VIF). The results indicate that multi-collinearity is unlikely to be a problem in the regression models – at least not for the independent/control variables. The average VIF is 1.09, and the maximum VIF is 1.19 (Firm Age variable).

Table 17 shows that foundation-owned firms are present in various industries. However, it is clear that foundation-owned firms particularly prevail in manufacturing (two-digit SIC codes 20-39). The distribution among owner groups is relatively proportional due to the matching and industry differences will be further alleviated by controlling for industry effects in the regressions.

To test for the significance of mean differences of the main performance variables between foundation-owned firms and their non-foundation-owned counterparts, we perform a univariate analysis consisting of parametric tests (t-tests) and non-parametric tests (Mann-Whitney U-Test). The results are shown in Table 3. Both tests are statistically significant for the dependent variables ROA, firm value, and stock returns suggesting that foundation-owned firms have significantly better performance on the univariate level. Foundation-owned companies exhibited 2.4% higher ROA, 0.3 higher firm values and 3% higher stock returns than matched control firms over the entire observation period with statistical significance at the 1 and 5% levels. At the same time, sales growth is not significantly different between foundation-owned and non-foundation-owned firms. These results are not what we would expect from an agency viewpoint (e.g. Jensen and Meckling, 1976), which emphasizes the importance of ownership incentives in the efficient operation of business companies. Contrary to the conventional view, it appears that companies without profit incentives do not seem to suffer from serious operational difficulties. They are indeed profitable and enjoy handsome cash flows.

Univariate Analysis FoFs vs. non-FoFs (Table 3)

Parametric test

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[19] A concept of the life cycle of the firm is introduced by Dickinson (2007). The phases consist of introduction, growth, maturation, and decline.

Variables	Number of Observations		Means		Differences in means
	FOFs	nFoFs	FOFs	nFoFs	FoF-nFoF
ROA	1,674	3,691	11.84%	9.47%	2.37%***
Firm Value	1,493	3,415	1.66	1.36	0.30***
Stock return	1,323	3,183	19.45%	16.49%	2.96%**
Growth	1,585	3,514	7.69%	7.54%	0.14%

Non-parametric test

Variables	Number of Observations		Z	Rank Sum		Differences in rank sum
	FOFs	nFoFs		FOFs	nFoFs	nFoFs-FoFs
ROA	1,674	3,691	-8.219	4923358	9470937	4547579***
Firm Value	1,493	3,415	-5.707	3925193.5	8121492.5	4196299***
Stock return	1,323	3,183	-2.219	3069638	7084633	4014995**
Growth	1,585	3,514	-1.2	4100123	8902327	4802204

This table shows the results of the univariate analysis, which consists of two steps: 1. Parametric test (T-Test) and 2. Non-parametric Test (Mann-Whitney-U-Test). The variables tested are the performance variables used for the subsequent regression analysis. *, **, ***Significant at the 10%, 5%, and 1% levels, respectively.

To shed some light on the heterogeneity of foundation-owned companies, we investigate how foundation-owned companies differ from each other (hypothesis 2). Table 4 shows that the mean ROA and mean firm values are slightly higher for firms owned by charitable foundations (13.2% and 1.8 respectively) than for those owned by private foundations (8.1% and 1.2 respectively). Table 5 compares the performance of companies owned by charitable foundations with those owned by private foundations in a series of parametric and non-parametric tests. In both tests, we observe that firms owned by charitable foundations, on average, have significantly higher ROA and firm values before controlling for observable firm characteristics. At the same time, we observe that firms owned by charitable foundations have similar sales growth and stock returns. These results stand in contrast with Block et al. (2020), who provide evidence of significantly worse performance (in terms of ROA) of firms owned by a charitable foundation.

5.2 Panel Data Analysis

The univariate analysis on the relation between foundation ownership and financial performance does not control for firm characteristics known to affect financial performance. To control for these effects, we turn to panel data analysis relating the financial performance variables to foundation ownership along with other financial attributes. Table 7 shows estimations of the performance of foundation-owned companies relative to more conventional ownership structures, namely family and investor ownership. In model 1, we use ROA as our dependent variable. The result shows that firm size and growth have a positive and significant effect on ROA, while leverage and R&D/ Sales are negatively and significantly related to ROA.

Table 7 Regression Results FoFs vs. Non-FoFs

VARIABLES	(1) ROA	(2) Firm Value	(3) Stock return	(4) Sales Growth	(5) ROA	(6) Firm Value	(7) Stock return	(8) Sales Growth
Foundation-o.	0.00666	0.241	-0.0151	-0.00902	0.0235**	0.354**	-0.00575	-0.00914
	(0.0170)	(0.252)	(0.0199)	(0.0129)	(0.0109)	(0.172)	(0.0159)	(0.00910)
Firm size	0.0117***	-0.00384	-0.00896*	-0.00387	0.0101***	-0.0341	-0.0108***	-0.00556*
	(0.00438)	(0.0581)	(0.00493)	(0.00394)	(0.00378)	(0.0411)	(0.00407)	(0.00321)
Leverage	-0.0982***	-0.0987	0.0367	0.0256	-0.114***	-0.414	-0.00470	0.0279
	(0.0356)	(0.575)	(0.0626)	(0.0318)	(0.0304)	(0.501)	(0.0567)	(0.0309)
PPE/Sales	0.00491	-0.125	-0.00632	-0.0255	0.00395	-0.207***	-0.0119	-0.0265
	(0.00930)	(0.0842)	(0.0302)	(0.0249)	(0.00945)	(0.0699)	(0.0221)	(0.0188)
R&D/Sales	-0.143***	0.528***	-0.00897	0.0163	-0.113***	0.462***	-0.0103	0.0106
	(0.0236)	(0.138)	(0.0320)	(0.0182)	(0.0330)	(0.144)	(0.0236)	(0.0137)
Firm Age	-3.65e-05	-0.00374	0.000308	-0.000192	-0.000350**	-0.00439**	7.72e-05	-0.000338***
	(0.000167)	(0.00253)	(0.000260)	(0.000163)	(0.000135)	(0.00197)	(0.000216)	(0.000125)
Growth	0.0306*	0.551***	0.239***		0.0438***	0.599***	0.259***	
	(0.0172)	(0.178)	(0.0527)		(0.0167)	(0.185)	(0.0522)	
Intangibility	-0.0347	-0.780	-0.0137	0.0811*	-0.0147	-0.691*	-0.0140	0.0327
	(0.0301)	(0.522)	(0.0505)	(0.0425)	(0.0184)	(0.353)	(0.0446)	(0.0335)
Industry average					0.274*	0.774***	0.420**	0.612***
					(0.156)	(0.142)	(0.171)	(0.182)
Country average					0.825***	0.772***	0.719***	0.804***
					(0.110)	(0.111)	(0.181)	(0.181)
Constant	0.0961***	0.761**	-0.0225	0.0919***	-0.00749	-0.273	-0.0728	-0.0685*
	(0.0275)	(0.318)	(0.0569)	(0.0339)	(0.0355)	(0.388)	(0.0595)	(0.0357)
Time (year) effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country effects	Yes	Yes	Yes	Yes	No	No	No	No
Industry effects	Yes	Yes	Yes	Yes	No	No	No	No
Observations	3,123	3,035	2,954	3,128	3,141	3,053	2,972	3,146
R-squared	0.527	0.419	0.264	0.163	0.426	0.333	0.244	0.141

At the same time, the results denote an insignificant link of accounting performance (ROA) to foundation ownership. In model 2, where the dependent variable is firm value (a market-based financial performance measure), we observe a positive, however, statistically irrelevant coefficient estimate for the dummy variable for foundation ownership. Sales growth and R&D/Sales are positively related to valuation, implying that investors believe in the market value of fast-growing and research-intensive firms.

Further, we find no significant differences in stock returns between foundation-owned and non-foundation-owned firms (Model 3). Model 4 compares the sales growth rates of foundation-owned and non-foundation-owned counterparts. A statistically insignificant point estimate tells us that foundation-owned firms have similar sales growth to their non-foundation-owned counterparts. With regard to the control variables, the results show a statistically significant, positive effect of intangibility on sales growth.

The model specified above is threatened by collinearity between the country and industry dummies and foundation ownership, which we found for the most part in Denmark, Sweden, Germany, Switzerland, Austria, the Netherlands and India and particularly in the manufacturing industry. The calculation of the VIF in unreported analyses shows that collinearity is indeed a problem, however, exclusively for the country and industry dummies. Therefore, we also run the models with the relative country and industry means of the dependent variables instead of the fixed effects and find that the results have not significantly changed for models 7 and 8. With respect to models 5 and 6, a positive effect of foundation ownership is now denoted on profitability (ROA) and firm value with statistical significance at the 5% level. This is consistent with the pre-tests, which indicated higher profitability and firm values for foundation-owned companies. In this alternative estimation method, foundation-owned companies are found to earn 2.4 percentage points more on accounting assets and show 0.35 greater firm values than their non-foundation-owned counterparts. Greater accounting profitability suggests that foundation-owned firms are more efficient in using their assets to generate earnings. In principle, higher firm values for foundation-owned companies may reflect higher expected profitability; however, it could also be attributable to other factors, including business sustainability. Qualitatively, we are more convinced by the results in Models 5 to 8 due to the obvious risk of collinearity in models including country and industry fixed effects.

Table 9 examines the effects of foundation ownership on performance measures when the benchmark group consists of family-owned firms. Insignificant estimates in most models indicate that our findings are robust to a change in the control group. Notwithstanding, there is a negative and statistically significant relationship between foundation ownership and sales growth (Models 4 and 8) and a positive, statistically significant relationship between foundation ownership and firm value (Model 6). This may be because, on average, foundation-owned firms are significantly later in the life cycle than family-owned firms, and there is less focus on growth but instead on survival and debt repayments.

In Table 10, where the control group consists of investor-owned firms, the foundation effect is positive but statistically insignificant. These results apply to all four performance measures (except Model 5, where a positive and significant foundation ownership coefficient is found).

This result is surprising because foundation-owned firms clearly have a lower profit motive than return-seeking investors. One explanation may be that enterprise foundations benefit from long-term governance, which imbues them with a long-run view of their business activities and enables continuous R&D and human capital investments. By contrast, shorter time horizons in investor-owned companies may encourage a narrow focus on contemporary profits at the expense of long-term value creation and performance.

In sum, on the group level, none of the four performance measures suggest that foundation-owned companies perform any worse than firms with conventional ownership structures. Insofar we reject hypothesis 1. The results clearly do not seem to support the agency-based conception of foundation ownership.

Interpretation of the results
We offer two possible explanations for the overall strong showing of foundation-owned companies: Firstly, companies are afforded a long-term view via foundation ownership, which facilitates the adoption of long-term strategies as was proposed by Stein (1988). As long-term stockholders, enterprise foundations may make better long-run decisions, including continuous investments in productive capabilities such as employees thereby presenting a countervailing force to short-termism. The long-term commitment of enterprise foundations to the business and their profound knowledge of it may positively contribute to financial performance by reducing operational costs. Moreover, managers in foundation-owned firms may suffer from less managerial myopia leading to more efficient investment decisions based on net present value considerations.
Secondly, although the objectives of enterprise foundations are usually not monetary per se, they need to generate economic resources, including profits to reach their social goals. This, in turn, could make foundation-owned companies money-conscious (i.e. profit-driven) similar to firms with conventional ownership structures. Board directors have incentives to pressure management towards profitability since the financing of the foundation's endeavors, and its very existence is at stake. In other words, the conventional tension between commercial and social welfare pursuits might be mitigated because higher profits directly improve the enterprise foundation's ability to pursue its charitable purposes. Despite the philanthropic goals of the foundation, the business company itself may be more narrowly focused on long-term profitability (Hansmann & Thomsen, 2021). We are not able to tease apart these different explanations, but it seems possible that long-termism provides a unique advantage for foundation-owned companies, compensating for high agency costs.

5.3 Foundation Purpose Analysis

Although foundation ownership, given the results so far, appears to be an efficient ownership structure, it still remains unclear whether the nature of foundation purpose is important. Table 11 compares the performance (ROA, firm value, stock return and growth) between charitable and private foundations. The results show that firms owned by a charitable foundation perform well without profit incentives in the form of dividend-receiving family members. Differences in ROA, firm value, and growth are not statistically significant. Surprisingly, we find that a charitable foundation purpose has a positive, significant impact on stock returns despite the unfamiliarity of the equity investors with the charitable owner's goals and governance. Hence, we fail to support hypothesis 2.
While agency theory predicts that charitable foundations are incentive inefficient, the pursuit of a charitable, public purpose may work well to recruit and motivate great employees, customers and suppliers, likely increasing profits as a by-product (Mayer, 2020; Edmans,

2020). The surprisingly strong performance of firms owned by a charitable foundation lends credence to the hypothesis laid forward by Mayer (2020) on purpose and performance. Arguably, firms that demonstrate a commitment to solving problems and not profiting at the expense of others may genuinely be perceived as more trustworthy. Stakeholders may therefore find it easier to identify with them. Gartenberg et al. (2019) provide empirical evidence that firms with mid-level employees, who strongly believe in the organization's purpose, have higher stock market and accounting performance. Thus, charitable foundations may benefit from a positive public perception, which possibly translates into competitive market and accounting returns despite the[20]. In unreported analyses, it was found that collinearity is unlikely to be an issue with respect to the country and industry dummies for the regressions estimated in Table 11 given relatively low VIF values (in all cases far below 10), ensuring that there is no serious multicollinearity problem.

5.4 Event Study Method (Hypotheses 3 and 4)

We use a conventional event study methodology to test the robustness of the results since an event study can help to identify a causal impact of foundation ownership on performance. The event research method permits us to measure the direct value effects attributed to transaction announcements, as opposed to relying on annual financial performance data, which might capture a myriad of other factors unrelated to ownership effects.

Our focus is to examine the shareholder wealth implications of foundation ownership in acquisitions. Acquisitions provide clear evidence on agency costs (Shleifer & Vishny, 1986) and thus it is interesting to investigate the severity of agency problems in foundation-owned companies based on acquisition deals. Our events of interest are announcements by foundation-owned companies and non-foundation-owned control companies to acquire controlling equity stakes in target firms.

The events occur between 2012 and 2020 and they cover 469 announcements from 182 sample firms including foundation-owned firms as well as their non-foundation-owned counterparts. Information on corporate acquisitions is drawn from Bureau van Dijk's (BvD) Zephyr. The recent surge in the employment of this database in M&A research publications suggests that Zephyr is a reliable source for M&A deals (Erel et al.. 2015). Acquisitions are considered to be occurring when the acquirer controls less than 50% of the target shares prior to the announcement and increases its ownership position to greater than 50% of the target shares post-announcement following prior studies in this area (e.g. Bouzgarrou & Navatte, 2013). We consider three types of targets, namely public, private and subsidiary. We use the same manually collected ownership data previously elaborated on in section 4.1. We limit our sample to acquisitions deals whose transaction value exceeds $10 million. By removing transactions with a lower economic value, we ensure that we only capture deals of material significance to acquiring firms and their investors. Moreover, we exclude transactions where either the acquirer or the target is a financial or utility firm (all firms with SIC codes between 6000 to 6999 and 4900 to 4999).

In the regressions, we use cumulative abnormal returns (CARs) as our dependent variable. The abnormal returns are estimated using the market model following Brown and Warner (1980, 1985) surrounding the days of the announcement, where the benchmark for the stock return of firm i is the return on the respective domestic market index. Expected returns are based on an estimation window of 250 days $[-260, -10]$. To address the event date uncertainty issues we consider four event windows namely, [-5,5], [-2,2], [0,1] and [0,2] in our study in the

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[20] Charitable foundations are sometimes referred to as "good capitalists"" by the business press (Handelsblatt, 2012).

calculation of the acquiring firms' cumulative abnormal returns (CARs). Formally, the market model takes the form:

$$(1)\, AR_{i,t} = R_{i,t} - (\alpha_i + \beta_i R_{m,t})$$

Followingly, the abnormal return on a given day is given by the difference between the returns that were predicted (normal return) and the returns that actually occurred ($R_{i,t}$) during the event window.

$$(2)\, CAR_i\,(t1,t2) = \sum_{t=1}^{t=2} AR_{it}$$

We compute the cumulative abnormal return in order to be able to draw inferences about the wealth effect for foundation-owned firms of the announcements. The cumulative abnormal return for firm i is the sum of the abnormal returns between periods t_1 and t_2. Our regression analysis contains firm-specific control variables including firm size, leverage, firm age and growth. Given the distribution of the acquisitions across years, industries, and countries we control for year, country and industry fixed effects in the regression analysis. Furthermore, we control for acquisition characteristics, more specifically method of payment, prior ownership, target status, relative deal size and industry relatedness. To control for payment method, which may affect acquirer performance according to prior research by Dutta and Jog (2009)[21]we introduce two dummy variables, namely, Stock Payment (equal to one if only stocks are utilized for payment) and Cash Payment (equal to one if only cash is used as a method of payment). Since previous research has shown that acquirers of listed firms underperform (Officer, 2007; Bouzgarrou & Navatte, 2013), we introduce a dummy variable (Listed Target) equal to one if the target is a listed firm. Similarly, we control for prior ownership. In a number of transactions, the acquirer had an initial stake, which may positively affect abnormal returns because the acquirer has an informational advantage providing it with an enhanced assessment of the likelihood of a successful integration (see Yang, 2014; Frame & Lastrapes, 1998). Further, we control for relative deal size measured by the deal value divided by the market value of assets consistent with Moeller et al. (2004). Lastly, we control for industry relatedness by introducing a dummy variable that takes on the value 1 if the target and acquirer have the same two-digit SIC codes, and zero otherwise.

Table 14 shows that foundation-owned firms realize positive abnormal returns of 0.6% 11 days [-5,5] around the event window. However, non-foundation-owned firms realize abnormal returns of 1.25% for the same event window. The test of difference shows that on the univariate level conventional firms experience significantly higher CAR around the announcement date. Similarly, in the other event windows, foundation-owned firms realize positive but significantly lower abnormal returns than non-foundation-owned firms around the announcement date (except for the 2-day window). The univariate analysis should be complemented by a multivariate analysis that takes into account firm and acquisition deal characteristics.

The results of the regression analysis are reported in table 15. We regress cumulative abnormal returns eleven days [-5,5] around the announcement date on the foundation ownership dummy after controlling for other determinants of CARs (Model 1). The control variable Cash Payment has, as largely expected, a significant positive impact indicating that deals where cash is the

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[21] Dutta and Jog (2009) show that the acquisition performance of firms paid with cash is higher than that of those paid with stock. This is consistent with the adverse selection problem in equity issuance discussed in the landmark paper by Myers and Majluf (1984).

primary source of payment experience significantly positive abnormal returns (Model 1). The impact of foundation ownership on CARs is negative but statistically irrelevant. The insignificant estimate suggests that foundation-owned firms do not appear to undertake less efficient acquisitions than conventional firms. We find corroborating results in models 3, 5 and 7, which build on five-day [-2,2], two-day [0,1] and [0,2] three-day event window specifications respectively. Therefore, after controlling for firm and acquisition characteristics, we obtain results that speak for the efficiency of enterprise foundations. The results do not confirm suggestions from the agency-based framework, implying the rejection of hypothesis 3. Contrary to our expectations they suggest that foundation-owned firms undertake efficient acquisitions. What makes enterprise foundations efficient acquirers?

Perhaps our findings may be explained by the conservative, long-term-oriented corporate policy adopted by foundation-owned firms. Arguably, they are cautious acquirers because stock-financed acquisitions are a source of dilution of foundation control and cash-financed acquisitions feed into the company's cash reserves. Based on capital rationing and a strong preference for autonomy and survival foundation-owned firms are likely to undertake fewer acquisitions even compared with family firms (Achleitner et al., 2020). The fact that enterprise foundations nonetheless decide to carry out the acquisition as a means of expansion may imply that they anticipate the acquisition to be sufficiently value-creating to offset the associated costs (i.e. the loss of control or financial risks). Despite the agency costs associated with foundation ownership, the cautious acquisition strategy may lead to the cherry-picking of efficient (i.e. value-creating) acquisitions and it might constrain empire building by managers (Jensen, 1986)[22].

In all specifications (models 2, 4, 6 and 8; table 15) a charitable foundation purpose has a negative and significant effect on CARs (with varying levels of significance) indicating that among foundation-owned firms those owned by a private (family) foundation perform better than those owned by a charitable foundation in acquisitions. This conjecture is also supported by the univariate results. Despite having no direct equity ownership, the founding family is likely to have strong incentives to ensure successful integration of the acquisition target based on its indirect dividend claims on earnings possibly resulting in higher stock market valuations. Against this background, hypothesis 4 is confirmed.

Taken together, the analysis of the market price reaction to acquisition announcements provides another piece of evidence on the economic viability of foundation-owned companies.

5.5 Robustness checks: Heckman selection model and alternative econometric specification

We performed various robustness checks in order to test the sensitivity of our findings. Although the results shown above indicate that foundation-owned companies do well without profit incentives we have, thus far, not differentiated between treatment and selection effects in our study. This means that we have not explored whether founders of financially successful firms might be particularly likely to choose the foundation as a succession vehicle or whether indeed the foundation as an institution causes the strong financial showing. Ex-ante it is unclear how foundation ownership interacts with performance, foundation ownership may lead to competitive performance outcomes, just as well as it is possible that competitive performance may lead to foundation ownership. It seems very likely that there are indeed selection effects

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[22] Jensen (1986) argues that managers in firms with a high level of free cash flows are likely to grow the firm beyond its optimal size.

at work so that a founder is more prone to pass on his firm to a foundation if the firm is conspicuously successful[23]. Given that both ownership and profitability are relatively stable over time, econometric specifications that rely on fixed-effects and lagged values may not adequately address the potentially endogenous relation.

Our empirical analysis controls for potential endogeneity and self-selection by relying on the Heckman (1979) two-step treatment effects model. First, we estimate the propensity of foundation ownership with a probit model, and subsequently, use the information from the probit model to estimate the treatment effect of foundation ownership (modeled as an endogenous choice) on financial performance. To satisfy the exclusion constraints needed for identification the first-stage probit model includes the variability in the growth rates and a performance measure (ROA, Firm Value, Stock return and growth respectively) because foundation ownership may be affected by the financial performance itself (see Demsetz & Villalonga, 2001). The control variables (from the main regression model) are included in the probit model, but year, country, and industry dummies that perfectly predict foundation ownership are restricted. In Table 12, the first-stage regressions show that foundation ownership is insignificantly related to most of the financial performance measures (except a positive estimate on firm value and a negative coefficient on stock returns at the 10% level). Interestingly, when investigating the determinants of foundation ownership we find that the probability of foundation ownership is higher when the volatility of sales growth is lower, the knowledge intensity is higher and growth rates are higher. We include the inverse Mills ratio from the first-stage regression in the subsequent regression models as an additional independent variable to correct for self-selection of foundation ownership. The second-stage (outcome) regression shows that the foundation ownership (treatment) coefficient is insignificant using firm value, ROA, stock return, and growth. The inverse Mills ratio is statistically significant in models with ROA and stock return as dependent variables, indicating that single-equation estimates are biased. In sum, Heckman's model shows that foundation-owned firms perform as well as their non-foundation-owned counterparts after accounting for reverse causality considerations.

Besides, the argument for strong performance causing foundation ownership is questionable because foundation ownership is highly stable over long stretches of time as seen in figure 1[24] - the ownership share held by enterprise foundations remains at around 44% around the sample period with a minimum of 43% in 2017 and a maximum of 45.4% in 2003. Enterprise foundations have held their stakes on average for 44 years (median 30) – charitable foundations stick to their companies even for 51 years, on average. This indicates that enterprise foundations remain with their company even under dire economic circumstances (consistent with their perpetual nature) and thus confirms causality that foundation ownership leads to competitive financial performance.

Moreover, even if the initial selection effect is strong so that firms are conspicuously profitable at the time of conversion to foundation ownership, it is unclear how long such initial effects can endure. Figure 2 examines whether foundation-owned companies are initially profitable but then lose profitability subsequently relative to the benchmark firms. It shows that there is no significant evidence of a decline in profitability over time as predicted by the classical agency theory. In addition, we control for the number of years passed since the company changed to foundation ownership in congruence with Hansmann and Thomsen (2021). We do not find significant age effects on the financial performance measures (Table

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[23] The strong profitability of firms when they converted into foundation ownership is sometimes referred to as "birth bias".

[24] It is worth noting that the self-selection problems and reverse causality issues are believed to be more severe in cases, where the owner (i.e. the foundation) actively enters and exits her/his ownership stake in the company, which stands in contrast with the long time horizon of enterprise foundations.

16). Thus, we find no evidence that the results in this study are driven by this sort of selection bias.

Due to data limitations, we cannot rule out the other form of endogeneity, omitted variable bias. The key concern is that some unobservable foundation ownership traits are responsible for the strong business profitability of foundation-owned companies. In the context of our study, however, even if unobserved heterogeneity is present to some degree, it is unlikely to compensate for high agency costs entirely. We partly address this issue by controlling for factors that have been shown to impact financial performance (Table 7) and acquirer's performance (Table 15). Nonetheless, caution is warranted when it comes to the interpretation of our empirical results.

In addition, an alternative econometric specification (random effect GLS regression) is employed to test the robustness of the results. The random-effects specification is consistent with prior literature on ownership (e.g., Le & O'Brien, 2010). As can be seen in table 13 the results are quantitatively and qualitatively similar to the OLS results presented in table 7. Finally, we have restricted the sample to include only those enterprise foundations, who hold more than 50% of the votes in a firm. The 50% threshold is important because it gives enterprise foundations majority control of the firm. This restriction has yielded only minor changes in the magnitude of the coefficients (Table 12).

Taken together, the results obtained from the validation checks suggest a reasonable level of robustness to the consideration of reverse causality as well as to alternative econometric specifications.

6. Discussion

This study extends the existing literature on foundation ownership by providing the first empirical evidence on the economic performance of publicly listed foundation-owned firms in a global setting. The paper thereby contributes to an improved understanding of a unique governance structure – namely non-profit ownership exercised by a foundation of a business company - which has recently attracted attention as an alternative to conventional, profit-driven corporations. The results are important because they suggest that foundation ownership can be regarded as an economically efficient institution.

Hence, our findings cast doubt on the agency theory based view that firms without residual claimants cannot succeed financially and they challenge the mainstream governance literature. We attribute the results to the long-term oriented, purpose-driven corporate governance by enterprise foundations. Other owners may also benefit from stewardship (responsible long-term ownership). In our sensitivity checks, we perform tests to take the possibly endogenous relationship between foundation ownership and financial performance into account and find that the results are robust.

The results have practical implications. First, they indicate that foundation-owned firms are viable and competitive with other ownership forms, which indicates that purpose companies, in general, could be competitive. Our results also indicate that serving a charitable cause instead of having the family as the ultimate beneficiary does not result in clear underperformance as predicted by the classical agency theory. Plausibly this may be because a public purpose benefits the company as a whole. Lastly, the study of acquisition announcements showed that foundation-owned firms are efficient acquirers and points to the shareholder dominance in acquisition decisions. At the same time, comparing the shareholder value effects of charitable and private foundations, it seems that private foundations are better at serving shareholder interests when it comes to acquiring other firms.

The results suggest the following policy implication: barriers to foundation ownership should

be effectively removed if policymakers want to encourage fair competition between ownership structures as we can find no clear evidence that foundation ownership is inefficient[25]. We believe that policies should be guided by robust scientific evidence. It should be noted that foundation ownership is unlikely to be the optimal ownership structure for all types of firms. Foundation ownership may even be detrimental to firm performance, for example, in volatile sectors with unstable cash flows, because the enterprise foundation's will to maintain control requires, for the most part, self-financing of firm expansion, which in some cases could restrict growth opportunities[26].

Our study suffers from the following limitations. Firstly, our study suffers from a relatively small sample size because the number of publicly listed foundation-owned companies is still limited around the world. Secondly, we cannot rule out that the observed patterns are attributable to omitted variables that are both correlated with foundation ownership and firm performance.

In the pursuit of examining the financial performance of listed foundation-owned companies, multiple avenues for further research have been identified. Despite that the used dataset contains foundation-owned companies from 26 different countries, the study only controls for country differences instead of directly investigating how differences in institutions, culture and development of capital markets drive the performance of foundation-owned companies. Moreover, publicly listed firms may be under stronger pressure to perform well as they are continuously scrutinized by equity markets. Therefore, adding non-listed companies would provide additional depth in understanding the economic performance of foundation-owned companies around the world. Lastly, further investigating whether the heterogeneity within foundation-owned firms exists with regard to other firm outcomes, including social and environmental performance indicators, could give more profound insights into the nuances between charitable and private foundations.

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[25] For example, the U.S. imposes fines on foundations that have 20% or more of ownership stakes in business companies (Fleishman, 2001).

[26] In some cases the foundation charter mandates the foundation to remain the majority owner of the firm, which arguably makes it difficult to issue new shares and raise equity capital for the foundation-owned company.

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Table 2 Pearson Correlation Matrix (Full sample)

Variables	VIF	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(
(1) Foundation-owned	**1.01**	1.000									
(3) Firm value		**0.095**	1.000								
		(0.000)									
(3) ROA		**0.086**	**0.076**	1.000							
		(0.000)	(0.000)								
(4) Stock Return		**0.029**	**0.215**	**0.109**	1.000						
		(0.056)	(0.000)	(0.000)							
(5) Growth		0.003	**0.100**	**0.096**	**0.118**	1.000					
		(0.842)	(0.000)	(0.000)	(0.000)						
(6) PPE/Sales	**1.12**	-0.003	0.018	**-0.226**	-0.005	**-0.047**	1.000				
		(0.804)	(0.220)	(0.000)	(0.730)	(0.001)					
(7) R&D/Sales	**1.09**	**-0.053**	**0.208**	**-0.498**	0.028	0.022	**0.403**	1.000			
		(0.000)	(0.000)	(0.000)	(0.092)	(0.151)	(0.000)				
(8) Leverage	**1.06**	**-0.037**	**-0.101**	**-0.039**	**-0.039**	-0.022	**0.171**	**-0.061**	1.000		
		(0.006)	(0.000)	(0.005)	(0.009)	(0.124)	(0.000)	(0.000)			
(9) Firm size	**1.14**	**-0.055**	**-0.148**	**0.229**	**-0.045**	**-0.078**	**-0.079**	**-0.214**	**0.265**	1.000	
		(0.000)	(0.000)	(0.000)	(0.002)	(0.000)	(0.000)	(0.000)	(0.000)		
(10) Firm age	**1.19**	**0.165**	**-0.117**	**0.061**	0.002	**-0.091**	**-0.042**	**-0.085**	-0.021	**0.193**	1.
		(0.000)	(0.000)	(0.000)	(0.923)	(0.000)	(0.007)	(0.000)	(0.177)	(0.000)	
(11) Intangibility	**1.11**	0.017	**0.034**	0.001	**-0.043**	**0.032**	**-0.221**	**-0.044**	**0.109**	**0.217**	-0.
		(0.221)	(0.018)	(0.949)	(0.004)	(0.026)	(0.000)	(0.004)	(0.000)	(0.000)	(0.0

Correlations with statistical significance are highlighted in bold

The variables are the following: Foundation-owned, ROA, Firm Value, Growth (in sales), Stock returns, firm size, leverage, R&D-to-sales ratio, R&D Dummy, PPE-to-sales ratio and Intangibility. Variable definitions and sources are provided in Table 12**.**

Table 4 Descriptive Statistics Foundation Purpose sub-sample

Private	N	mean	median	min	max	sd
ROA	500	.089	.113	-.845	.953	.145
Firm Value	456	1.261	.975	.131	10.463	1.062
Stock return	371	.201	.1	-.794	3.301	.516
Growth	486	.095	.063	-1	2.278	.302
Leverage	496	.222	.203	0	.932	.168
Firm size	509	6.311	5.896	.727	12.462	2.376
R&D/Sales	505	.537	.007	0	58.654	4.425
PPE/Sales	499	.637	.351	.006	9.161	1.041
Intangibility	468	.149	.052	0	.798	.195
Charitable						
ROA	1354	.131	.121	-1.161	.578	.11
Firm Value	1143	1.746	1.119	.166	17.963	1.774
Stock return	1053	.198	.14	-.874	4.22	.491
Growth	1274	.073	.059	-1	2.149	.203
Leverage	1335	.232	.201	0	8.679	.353
Firm size	1362	7.077	7.188	-.361	11.313	1.818

R&D/Sales	1356	.077	.005	0	6.33	.357
PPE/Sales	1353	.389	.261	0	8.935	.509
Intangibility	1291	.196	.119	0	.804	.203

Table 4 shows summary statistics of the main variables used, including the key dependent variables (ROA, Firm Value, Stock Returns and Sales Growth) as well as explanatory variables (Size, Leverage, R&D/Sales, PPE/Sales and Intangibility). Extreme values that are implausible and are likely to be data errors were removed to reduce the degree of skewness of the variables sales growth (6 observations), firm value (11 observations), R&D/Sales (13 observations), PPE/Sales (9 observations), and ROA (1 observation)). Variable definitions and sources are provided in Table 18**.**

Table 5 Univariate Analysis Foundation Purpose Sub-sample

Parametric test

	Number of Observations		Means		Differences in means
Variables	Charitable	Private	Charitable	Private	
ROA	1,235	439	13.16%	8.11%	5.06%***
Firm Value	1,083	410	1.82	1.24	0.58***
Stock return	992	331	19.58%	19.07%	0.51%
Growth	1,160	425	7.55%	8.05%	-0.50%

Non-parametric test

	Number of Observations			Rank Sum		Differences in rank su
Variables	Charitable	Private	Z	Charitable	Private	Charitable-Private
ROA	1,235	439	-5.096	1078646.5	323328.5	755318***
Firm Value	1,083	410	-5.4	849152	266119	583033***
Stock return	992	331	-0.64	660559	215267	445292
Growth	1,160	425	0.11	918992.5	337912.5	581080

*Note: This table shows 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). The variables tested are the performance variables used for the subsequent regression analysis. *, **, ***Significant at the 10%, 5%, and 1% levels, respectively.*

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Table 9 Regression Results FOFs vs. Family firms

VARIABLES	(1) ROA	(2) Firm Value	(3) Stock return	(4) Growth	(5) ROA	(6) Firm Value	(7) Stock return	(8) Growth
Foundation-o.	-0.0142	0.0786	-0.0286	-0.0306**	0.0141	0.429**	0.000357	-0.0221*
	(0.0184)	(0.291)	(0.0209)	(0.0148)	(0.0114)	(0.192)	(0.0159)	(0.0122)
Firm size	0.0112**	0.00405	-0.0184***	-0.00182	0.00855**	-0.0522	-0.0135**	-0.00661
	(0.00486)	(0.0905)	(0.00663)	(0.00600)	(0.00363)	(0.0567)	(0.00521)	(0.00420)
Leverage	-0.125**	-0.608	0.0208	0.0204	-0.118***	-0.535	0.00395	0.0379
	(0.0504)	(0.731)	(0.0699)	(0.0499)	(0.0425)	(0.654)	(0.0552)	(0.0422)
PPE/Sales	0.00627	-0.0399	-0.0265	-0.0211	-0.000644	-0.186**	-0.0239	-0.0150
	(0.00978)	(0.113)	(0.0216)	(0.0357)	(0.00943)	(0.0876)	(0.0169)	(0.0240)
R&D/Sales	-0.120***	0.182	0.0635	-0.0266	-0.0712***	0.247***	0.0146	-0.0102
	(0.0187)	(0.146)	(0.0941)	(0.0567)	(0.0150)	(0.0718)	(0.0363)	(0.0177)
Firm Age	9.53e-05	-0.00332	0.000332	-0.000110	-0.000236	-0.00526	0.000131	-0.000268*
	(0.000220)	(0.00371)	(0.000301)	(0.000216)	(0.000185)	(0.00329)	(0.000270)	(0.000156)
Growth	0.0122	0.702***	0.247***		0.0218	0.645**	0.247***	
	(0.0231)	(0.264)	(0.0801)		(0.0219)	(0.272)	(0.0737)	
Intangibility	-0.0331	-0.858	-0.117**	0.119**	-0.0326	-0.647	-0.0589	0.0714
	(0.0379)	(0.770)	(0.0573)	(0.0580)	(0.0259)	(0.529)	(0.0559)	(0.0513)
Country average					0.872***	0.714***	0.579***	0.700***
					(0.127)	(0.151)	(0.131)	(0.196)
Industry average					0.337*	0.837***	0.347*	0.764***
					(0.183)	(0.192)	(0.200)	(0.245)
Constant	0.165***	-0.472	0.0631	0.120	0.00366	-0.108	-0.0904	-0.0431
	(0.0446)	(1.047)	(0.118)	(0.0902)	(0.0322)	(0.538)	(0.0959)	(0.0614)
Observations	1,765	1,690	1,628	1,770	1,765	1,690	1,628	1,770
R-squared	0.505	0.408	0.293	0.192	0.392	0.284	0.269	0.160

Time (year) effects	Yes Yes Yes Yes	Yes Yes Yes Yes
Country effects	Yes Yes Yes Yes	No No No No
Industry effects	Yes Yes Yes Yes	No No No No

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The dependent variables are ROA, firm value, stock return, as well as sales growth. The control group consists of family-owned firms. All models are estimated as ordinary least squares regressions with standard errors clustered at the firm-level (in parentheses). Control variables are leverage, firm size, research intensity, growth and the industry, year and country dummies (fixed effects), which are unreported for space reasons.

Table 10 Regression Results FOFs vs. Investor-owned Firms

VARIABLES	(1) ROA	(2) Firm Value	(3) Stock return	(4) Growth	(5) ROA	(6) Firm Value	(7) Stock return	(8) Growth
Foundation-o.	0.0275	0.162	-0.0112	0.0142	0.0347***	0.269	-0.0227	-0.000217
	(0.0240)	(0.335)	(0.0224)	(0.0133)	(0.0128)	(0.182)	(0.0239)	(0.00965)
Firm size	0.0114**	0.0637	-0.00597	-0.00175	0.00865	-0.00591	-0.00835*	-0.00212
	(0.00527)	(0.0695)	(0.00571)	(0.00346)	(0.00546)	(0.0517)	(0.00503)	(0.00288)
Leverage	-0.0417	0.561	0.000817	-0.00339	-0.0962***	-0.0492	-0.0346	-0.00207
	(0.0354)	(0.708)	(0.0811)	(0.0341)	(0.0353)	(0.644)	(0.0730)	(0.0343)
PPE/Sales	-0.00979	-0.292**	0.00632	-0.0612***	-0.00675	-0.248***	-0.000567	-0.0427***
	(0.0156)	(0.126)	(0.0491)	(0.0162)	(0.00872)	(0.0818)	(0.0310)	(0.0140)
R&D/Sales	-0.171***	0.815***	-0.0311	0.0473***	-0.155***	0.758***	-0.0307*	0.0366***
	(0.0109)	(0.114)	(0.0254)	(0.00913)	(0.0110)	(0.0785)	(0.0172)	(0.00913)
Firm Age	-3.63e-05	-0.00529	0.000579*	-1.36e-05	-0.000347**	-0.00484**	0.000124	-0.000190
	(0.000212)	(0.00339)	(0.000318)	(0.000172)	(0.000158)	(0.00227)	(0.000229)	(0.000142)
Growth	0.0555***	0.484***	0.292***		0.0744***	0.590***	0.322***	
	(0.0118)	(0.155)	(0.0619)		(0.0136)	(0.181)	(0.0611)	
Intangibility	-0.0561	-1.776***	0.0672	0.0318	-0.0221	-1.083**	-0.00317	-0.0130
	(0.0404)	(0.639)	(0.0640)	(0.0391)	(0.0198)	(0.428)	(0.0519)	(0.0315)
Industry average					0.291	0.875***	0.455**	0.427***
					(0.196)	(0.179)	(0.202)	(0.151)
Country average					0.607***	0.903***	0.936***	0.887***
					(0.230)	(0.151)	(0.295)	(0.245)

Constant	-0.0211	-0.551	0.195	0.114	0.0139	-0.661	-0.114*	-0.0768**
	(0.0612)	(0.772)	(0.143)	(0.0765)	(0.0633)	(0.543)	(0.0664)	(0.0334)
Observations	2,195	2,152	2,105	2,195	2,213	2,170	2,123	2,213
R-squared	0.606	0.498	0.280	0.200	0.479	0.389	0.260	0.165
Time (Year) effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes	No	No	No	No
Country effects	Yes	Yes	Yes	Yes	No	No	No	No

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The dependent variables are ROA, firm value, stock return, as well as sales growth. The control group consists of investor-owned firms. All models are estimated as ordinary least squares regressions with standard errors clustered at the firm-level (in parentheses). Control variables are leverage, firm size, research intensity, growth, PPE/Sales R&D/Sales, Firm Age, Intangibility and the industry, year and country dummies (fixed effects), which are unreported for space reasons. For sensitivity reasons, we replaced the country and industry fixed effects with the relative averages of the dependent variables in Models 5 to 8.

Table 11 Regression Results Foundation Purpose Sub-sample

	(1)	(2)	(3)	(4)
VARIABLES	ROA	Firm Value	Stock return	Growth
Charitable foundation	0.0316	0.191	0.119**	-0.0606
	(0.0272)	(0.576)	(0.0547)	(0.0391)
Firm size	0.00799	0.136	-0.0384***	0.0110**
	(0.00543)	(0.147)	(0.00932)	(0.00535)
Leverage	-0.0308	0.809	-0.162	-0.0214
	(0.0450)	(1.086)	(0.122)	(0.0896)
PPE/Sales	-0.0290***	-0.270	-0.0519	-0.0618**
	(0.00960)	(0.247)	(0.0345)	(0.0292)
R&D/Sales	-0.309***	0.410	0.261**	-0.137*
	(0.115)	(2.841)	(0.123)	(0.0706)

Firm Age	-1.28e-05	-0.00881	0.000396	0.000199
	(0.000284)	(0.00686)	(0.000435)	(0.000340)
Growth	0.0490***	0.723**	0.501***	
	(0.0137)	(0.296)	(0.152)	
Intangibility	-0.157***	-3.287***	-0.0724	0.0306
	(0.0455)	(1.235)	(0.117)	(0.0527)
Constant	-0.0290	-2.683**	0.0520	0.0493
	(0.0443)	(1.249)	(0.122)	(0.0749)
Time (year) eff.	Yes	Yes	Yes	Yes
Country effects	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes
Observations	837	807	779	837
R-squared	0.618	0.578	0.359	0.323

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The dependent variables are ROA, firm value, stock return, as well as sales growth. The control group consists of private (family) foundations. All models are estimated as ordinary least squares regressions with heteroscedasticity robust standard errors clustered at the firm-level (in parentheses). Control variables are leverage, firm size, research intensity, growth and the industry, year and country dummies (unreported for space reasons).

Table 12 Regression Results Restricted Sample (>=50% of voting rights)

VARIABLES	(1) ROA	(2) Firm value	(3) Stock return	(4) Growth
Foundation-owned	-0.0129	0.256	-0.0382	0.0162
	(0.0140)	(0.341)	(0.0312)	(0.0394)
Firm size	0.0132**	-0.0671	-0.00685	-0.0361*
	(0.00518)	(0.0984)	(0.00895)	(0.0196)
Leverage	-0.101**	-1.316	-0.0919	0.270*
	(0.0401)	(1.181)	(0.0996)	(0.156)

	(1)	(2)	(3)	(4)
PPE/Sales	-0.00745*	-0.0904	0.00806	-0.0218
	(0.00395)	(0.0772)	(0.0157)	(0.0182)
Growth	-0.0521*	0.649**	0.0128	
	(0.0309)	(0.262)	(0.0329)	
R&D/Sales	-0.0226***	0.0844**	-0.00969	-0.0187
	(0.00616)	(0.0360)	(0.00775)	(0.0128)
Intangibility	-0.0390	-0.00525	-0.106	0.125
	(0.0335)	(0.682)	(0.0708)	(0.127)
Industry avg.	0.0340	-3.026	0.802**	-1.213*
	(0.196)	(4.666)	(0.361)	(0.689)
Constant	0.0664	2.254***	0.0733	0.330*
	(0.0514)	(0.704)	(0.105)	(0.169)
Observations	1,759	1,658	1,598	1,762
R-squared	0.379	0.242	0.216	0.093

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 12 Firm performance and foundation ownership controlling for reverse causality (Heckman selection model) FoFs vs nFoFs

VARIABLES	(1) Foundation-owned	(2) ROA	(3) Foundation-owned	(4) Firm value	(5) Foundation-owned	(6) Stock return	(7) Foundation-owned	(8) Growth
STD Growth	-2.657*		-3.165*		-3.426*		-2.948*	
	(1.410)		(1.638)		(1.898)		(1.619)	
ROA	2.427							
	(1.521)							
Firm Value			0.0836*					
			(0.0498)					
Stock Return					-0.0921*			
					(0.0478)			

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Foundation-owned		0.0232		0.307		-0.0228		-0.0203
		(0.0163)		(0.261)		(0.0203)		(0.0146)
Firm Size	0.140*	-0.00178	0.119	-0.0298	0.115	-0.00155	0.121	0.00567
	(0.0788)	(0.00437)	(0.0815)	(0.0820)	(0.0840)	(0.00578)	(0.0830)	(0.00358)
Leverage	0.641	-0.134***	0.546	-0.220	0.669	0.0562	0.538	0.0618
	(0.815)	(0.0336)	(0.831)	(0.570)	(0.850)	(0.0735)	(0.845)	(0.0392)
R&D/Sales	0.0255	-0.0873***	-0.483	0.951***	-0.0593	-0.0519	-0.374	-0.0820**
	(2.608)	(0.0203)	(2.554)	(0.279)	(2.787)	(0.0360)	(2.349)	(0.0349)
Firm Age	0.00374	-0.000466***	0.00428	-0.00616**	0.00503	0.000572**	0.00393	0.000246
	(0.00604)	(0.000167)	(0.00622)	(0.00253)	(0.00619)	(0.000277)	(0.00613)	(0.000190)
PPE/Sales		0.00313		-0.0916		-0.00452		0.0132
		(0.0103)		(0.108)		(0.0431)		(0.0205)
Growth		0.0482***		0.786***		0.232***	-0.133	
		(0.0134)		(0.260)		(0.0590)	(0.201)	
Intangibility		-0.0281		-0.913		-0.0164		0.0860**
		(0.0312)		(0.568)		(0.0588)		(0.0386)
Inv. Mills		-0.111***		-0.463		0.0776***		0.111***
		(0.0231)		(0.323)		(0.0271)		(0.0309)
Time (year) effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-1.853	0.146**	-0.612	-0.327	-0.338	-0.0232	-1.218	-0.199**
	(1.149)	(0.0662)	(1.238)	(0.918)	(1.292)	(0.143)	(1.180)	(0.0824)
Observations	2,528	2,389	2,455	2,326	2,328	2,286	2,429	2,389
R-squared		0.657		0.398		0.253		0.176

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 13: Alternative Econometric Method (GLS random effect regressions) FoFs vs. nFoFs

VARIABLES	(1) ROA	(2) Firm Value	(3) Stock return	(4) Growth	(5) ROA	(6) Firm Value	(7) Stock return	(8) Growth
Foundation-o.	0.0149	0.254	-0.0151	-0.0141	0.0216**	0.245	-0.00828	-0.00915
	(0.0155)	(0.248)	(0.0199)	(0.0136)	(0.0105)	(0.167)	(0.0167)	(0.0104)
Firm size	0.00833	-0.0917	-0.00896*	-0.00286	0.00924	-0.0983	-0.0113***	-0.00534
	(0.00787)	(0.101)	(0.00493)	(0.00492)	(0.00680)	(0.0734)	(0.00434)	(0.00381)
Leverage	-0.102***	0.455	0.0367	0.0271	-0.109***	0.304	-0.0144	0.0289
	(0.0333)	(0.543)	(0.0626)	(0.0365)	(0.0321)	(0.517)	(0.0614)	(0.0344)
PPE/Sales	-0.00356	-0.222***	-0.00632	-0.0355	-0.00328	-0.239***	-0.0104	-0.0323
	(0.0175)	(0.0732)	(0.0302)	(0.0264)	(0.0158)	(0.0658)	(0.0240)	(0.0212)
R&D/Sales	-0.0925***	0.0521	-0.00897	0.00689	-0.0866***	0.102	-0.00771	0.00140
	(0.0186)	(0.256)	(0.0320)	(0.0307)	(0.0181)	(0.227)	(0.0272)	(0.0231)
Firm Age	0.000168	-0.00438	0.000308	-0.000248	-9.13e-05	-0.00487**	0.000116	-0.000361***
	(0.000230)	(0.00266)	(0.000260)	(0.000188)	(0.000166)	(0.00208)	(0.000230)	(0.000138)
Growth	0.0379***	0.358**	0.239***		0.0413***	0.362**	0.255***	
	(0.0116)	(0.152)	(0.0527)		(0.0116)	(0.150)	(0.0524)	
Intangibility	-0.0442	-2.055***	-0.0137	0.0902*	-0.0544	-1.824***	-0.0148	0.0472
	(0.0383)	(0.513)	(0.0505)	(0.0527)	(0.0335)	(0.438)	(0.0461)	(0.0423)
Industry average					0.407***	0.851***	0.410**	0.633***
					(0.157)	(0.157)	(0.183)	(0.209)
Country average					0.841***	0.799***	0.737***	0.837***
					(0.0900)	(0.132)	(0.199)	(0.207)

Time (year) effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country effects	Yes	Yes	Yes	Yes	No	No	No	No
Industry effects	Yes	Yes	Yes	Yes	No	No	No	No
Constant	0.114	0.417	0.0410	0.0812	-0.0449	-0.219	-0.0720	-0.0715*
	(0.0699)	(0.883)	(0.102)	(0.0656)	(0.0551)	(0.526)	(0.0603)	(0.0381)
Observations	3,123	3,035	2,954	3,128	3,141	3,053	2,972	3,146
Number of i	237	234	232	238	239	236	234	240

The dependent variables are ROA, firm value, stock return as well as sales growth. The control group consists of non-foundation-owned firms. All models are estimated as GLS random effects regressions with standard errors clustered at the firm-level (in parentheses). Control variables are leverage, firm size, research intensity, PPE/Sales, Firm Age, Intangibility, growth and the industry, year and country dummies (fixed effects), which are unreported for space reasons.

Table 14: Acquirer performance

		FoFs			nFoFs		Difference in means	t-stat
	N	Mean	Median	N	Mean	Median		
CAR [− 5; + 5]	1,045	0.60%	0.001035	3,234	1.25%	0	0.006548	3.0372***
CAR [− 2 ; + 2]	475	0.73%	0.005113	1,470	1.56%	0.011594	0.0082226	3.3215***
CAR [0 ; +1]	190	0.88%	0.001653	588	1.23%	0.001311	0.0034483	1.1346
CAR [0 ; +2]	285	0.79%	0.002684	882	1.43%	0.002595	0.006392	2.3386***

		Private foundations			Charitable foundations		Difference in means	t-stat
	N	Mean	Median	N	Mean	Median		
CAR [− 5 ; + 5]	165	1.52%	0.024019	880	0.42%	0	0.0109444	2.9067***
CAR [− 2 ; + 2]	75	1.69%	0.011594	400	0.55%	0.002784	0.0114121	2.5813***
CAR [0 ; +1]	30	1.94%	0.018271	160	0.69%	0	0.0124873	1.8867**
CAR [0 ; +2]	45	1.84%	0.002595	240	0.59%	0.002684	0.0124468	2.3921***

CAR [− 5;+5] is cumulative abnormal stock returns 11-day around the announcement. *CAR [− 2;+2]* is cumulative abnormal stock returns 5-day around the announcement. CAR [0;+1] is cumulative abnormal stock returns 2-day around the announcement. CAR [0;+2] is cumulative abnormal stock returns 3-day around the announcement. ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively.

Table 15: Event study results FoFs vs. nFoFs and Foundation Purpose

VARIABLES	(1) CAR[-5,5]	(2) CAR[-5,5]	(3) CAR[-2,2]	(4) CAR[-2,2]	(5) CAR[0,1]	(6) CAR[0,1]	(7) CAR[0,2]	(8) CAR[0,2]
Foundation-o.	-0.0157		-0.0113		-0.00831		-0.0134	
	(0.0172)		(0.00753)		(0.0106)		(0.0119)	
Charitable foundation		-0.0399**		-0.0608***		-0.0219*		-0.0197*
		(0.0181)		(0.0163)		(0.0118)		(0.0110)
Firm size	0.00730*	0.00311	-0.00139	-0.00542	0.00302	-0.00654***	0.00330	-0.00408*
	(0.00441)	(0.00373)	(0.00266)	(0.00526)	(0.00307)	(0.00210)	(0.00343)	(0.00221)
Leverage	0.0285	-0.00973	0.0696**	-0.0201	0.0647*	0.0137	0.0551	0.00223
	(0.0495)	(0.0365)	(0.0303)	(0.0386)	(0.0351)	(0.0209)	(0.0376)	(0.0214)
Growth	-0.00380	-0.0127	-0.00154	-0.0569	-0.000753	0.0158	0.000778	0.0275
	(0.0129)	(0.0474)	(0.0104)	(0.0343)	(0.00908)	(0.0306)	(0.0105)	(0.0268)
Cash Payment	0.0208*	-0.00304	0.00388	-0.00304	0.00856	-0.00344	0.0120	-0.00175
	(0.0117)	(0.0129)	(0.00807)	(0.0102)	(0.00699)	(0.00729)	(0.00811)	(0.00815)
Stock Payment	0.0159	-0.00520	0.0179	0.00383	0.000993	-0.0145	0.00159	-0.0106
	(0.0249)	(0.0340)	(0.0232)	(0.0416)	(0.0165)	(0.0177)	(0.0201)	(0.0183)
Listed dummy	0.0106	0.0109	0.0176*	0.0105	0.0106	0.0114	0.0128	0.00997
	(0.0118)	(0.0157)	(0.0101)	(0.0121)	(0.00843)	(0.00718)	(0.00883)	(0.00650)
Firm age	2.81e-05		-7.91e-05		0.000137		0.000128	
	(0.000182)		(0.000126)		(0.000115)		(0.000126)	
Sic diff.	-0.0212**	0.00207	-0.00159	0.0263**	-0.00707	0.0144***	-0.00318	0.0133**
	(0.00921)	(0.0117)	(0.00761)	(0.0107)	(0.00660)	(0.00523)	(0.00721)	(0.00522)
Deal size	0.0603	5.769	-0.366	2.969	0.327	4.220**	-0.694	3.339**
	(0.725)	(4.140)	(0.435)	(2.564)	(0.388)	(1.912)	(0.442)	(1.611)
Prior stake	0.0201	-0.0111	0.00298	-0.0270**	0.0148	-0.0227***	0.0201	-0.0289***
	(0.0151)	(0.0332)	(0.0139)	(0.0133)	(0.0118)	(0.00602)	(0.0143)	(0.00519)
Industry avg.		0.597**	1.589***	0.180		0.167		0.243*
		(0.274)	(0.356)	(0.255)		(0.116)		(0.126)
Country avg.		-0.00135	0.924**			-0.119		-0.135

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		(0.345)	(0.427)			(0.190)		(0.170)
Constant	-0.466	0.0192	0.101	0.0726	-0.436*	0.0625**	-0.316	0.0424
	(0.390)	(0.0463)	(0.260)	(0.0568)	(0.247)	(0.0294)	(0.256)	(0.0301)
Country effects	Yes	No	No	Yes	Yes	No	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry effects	Yes	No	No	No	Yes	No	Yes	Yes
Observations	2,431	748	1,105	340	442	136	663	204
R-squared	0.435	0.296	0.351	0.488	0.501	0.428	0.500	0.394

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

*CAR is the cumulative abnormal return over the above indicated event window. Foundation-owned is a dummy equal to 1 if the foundation is the controlling owner in the firm or 0 otherwise. The variable charitable purpose indicates whether the company has a charitable or private foundation as a principal shareholder. Leverage is total debt divided by book value of assets. Size is the logarithm of total assets. Growth is the change in sales revenue. Cash Payment is a dummy variable equal to 1 if only cash is used for payment. Stock Payment is a dummy variable equal to 1 if only shares are used for payment. SIC Diff. is a Dummy variable that takes on a value of one if the acquirer and the target have different two-digit SIC codes. Prior ownership is a dummy variable taking the value 1 if the acquirer owns part of the target prior to the deal, and zero otherwise. Listed Target is a dummy variable equal to 1 if target is a listed company. All models include country, industry and year fixed effects (or the relative industry, country and year averages of CAR due to potential multi-collinearity issues) ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively.*

Figure 1 Foundation Ownership stability

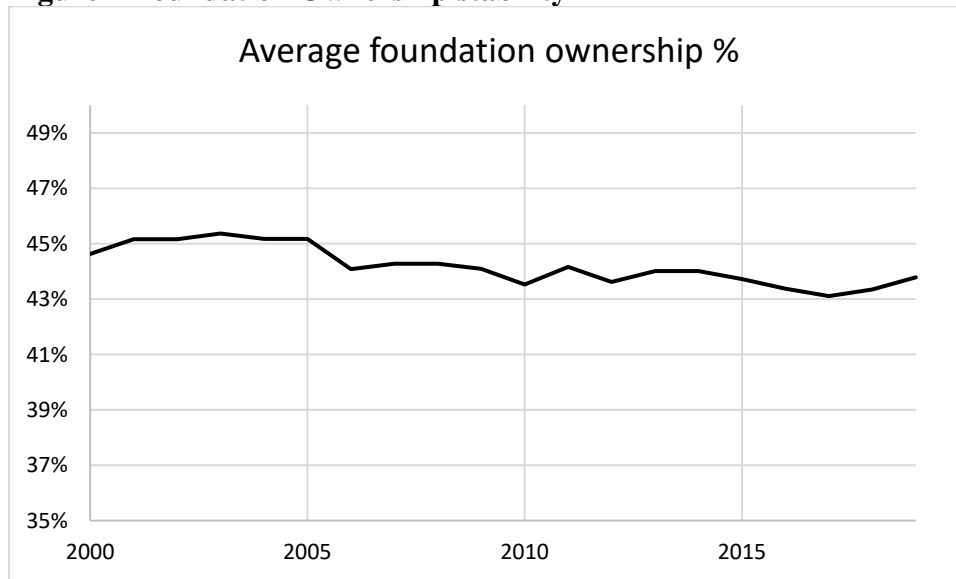*Figure 1 elucidates the average ownership percentage held by enterprise foundations across all sample FoFs. While it is difficult to obtain ownership percentages (in panel format), we examined corporate proxy statements and used BvD Zephyr to find announcements by enterprise foundations, where they signaled their intention to either decrease or increase their equity stakes, in order to compute historical ownership %.*

Figure 2 Profitability (average ROA) of FoFs and nFoFs over time (balanced panel)
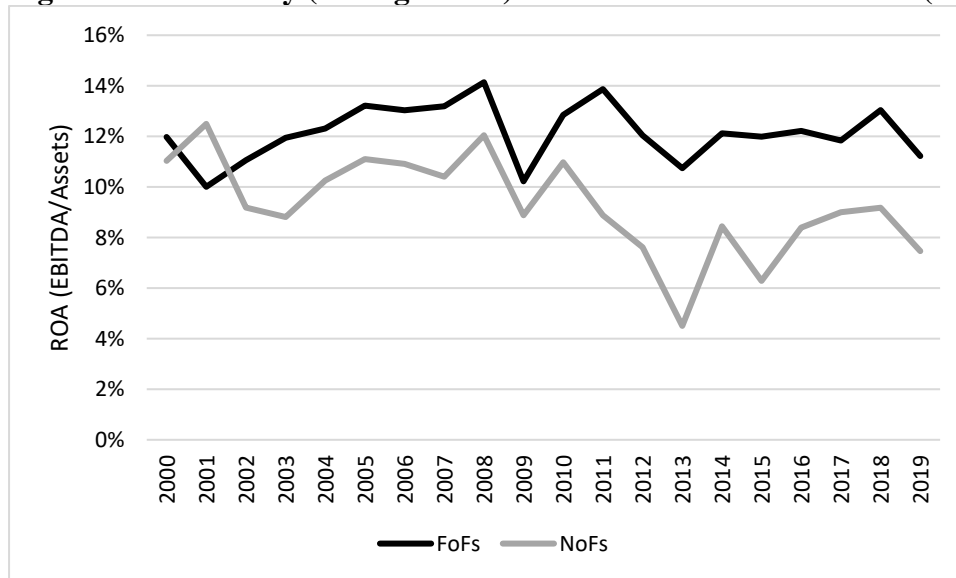

Figure 2 shows the profitability of FoFs vs. NoFs in a balanced panel over time. If initial selection effects are strong so that firms outperform others when they are converted to foundation ownership then the performance of foundation-owned companies over time (relative to other firms) should decline due to high agency costs associated with foundation governance. The graphical results show that there is no indication of declining profitability relative to the matched sample of non-foundation-owned firms.

Table 16: Controlling for the number of years elapsed since company was converted to FoF

VARIABLES	ROA	Firm value	Stock return	Growth
Time Elapsed	0.000121	-0.00227	-3.88e-05	-3.26e-05

	(0.000271)	(0.00410)	(0.000286)	(0.000162)
Leverage	-0.103	-0.219	0.148	-0.00773
	(0.0696)	(1.151)	(0.125)	(0.0461)
Firm size	-0.00140	-0.123	-0.0143	-0.000588
	(0.00575)	(0.0772)	(0.00961)	(0.00472)
R&D/Rev	-0.0463***	-0.0435	-0.0763	-0.0268***
	(0.00588)	(0.0399)	(0.311)	(0.00267)
Growth	0.0513	0.550	0.241	
	(0.0391)	(0.444)	(0.182)	
Country average	0.300	1.913***	0.558***	0.501
	(0.655)	(0.479)	(0.197)	(0.417)
Industry average	0.127	1.009**	0.376	0.934**
	(0.223)	(0.417)	(0.302)	(0.356)
Constant	0.156	-1.066	-0.127	-0.0597
	(0.0955)	(1.109)	(0.0965)	(0.0664)
Time (year) effects	Yes	Yes	Yes	Yes
Observations	607	553	478	607
R-squared	0.269	0.307	0.424	0.361

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Figure 16 shows the effect of time passed by since the establishment of a FoF on the performance measures (Time elapsed variable). All models include year fixed effects and due to multi-collinearity issues the relative average values of the dependent variable by year and country. Standard errors are clustered on the firm-level.
***, ** and * denote significance at the 1%, 5% and 10% levels, respectively.

Table 17 Distribution of firms by industry

Lower bound	Upper bound	Industry	FoF	Investor	Family

1	9	Agriculture	0	0	1
10	14	Mining	3	2	2
15	19	Construction	8	8	8
20	39	Manufacturing	63	64	62
40	49	TCEG & S*	8	8	8
50	51	Wholesale Trade	4	4	4
52	59	Retail Trade	3	4	3
70	89	Services	17	16	18
99	99	Nonclassifiable	0	0	0

Table 17 shows the distribution of sample firms across industries as indicated by two-digit SIC code.

Table 17 Distribution of firms by country

Country	Firms	Observations
AT	14	294
AU	1	21
BD	1	21
BE	4	84
BR	5	105
CA	4	84
CH	11	231
CL	1	21
CN	4	84
CO	1	21
CZ	1	21
DE	22	462
DK	23	483
ES	3	63
FI	3	63
FR	13	273

GB	15	315
GR	3	63
HR	2	42
IE	3	63
IN	20	420
IS	1	21
IT	4	84
JE	1	21
JP	37	777
KR	7	147
KY	2	42
LK	1	21
LU	3	63
MX	1	21
MY	2	42
NG	1	21
NL	6	126
NO	9	189
PHY	1	21
PL	1	21
SE	25	525
TW	2	42
US	59	1,239
VN	1	21

Table 18 shows the number of firms and observations per country

Table 19 Variable definitions and sources

Variable	Description	Source (s)
Foundation-owned	(dichotomous variable; if a foundation is the largest shareholder with at least 20% of the votes in a company foundation owner = 1 and foundation owner = 0 otherwise)	Annual reports, BvD Orbis
Charitable foundation	(dichotomous variable; if a charitable foundation is the largest shareholder in a company foundation owner = 1 and foundation owner = 0 otherwise)	Annual reports, BvD Orbis
ROA	EBITDA/Total Assets	Bloomberg
Firm Value	(Market capitalization+ Book value of total debt)/Total Assets	Bloomberg
Stock Return	(Share price t0+ Dividend share t0)/(Share price t-1)-1	Bloomberg

Intangibility	Intangible Assets/Total Assets	Bloomberg
Growth	Difference of sales revenue for company i between time t and t-1	Bloomberg
R&D intensity	R&D/Revenue	Bloomberg
Fixed Asset ratio	PPE/Revenue	Bloomberg
Firm Age	Year of incorporation	Refinitiv (Datastream)
Leverage	Total Debt/Total Assets	Bloomberg
Firm size	Natural logarithm of Total Assets	Bloomberg
Profit variability	Standard deviation of the net income/total assets over the observation period	Bloomberg
Year (2000-2020)	Year dummy (fixed effects included)	-
Country (1-48)	Country dummy (fixed effect included)	-
Industry (two digit SIC codes)	Industry dummy (fixed effect included)	BvD Orbis
CAR	Cumulative abnormal return over the specified event window	Bloomberg
Ri	Daily stock return	Bloomberg
Rm	Daily reference market return	Bloomberg
Cash Payment	(dichotomous variable; if only cash is used as payment method =1, zero otherwise)	Zephyr
Stock Payment	(dichotomous variable; if only shares are used as payment method =1, zero otherwise)	Zephyr

SIC Diff.	(dichotomous variable that takes on a value of one if the acquirer and the target have different 2-digit SIC codes, and zero otherwise)	Zephyr
Prior ownership	(dichotomous variable that takes on a value of one if the acquirer owns part of the company prior to the deal, and zero otherwise)	Zephyr
Listed Target	(dichotomous variable that takes on a value of one if the target is a listed company, and zero otherwise)	Zephyr

Note: This table describes the construction of the relevant variables used in this study.