The Performance of Foundation-Owned Companies[1][2]

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Abstract

A number of world class companies – such as the Tata Group, Robert Bosch, and Bertelsmann -- are majority owned by charitable foundations. This structure places control of the company in the hands of a self-perpetuating foundation board that is immune to outside discipline through a proxy fight or hostile acquisition, and whose members receive no incentive compensation. Conventional economic theories of corporate governance predict that such companies would be riven with agency costs and therefore highly inefficient. Yet previous studies find that companies owned by industrial foundations seem to perform as well as more conventional investor-owned companies. In this paper we reassess the relative performance of foundation-owned companies by comparing a substantial sample of them from the Nordic countries with various different samples of investor-owned Nordic companies, including matched pairs of companies of comparable size in the same industry. We find that, overall, foundation-owned companies have similar accounting profitability, take less risk, and grow more slowly than listed investor-owned companies. We offer alternative theories regarding the costs and benefits of foundation ownership that appear consistent with our results.

I.   Introduction

A number of firms around the world - including prominent companies such as Bosch, Bertelsmann, and Tata - are owned and controlled by nonprofit holding companies commonly termed "industrial foundations." These foundations are typically governed by self-perpetuating boards of directors that are immune to outside control. Conventional economic theory, from Fama and Jensen (1983) onward, predicts that companies with such foundations as owners will suffer from severe managerial agency problems, and will consequently operate quite inefficiently. Previous empirical studies have found, however, that the economic performance of foundation-owned companies – using performance measures such as accounting profitability, growth, stock market value, or stock returns -- to be on average no worse, or even slightly better, than that of companies with more conventional ownership structures (Herrmann and Franke 2002, Thomsen 1996, 1999, Thomsen and Rose, 2004). If these studies are accurate, they have potentially important implications for the economic theory of the firm and, in particular, for both theory and practice regarding corporate governance. They may also offer reason to reconsider broad aspects of public policy, such as the rules of organizational and tax law that, since 1969, have virtually eliminated industrial foundations from the United States, where they were once common (Fleishman, 2001).

This paper provides a further assessment of the performance of foundation-owned companies. We use a broader and deeper data set than has been employed in previous studies, and we offer for the first time an analysis of a matched sample of foundation-owned firms and firms with more conventional investor ownership. We also offer a more detailed view of the structure and behavior of foundation owned firms, and of the circumstances in which they seem to be best with more conventional firms. And we seek, finally, to derive from our results some implications, not just for

The paper proceeds as follows: Section II describes what industrial foundations are. Section III reviews theories of foundation ownership and its implication for the performance of foundation-owned firms. Section IV describes the data on which our empirical analysis is based. Section V presents the results of that analysis. Section VI offers a more general discussion and interpretation of the implications of our empirical results, not just for the factors governing the performance of foundation-owned companies, but for corporate governance in general. Overall, we find that foundation owned companies do commonly exhibit profitability on a par with conventionally owned companies, but grow more slowly and take less risk.

II.   What are industrial foundations?

An industrial foundation, as we will use the term here, is a private (i.e., nongovernmental) nonprofit entity whose assets consist primarily of a controlling equity interest in a conventional business company (or, at most, several such companies). The stock of the business company – which we will refer to as the "operating company" – was in most cases donated to the foundation by the company's founder, who also created the foundation. The foundation itself is a nonprofit entity in the sense that it is barred from distributing profits to any person who exercises control over the foundation, such as its directors and officers. It has no owners or members, and has perpetual life. As a matter of legal form, industrial foundations are formed in civil law countries as foundations, while in common law countries they are formed as nonmember nonprofit corporations or as charitable trusts. The foundation is governed by a

board of directors that is typically self-electing, though in some cases the composition of the board is constrained (for example, to require that one a more seats on the board the occupied by members of the founder's family), and in some cases the board members are selected by an outside entity (as in the case of the Carlsberg Foundation, whose board is appointed by the Danish Academy of Sciences).

Although there is some variation, the foundation's charter typically charges the foundation with managing the operating company, in perpetuity, with the success and high standards achieved under its founder. Although running a business for the good of society has been considered an acceptable charitable aim in Denmark, the charters of many foundations also permit or require the foundation to donate, to outside charities, whatever share of the operating company's profits is not needed by the company itself. The charters of some foundations provide that, at least for an initial period of years, the foundation distribute to members of the founder's family some fraction of the profits from the operating company for up to two generations.European industrial foundations are typically supervised by one or more national governmental offices, which monitor whether they are run lawfully and in accordance with their charter (Kronke, 1983). Foundations must generally submit audited annual reports subject to the same rules that apply to other companies. A special foundation supervision office is generally empowered to intervene – and, in extreme cases, replace the board -- if the foundation board breaches its fiduciary duties, for example by grossly overcompensating its own members. However, as in the regulation of conventional business corporations, the foundation supervision office will virtually never challenge a foundation's business decisions, however unwise, if they do not involve a conflict of interest.

In a number of cases, an industrial foundation, while owning a controlling block of the operating company's voting securities, does not own 100% of the stock. In those cases, the minority shares of stock in the operating company may be held privately, or they may trade publicly on a stock exchange. Sometimes European industrial foundations retain a voting majority in the operating company by having the company issue shares with limited voting rights (B shares) to the general public while the foundation maintains shares with full voting rights (A shares).

Foundation-owned companies are taxed like other investor-owned corporations, and likewise receive no other important subsidies. To be sure, there was until recently an important tax benefit to the original formation of an industrial foundation: stock in the operating company that the company's founder gave to the industrial foundation he created was free of estate tax. To receive this benefit it was not essential that the foundation be dedicated to supporting charitable causes. Rather, at least in some countries, managing a company well was considered a sufficient public benefit to justify exemption from estate tax for stock given to a foundation. In any event, these tax subsidies help explain only the origins of industrial foundations, not the continuing success of the companies they own, which benefit from no tax advantages once they are formed (Thomsen 1999).

III. **Efficiency Considerations**

As we noted in the Introduction, previous empirical studies have shown foundation-owned companies to be no less profitable than their investor-owned counterparts, whether the latter firms are family-owned or owned by a more dispersed group of investors. Our primary

object here is to determine whether those results can be replicated with a larger and more refined database. We are less immediately concerned here with why foundation-owned companies appear to perform well. Nevertheless, both to motivate our empirical work and to explore ways in which that work might illuminate causative factors, we sketch here what we consider to be the leading hypotheses concerning the costs and benefits of foundation ownership.

We begin by considering the affirmative purposes that might be served by industrial foundations. Since it is typically the founder of the operating company who creates the foundation and endows it with control over the company, presumably the structure is intended to serve, principally, the founder's own interests. Two such interests are apparent.

First, most founders evidently wish to devote their wealth, at least in part, to serving charitable purposes over an indefinite period after the founder's death. Following the approach that is typical for such donors all over the world, a nonprofit entity – the foundation – serves the purpose of holding and distributing the funds involved. The nonprofit form of the foundation reduces the possibility that – after the founder has died and can no longer exercise control himself – the foundation's managers can, and thus will, engage in self-dealing transactions that divert some of the founder's funds from the charitable projects he hoped to support.

Yet, if giving his wealth to charity were the founder's sole – or even principal – objective in establishing the foundation, it would make little sense to arrange for the foundation to maintain control over the operating company. Such a single-firm endowment is subject to substantial risk. If a reliable source for the funding of future charities were the founder's principal object, it would be better for him to require the foundation to sell its stake in the operating company and, with the proceeds, invest in a well-diversified portfolio of assets. Indeed, the US law on charities – the most effective parts of which come from the federal tax law – requires that charitable foundations maintain a diversified pool of investments for the sake of risk reduction. In addition, and getting closer to the principal subject at hand, the tax law's incentives for diversification have been justified in part on the ground that foundations and other charitable nonprofits are likely to be ineffective, and hence inefficient, as controlling owners of ordinary industrial firms (Hansmann, 1989).

It follows that a founder's injunction – generally included in his industrial foundation's charter – that the foundation maintain control over the founder's company, and not diversify its investments, is a strong indication that his principal objective was to have his company continue to exist and succeed in perpetuity, and that charity was a secondary objective. That is, the founder was seeking to ensure that the company he worked hard to build will live on far beyond him, and hence bestow on him a bit of immortality. And it was to this end that the founder put control of his company in a nonprofit entity, which was more likely to adhere to the founder's wish to have the firm remain intact than would a group of ordinary profit-seeking shareholders.

Current theories of nonprofit enterprise, however, predict that a cost must be incurred to give the founder the ability to, as it were, continue to manage his company from the grave. Nonprofit firms are, by definition, barred from distributing profits to the persons who control them (Hansmann, 1980). The result is to reduce the incentives of (those who control) the organization to exploit patrons who are radically handicapped in policing the quantity or quality of services provided to them by the organization, since they cannot profit from the opportunism involved. Moreover, by removing the "high-powered" incentive of pecuniary profit, it is more likely that the organizations managers will be guided by "low-powered" incentives such as pride

in one's work, self-respect, and identification with the organization's services and the patrons who receive them (Glaeser and Shleifer, 2001). These low-powered incentives, however, provide less motivation to minimize costs than do high-powered pecuniary incentives. Consequently, operating inefficiencies are the price of reducing opportunism on the part of the firm.

It seems to follow, then, that operating companies owned by industrial foundations would perform less efficiently than ordinary investor-owned companies. The foundation managers will be more trustworthy in adhering to the wishes of the deceased founder to sustain the company than profit-seeking investor-owners would be, but conversely will be less effective in maintaining the profitability of the company.

Indeed, conventional economic theories of corporate governance predict that the inefficiencies from foundation ownership will be large. From Jensen and Meckling (1976) on, it has been assumed that the more closely that senior managers' compensation is tied to the profitability of the company, the more efficiently they will manage the firm. The most efficient governance structure, in theory, is the situation in which the company is entirely owned by its chief executive officer. Industrial foundations would seem to lie at the opposite end of the spectrum. All the control of the operating company is in the hands of the board of the industrial foundation. The members of the board receive a flat annual fee for the services, with no incentive pay such as stock options in the operating company. Moreover, the board members are largely immune from outside discipline. In particular, they cannot be removed by either of the two most common mechanisms – a proxy fight or a hostile acquisition of the company's shares. They are thoroughly entrenched.

How could it be, then, that previous studies have failed to find the relative inefficiency that should result from the high managerial agency costs that, according to theory, should be inherent in the industrial foundation structure? One possible explanation, of course, is that previous empirical studies have been wrong. Our principal goal in this paper is to test that proposition. Another possible explanation is that the managerial agency costs inherent in the industrial foundation structure are, relative to alternative ownership forms, much smaller than conventional theory would suggest. We review here, briefly, some potential reasons why this might be the case.

Career Concerns. While the members of foundation boards may have very little direct pecuniary stake in working to make the foundations captive company profitable, they may have their eye on future monetary returns along the lines emphasized by the "career concerns" literature (Holmström 1999). Aspiring corporate managers might accept seats on the boards of industrial foundations in the hopes that good performance in that role will help them build a reputation that will lead to more remunerative positions later in life. But this proposition seems flatly inconsistent with the average age of board members among the Danish industrial foundations, which is 64 – 10 years older than the average age of board members in investor-owned companies, and clearly too late in life to be building one's credentials for future employment (Hansmann and Thomsen, 2013)

Capital Constraints. The performance measure used to compare foundation-owned firms with conventional firms has generally been average profitability of each of the companies involved. But high average profitability for the foundation owned companies might simply be a consequence of the limited access to capital available to such companies. If an industrial

foundation is to keep control of its captive company, it is limited in its ability to raise capital through stock sales by the foundation's need to retain a majority of the operating company's voting stock. Although the use of dual class stock can alleviate this constraint somewhat, there are also costs involved in having the foundation's share of the votes become extremely disproportional to its share of the company's invested capital. Thus, an operating company facing a rich set of profitable investment opportunities might be unable to exploit more than a fraction of them. And the few that it chooses would, presumably, be among the most profitable. The operating company might therefore show high average profitability, even though a number of efficient investments are left on the table and total profitability is less than it would otherwise be. Thus a high rate of profit might, paradoxically, be a sign of inefficiency for the foundation-owned firms.

Or capital constraints might work in the opposite direction, as a benefit rather than a burden. Perhaps many investor-owned companies – including widely held public companies and perhaps many family firms as well – are inclined to over-invest, accepting not only profitable investment opportunities but also some that are likely to have returns below the market rate of return on capital. In that case, a capital constraint imposed by foundation ownership might have the virtue that it makes a foundation-owned company less likely to over-invest than similar companies with more conventional ownership and, consequently, better access to capital.

Short-Termism. In recent years there has been much concern that publicly-traded companies, in response to perceived pressures from the stock market, have sacrificed profitable long-term investment projects in favor of shorter-term but less profitable projects. The boards of industrial foundations, being immune to threats to their tenure, needn't be so attentive to the short-term, which might in turn permit them to invest more profitably for the long term. Indeed, this argument is sometimes made by the managers of industrial foundations and their captive companies.

Charititable Motivation. A set of experiments in behavioral economics, intended expressly to throw light on the behavior of industrial foundations, suggests that agents display significantly less moral hazard when they work for a principal who donates profits to charity than when they work for a for a principal that simply consumes the profits (Dijk and Holmén, 2012).

Virtual Ownership. In a previous paper (Hansmann and Thomsen 2013), we suggest – consistently with the evolving literature on "identity economics" (Akerlof and Kranton 2010, Bénabou and Tirole 2011) -- that the position of the industrial foundation as a separate entity from the operating company, with its own board of directors, and with controlling ownership of the operating company but without outside owners itself, tends to induce the directors of the foundation to act as "virtual owners" of the operating company. That is, this ownership structure leads decisions decisions to be framed for members of the foundation board much as if the board members themselves only the operating company. In effect, the foundation directors come to identify strongly with their assigned role, which is to make (the foundation make) decisions as if they were owners of the operating company. The "low-powered incentives" that presumably provide the principal motivation for managers of nonprofit organizations of all sorts become, in this view, particularly effective in the boards of industrial foundations at least so long as there is "managerial distance" between the foundation board and the operating company to induce the foundation board to see themselves on the foundation is quite distinct from, and in control of, the operating company, which should be managed to meet the goals of the foundation. We find support for this interpretation in a seemingly strong relationship, which appears to be causal,

between managerial distance and profitability of the operating company, where managerial distance is considered higher when, for example, there is only minimal overlap between the foundation board members and the company board members, the foundation owns more than one company, or the company has outside minority shareholders.

It may be important, in this respect, that the typical industrial foundation was created by the operating company's founder. To begin with, there is some selection involved: presumably only founding owners of prosperous and well-managed firms would choose to pass control of their firms to a foundation. Moreover, by the time the foundation is created, the operating company presumably has accumulated a strong track record and reputation. And these, in turn, set a clear standard for the foundation board to maintain if they – and others in the business community – are to consider themselves as fulfilling the trust placed in them.

Some evidence that it may be significant for the foundation directors to see themselves as filling the shoes of the company's highly successful founder comes from the Danish experience with savings banks. Some years ago, a group of Danish savings banks that were effectively nonprofit in character were reorganized by statute, splitting each bank into two entities: a stock bank, and a foundation that held a controlling share of the bank's stock. Some of the banks were managed poorly, engaging in excessive risk-taking, and producing a scandal when some of them failed during the 2008 financial crisis (Fode, 2009). The problems were blamed, in part, on a lack of active ownership. Foundation ownership, in itself, is clearly not sufficient to ensure good performance by an operating company.

Inefficiency in Other Ownership Forms. Finally, we must keep in mind that the appropriate comparison is not between foundation-controlled companies and companies that exhibit some form of ideal efficiency, but rather with companies that are under other forms of ownership that have their own costs. Family firms, for example, are subject to a variety of dysfunctions, many of which show up in the second or third generation after the firm's founder (Bertrand and Schoar 2006). Paradoxically, the directors of an industrial foundation may do a better job of continuing the good work of the company's founder than would the founder's own descendants. At the other extreme, firms with broadly dispersed shareholdings, including many of the roughly 8,000 United States companies traded on the New York Stock Exchange, leave company managers largely unconstrained because of the collective action problem facing the shareholders, and because of the weakness of the legal mechanisms available to overcome that problem. And, between these two extremes, we find the numerous publicly-traded corporations – commonplace in Europe -- that have a controlling shareholder facing the constant temptation to undertake transactions that, though inefficient, may succeed in diverting wealth from the public shareholders to himself.

With these observations in mind, we turn to our data.

IV. **Data**

To compare the financial performance of foundation-owned companies to publicly listed companies, this paper combines two data sets: a) a database of 121 primarily unlisted Danish foundation-owned companies 2003-2008 and b) a database of listed Nordic companies.

Foundation-owned companies[5]. Our foundation data consist of accounting variables collected for 121 Danish foundation-owned companies and their foundation owners over the period 2003-2008. These foundations were chosen from a gross list of some 1100 industrial foundations provided by the Danish Foundation Office at the Danish Ministry of Business. From this list we selected 121 economically interesting companies based on company size measures. Specifically, we selected companies in which at least one of the following conditions was fulfilled in 2006:

- Minimum of 50 employees

- Minimum assets of 30 million DKK (roughly 6 million USD)

- Minimum sales of 40 million DKK (roughly 8 million USD)

For all sampled companies, the foundation has more than 30 percent of the company's votes (except one, which nonetheless owns 72% of the share capital). However, in our statistical estimates we restrict the foundation sample to companies in which the foundation has more than 50% of the voting rights, which reduces the sample to 113 foundation-owned companies. To this sample we add (in some regressions) a sample of 21 Swedish foundation-controlled companies.

We hand-collected governance and accounting variables over a 5 year period for both the companies and the foundations that own them, but have an uneven panel because of missing values. There was no attrition in the sample during the observation period, but in one case a foundation divested its ownership share. However, because of differences in the "accounting year," information for some foundations was only available up to 2007, and for those we track the 5 year period 2003-2007, rather than 2004-2008 as for the rest of the sample.

The performance variables in this data set are standard accounting variables: return on equity (ROE: accounting profits before interest and taxes as a percent of corporate equity capital), return on assets (ROA: gross profits before interest and taxes as a percent of total company assets), and growth (annual percentage growth of assets or sales). Control variables include company assets (coassets, a size measure) and equity to assets as a percentage (ea, an inverse measure of leverage and financial risk). The company size variable is intended to control for economies of scale in finance and other activities that are a result of company size regardless of governance. The equity to assets ratio (solvency) controls for financial risk. By increasing risk (lowering the equity to assets ratio by dividends, for example), companies can increase accounting returns on equity (or assets), but at the cost of higher financial risk, including higher bankruptcy risk. Thus companies with low equity to assets should, all else equal, be more profitable in accounting terms regardless of their governance. We also include year dummies to capture macroeconomic effects (such as the financial crisis in 2008), which influence company performance regardless of governance.

Listed Nordic Firms. Our sample of publicly listed Nordic firms is based on the population of all publicly-traded firms – both foundation-owned and conventionally investor-owned – that were headquartered in Denmark, Finland, Norway, or Sweden during the period 2001-2008. For these companies, we have access to a number of accounting and market-based variables as well as governance variables. The data set covers a changing population of firms, which were included in the sample only for the years in which they were listed. The same applies to firms that delisted during the period of analysis. For consistency we exclude financial firms

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[5] See Hansmann and Thomsen (2013) for a more detailed explanation.

(SIC 6000-7000). Financial data were collected from the Worldscope/Thomson Financial Database, and ownership data were taken from the Thomson Ownership Database. From a study of Swedish foundation-owned firms (Dzansi 2011) we were able to identify, among the firms in the Nordic database, 21 Swedish foundation-controlled firms. We include the latter firms in some regressions, though not in all, since we only have ownership information on these firms up to 2005, and since not all of them are majority-owned by foundations. A key question in the Swedish data is classification of the companies of the Wallenberg Group in which the central holding company, Investor AB, is 48% owned by a charitable foundation. Investor AB in turn owns minority positions in a range of Swedish companies which may or may not be classified as foundation-controlled. We found only 3 unequivocal foundation-owned companies using the strict definition of voting control > 50%.

Combination Issues. The reason for combining the two datasets is to provide a benchmark by which to assess the financial performance of the foundation-owned companies. We can compare companies in the same industries and size categories, for example. However, combining the two data sets gives rise to potential measurement problems which need to be considered.

First, there is the overall compatibility of the two data sets. We checked this by comparing financial information for the 18 listed Danish foundation-owned firms that appear in both samples. The figures were not totally identical (due for example to exchange rate translation differences), but are quite similar with a correlation coefficient of 0.99.

Second, there is the comparison of listed to unlisted firms. Accounting rules and regulations are similar for the two, but it may be that less outside scrutiny allows unlisted firms to account more conservatively (e.g. via earnings smoothing). We are uncertain about the direction of this bias, however, except that unlisted firms exhibit less performance variation. In addition, foundation-owned companies may be less dividend-seeking and therefore in some cases have an interest in understating their earnings to avoid paying corporate tax. We address this issue by a sensitivity test comparing listed foundation-owned companies to other listed companies.

Third, there is the merging of data from different countries. We believe that accounting laws and accounting principles in the Nordic countries are fairly similar, but the industry structures differ and the Nordic countries are subject to different macroeconomic conditions. They have different currencies, for example. As it turns out, accounting returns on capital and firm growth rates are significantly higher in some countries (Finland) than in others. Danish companies (non-foundation-owned), in particular, underperform significantly over the period. We can control for country effects by country dummies, and we do so as a statistical control, but the obvious risk is colinearity with foundation ownership, which we have found only in Denmark and Sweden.

A list of our key variables is given in table 1.

- Table 1

We examine the economic impact of foundation ownership – or more precisely foundation control – on accounting profitability (Return on assets, %), firm market value normalized by assets (Q) and annual sales growth (%). Firm value is obviously only available for listed companies, so our preferred performance measure is ROA. We regard firm growth as

an ambiguous measure since high growth rates may signal overexpansion and managerialism rather than competitive market share gains. We also discuss the volatility of these performance variables measured by standard deviations, which we regard as proxies for financial risk.

Among control variables, we have reason to believe that mainly foundation-owned firms might be smaller, and this could influence their profitability and performance, so we try to control for firm size (log assets). We also control for capital structure (equity/asset ratios) since a more cautious financial policy in foundation-owned firms might lead to lower returns. Finally, we control for fixed industry, country, and time effects.

Table 2 provides summary statistics for the entire sample, including all available observations for some 1000+ listed Nordic companies from Denmark, Finland, Norway, and Sweden 1995-2009 and the non-listed 105 Danish foundation-owned companies 2003-2009.

- Table 2

To reduce the impact of outliers we have winsorized our performance measures. For example our key performance measure ROA is winsorized at the 1% level. We also eliminated implausible figures, i.e. ROA, ROE or growth of less than -100% or growth which would in most cases realistically mean that the company had ceased to exist.

We note that the average company has 3311 employees and assets of €1431. However, size distribution is characteristically skewed and the standard deviation is huge. In our regressions we adjust for this by taking logarithms, and we do logistic transformations of our performance variables, e.g., we transform variable y to y/(100-y), where y is measured in percentages.

In table 3 we compare mean performance measures of foundation-owned and non-foundation-owned firms. Note that foundation-owned companies count for less than 10% of the sample.

- Table 3

In this simple uncontrolled comparison, we find that the foundation-owned companies have higher average profitability, but lower growth.

In table 4 we present a correlation matrix.

- Table 4

We note in particular that foundation-ownership is positively correlated with accounting profitability (ROA, ROE), almost perfectly uncorrelated with firm value Q, and negatively correlated with firm growth. However, somewhat surprisingly, the foundation-owned companies are not significantly smaller. Nor is their capital structure different if measured by equity to assets. This is interesting since earlier studies (Thomsen 1996, 1999) found them to have a stronger than average equity base. However, they are slightly more capital intensive when measured by asset turnover (sales/asset).

V. **Statistical Results**

Matched Samples. In table 5 we match foundation-owned companies to different control groups and compare the mean, median and standard deviations of ROA.

- Table 5

If we compare to the full samples, foundation-owned companies have significantly higher mean ROA and significantly lower standard deviations. This difference persists if we eliminate industries in which there are no foundation-owned companies and a few industries in which there are only foundation-owned companies. Note also that median ROA is actually lower in foundation-owned companies. However, if we match foundation-owned companies to their nearest industry neighbor in terms of size, the picture is reversed with regard to mean ROA. Foundation-owned companies now have significantly lower ROA than the benchmark. Some of this may, however, be attributable to listing rather than ownership. Hansmann and Thomsen (2013) find that listed foundation-owned companies do better in terms of ROA, which they attribute to a generally positive effect of "distance" between foundation and company on company performance. It is also possible, of course, that well-performing companies find it easier and more attractive to list their shares (i.e. a selection effect).

We therefore also look closer at the subsample of listed companies. Among these, foundation-owned companies have higher mean ROA and lower standard deviation. Note that do not loose many observations. This is because we have a longer time series for the foundation-owned listed companies, i.e., 1995-2009 compared to 2003-2006 for the unlisted Danish foundation-owned companies. Moreover, if we match the listed foundation-owned companies to listed non-foundation-owned companies using the nearest industry neighbor method, these differences persist. Listed foundation-owned companies have mean ROA of 10.2% which is significantly higher than the benchmark mean of 6.6. Their ROA standard deviation is 9.1. significantly lower than the 11.5 for the benchmark.

Altogether, foundation-owned companies tend to have higher ROA depending on the benchmark. Moreover, they have consistently and significantly lower ROA volatility regardless of benchmark. Qualitatively, we are not convinced of the matching. For example, we had to match Carlsberg to a little known and much smaller Finnish brewery, and there were no convincing matches to the shipping conglomerate A. P. Møller-Maersk or to Novo Nordisk, Lundbeck or Leo within the Scandinavian pharmaceutical industry.

Nevertheless, we can conclude that the foundation-owned companies are not obvious underperformers. If anything, they overperform in terms of accounting profitability.

In table 6, we do the same exercise for firma value (Q) and shareholder returns, but obviously for listed companies only.

- Table 6

In the listed and matched sample, we find no difference in shareholder returns (i.e. share price appreciation plus dividends per share over last year's share price) but higher mean and standard deviation of firm value.

In table 7 we examine firm sales growth in the same way. We find consistently and significantly lower mean and standard deviations regardless of sample.

- Table 7

Volatility and Risk. Theoretically, we have reason to assume that foundation-owned companies will take less risk. First, the owners do not have diversified portfolios, and the companies have more limited access to external finance. Secondly, the foundations typically care

about company survival. In some cases survival and welfare of the company is written into their charters, in other cases these objectives play a more informal role. Greater risk aversion could lead to company behavior that would produce less volatile accounting returns, and this seems to be consistent with the lower standard deviations that we observed in ROA and firm growth rates.

However, the lower standard deviations may in principle also be attributable to greater similarity between foundation-owned firms as well as lower within firm volatility. To check for this, in table 8, we take first differences to remove firm effects and calculate the standard deviations of these.

- Table 8

We find that foundation-owned firms tend to have significantly lower deviations in ROA and growth differences regardless of sample. Moreover, they also tend to be more stable in terms of capital structure and firm value.

Regressions.   In table 9 we present some regressions controlling for size, capital structure, year and industry. To correct for a skewed distribution of the dependent variable we use the logit type transformations originally introduced to the study of ownership structures by Demsetz and Lehn (1985). For example,   we transform ROA to ROA/(100-ROA). Because of colinearity with the foundation ownership variable we do not control for country effects, but the results are robust to country controls.

- Table 9

In model 1, we regress foundation ownership on performance in the full sample using all available observations. We find that foundation ownership is associated with roughly 4% higher ROA and slightly more if we control for country effects. In model 2, we use the matched sample and find a positive, but insignificant association. However, among listed firms, the difference is significant and around 4 percentage points whether we match or not (models 3 and 4).   We find no significant association between foundation ownership and sales growth or firm value (models 5 and 6).

Contingencies.   In table 10 we examine the relative performance of different kinds of foundation-owned companies.

- Table 10

First, we examine differences between small and large companies (defined by assets greater or smaller than the approximate median value of 97 mill €). We find that large firms have higher ROA regardless of ownership and that the premium for foundation-owned companies is slightly higher for small firms.

Second, we examine the difference between high and low solvency (defined by an equity/assets ratio greater or smaller than the approximate median value of 46%). We find that foundation-owned companies with low solvency ratios have roughly the same ROA as their benchmark companies (no significant difference). But foundation owned companies with high solvency ratios have much higher ROA than the benchmark companies. Strikingly, non-foundation owned firms tend to do slightly (though not significantly) worse if their solvency rates are high, while the foundation-owned companies tend to do much better. This is arguably inconsistent with capital shortages as a potential problem under foundation ownership, since the high-profitability foundation-owned companies are evidently less capital constrained (have

relatively high solvency) than those that are less profitable. That is, high profitability does not seem to result from the inability of a company to obtain further financing.

Third, we distinguish between low and high R&D intensive industries, defined by recorded R&D activity. Among our sample companies, 24% operate in industries with no recorded R&D activity by any firm in the sample. We find that foundation-owned companies do worse than their benchmark in the low R&D industries, but overperform greatly in the high R&D industries. Foundation-owned companies appear to thrive in R&D intensive industries while the benchmark companies do worse.

VI. **Discussion**

While our study is still preliminary, the results so far are consistent with previous research. Foundation-owned companies perform quite well and do not appear to underperform as basic agency theory would predict. We would not go so far as to claim that they overperform, although some of our regressions point in this direction. Alternative model specifications and more control variables would no doubt be able to test out such overperformance. Rather, the data seems to be telling us that foundation-owned companies perform no worse than other ownership structures. This is consistent with previous empirical studies.

One interpretation of this is that all ownership structures have their own inherent governance problems and that it is not clear ex ante which of these problems are most costly. Moreover, theoretically market mechanisms work to select the most efficient governance structure (Demsetz 1983). Therefore we should not be surprised to see that they perform relatively similarly. Agency theorists like Michael Jensen have lambasted the inefficiencies of dispersed ownership and predicted "the demise of the public corporation" (Jensen 1989). Activist investment intermediaries, such as hedge funds and private equity firms, may be reducing the managerial agency problem among a subset of otherwise publicly-traded firms, but the dominant investment intermediaries – mutual funds, pension funds, and (increasingly) sovereign wealth funds - often have, for different reasons, only modest appetite or aptitude for constructive involvement in corporate governance at individual companies.

Another, perhaps more interesting interpretation is that that there are compensating advantages to foundation ownership. By their very nature industrial foundations are long term investors, which suffer less from stock market myopia and shorttermism. Moreover, their attenuated profit motives make them more likely to maintain a steady course than profit seeking owners. While this could reduce short term profits, it may create long term value. Even the constraints on their ability to raise capital may have some advantages in restraining foundation-owned companies from engaging in low-profit empire-building.

It is too early to conclude, however.

An ideal research design would involve a controlled experiment randomly assigning foundation ownership to firms and then observing subsequent changes in performance compared to a control group. This is out of the question, and since foundation ownership is quite stable over time, it is difficult to observe any significant change. We can compare foundation-owned companies to other firms as we do in this paper, but there is reason to believe that the formation of foundation ownership is a non-random process. For example, it is unlikely that an industrial foundation will be established unless the company is quite successful. So, some positive

selection bias is to be expected. This might imply a slow downward slide in profitability over time. We checked for this using regression analysis, but found no significant interaction effect with time. We also regressed changes in profitability and growth rates on foundation ownership, but found no significant effect.

As we have indicated, it is difficult to identify an appropriate control group for the foundation-owned firms. In our data set there are typically only a few firms per industry, and often there are huge size differences between them. We did experiment with a matched sample, but found no significant differences when accounting for country effects and other control variables.

As for now the most promising avenue for future research appears to be further analysis of industry effects, for example a better understanding of the industry distribution of foundation-owned companies as a precursor for understanding their relative performance.

Table 1. Variable list

Variable	Explanation
Governance	
Fo	Foundation ownership. Binary Variable = 1 if a foundation owns more than 20% of the votes of a company.
Control variables	
Size	Company assets (mill €)
Ea	Company equity to assets %
Sa	Sales/Assets
Nempl	Number of employees
t1-t6	Time dummies (2003-2008)
I1-i42	Industry dummies (ISIC)
c1-c4	Country dummies (c1=Denmark, c2=Finland, c3=Norway, c4=Sweden)
Performance variables	
Roa	Company return on assets % (ebit/assets), winsorized at the 1% level
Roe	Company return on equity % (net income/equity)
Growth	Annual Sales growth %, winsorized at the 5% level
Q	(market cap+long term debt)/assets, winsorized at the 2% level

Variable	N (obs)	Mean	Std. Dev.	Min	Max
Roa %	10159	2.96	17.09	-60.11	32.08
Roe %	9829	5.73	23.59	-70.38	54.70
Q (firm value)	8962	1.41	1.32	.00	6.95
Growth (%, year)	9129	16.91	37.80	-37.76	126.31
Size (mill DKK)	10462	1416.08	12012.55	.01	508160.40
Ea Equity/Assets %	10285	48.05	21.65	.05	100.00
De (Debt/equity)	8670	5.02	10.70	0.00	99.00
Sa (Sales/Assets)	10293	1.06	.94	0.00	39.73
Nempl (Employees)	10028	3533.29	13621.82	0.00	273534.00

Table 2. Descriptive Statistics

Roa=Return on assets %. Roe=Return on equity %. Q=(Market value+debt)/assets
Growth=annual sales growth %. Size=assets mill €, ea = equity assets %. De=total
debt/equity, Sa=Sales/Assets, Nempl=Number of employees.

Table 3. Descriptive Statistics by Ownership

Non-foundation–owned companies

Variable	N (obs)	Mean	Std. Dev.	Min	Max
Roa %	9155	2.6	17.71	-60.11	32.08
Roe %	8830	5.43	24.19	-70.38	54.7
Q	8560	1.41	1.31	0.22	6.95
Growth %	8360	17.86	38.91	-37.77	126.31
Size (assets)	9449	1431.16	12558.00	0.01	508160.4
Ea	9274	48.08	21.81	0.05	100.0
De	7679	5.42	11.2	0.0	99.0
Sa	9407	1.05	0.96	0.0	39.73
Nempl	9034	3311.64	13403.32	0.0	273534.0

Foundation–owned companies

Variable	N (obs)	Mean	Std. Dev.	Min	Max
Roa %	1004	6.17	9.02	-60.11	32.08
Roe %	999	8.45	17.17	-70.38	54.7
Q %	402	1.38	1.52	0.22	6.95
Growth %	769	6.66	19.8	-37.76	126.31
Size (assets)	1013	1275.43	4393.41	0.74	45648.11
Ea	1011	47.83	20.08	0.84	99.8
De	991	1.96	4.38	0.0	41.77
Sa	886	1.14	0.68	0.0	6.01
Nempl	994	5547.75	15328.03	0.0	119599.0

Roa=Return on assets %. Roe=Return on equity %. Q=(Market value+debt)/assets Growth=annual sales growth %.
Size=assets mill €, ea = equity assets %. De=total debt/equity, Sa=Sales/Assets, Nempl=Number of employees

Table 4. Correlation Matrix

	fo	roa	roe	q	growth	size	ea
fo	1.00						
roa	0.06*	1.00					
roe	0.04*	0.08*	1.00				
q	-0.00	-0.00	0.06*	1.00			
growth	-0.08*	0.02	0.04*	0.18*	1.00		
size	-0.00	0.02*	0.04*	-0.06*	-0.02	1.00	
ea	-0.00	-0.09*	-0.14*	0.34*	0.04*	-0.12*	1.00
sa	0.03*	0.18*	0.16*	-0.00	-0.08*	-0.07*	-0.2*

*=significant at 5% level

Fo=Foundation ownership. Roa=Return on assets %. Roe=Return on equity %. Q=(Market value+debt)/assets
Growth=annual sales growth %. Size=assets mill €, ea = equity assets %. De=total debt/equity, Sa=Sales/Assets,
Nempl=Number of employees.

Table 5. Foundation Ownership and Return on Assets (ROA)
(t-tests for differences in means with uneven variance)

Full sample 1995-2009	Mean	Median	Std deviation	N
Non foundation-owned	2.4	6.5	19.0	9,155
Foundation-owned	6.2***	5.9	9.5***	1,004
Total	2.8	6.38	17.09	10,159
Same Industries 1995-2009	Mean	Median	Std deviation	N
Non foundation-owned	2.9	7.14	19.0	2,912
Foundation-owned	6.5***	5.89	9.7***	864
Total	3.7	6.77	17.4	3,776
Matched sample 2004-2009	Mean	Median	Std deviation	N
Non foundation-owned	8.3	8.7	12.3	388
Foundation-owned	5.7***	5.0	8.2***	416
Total	7.0	6.7	10.6	804
Listed companies 1995-2009	Mean	Median	Std deviation	N
Non foundation-owned	2.4	7.5	11.5	9,155
Foundation-owned	10.2***	8.7	9.1***	408
Total	2.91	6.6	18.7	9,563
Listed & Matched 1995-2009	Mean	Median	Std deviation	N
Non foundation-owned	6.6	7.5	11.5	394
Foundation-owned	10.2***	8.7	9.1***	407
Total	8.4	7.9	10.5	801

*= significant at 10% level, **=significant at 5% level, ***=significant at 1% level (t-tests, unequal variance).

Table 6. Foundation Ownership, Firm Value (Q), and Shareholder Returns
(t-tests for differences in means with uneven variance)

Firm Value (Q)

Listed companies 1995-2009	Mean	Median	Std deviation	N
Non foundation-owned	1.4	0.96	1.3	8,560
Foundation-owned	1.4	0.81	1.5***	402
Total	1.4	0.95	1.3	8,962
Listed & Matched 1995-2009	**Mean**	**Median**	**Std deviation**	**N**
Non foundation-owned	1.1	0.83	0.93	375
Foundation-owned	1.4***	0.81	1.52***	401
Total	1.3	0.82	1.28	776

*= significant at 10% level, **=significant at 5% level, ***=significant at 1% level (t-tests).

Shareholder Returns

Listed companies 1995-2009	Mean	Median	Std deviation	N
Non foundation-owned	0.17	0.05	1.16	6,650
Foundation-owned	0.16	0.09	0.48***	317
Total	0.17	0.05	1.14	6,967
Listed & Matched 1995-2009	**Mean**	**Median**	**Std deviation**	**N**
Non foundation-owned	0.16	0.14	0.54	278
Foundation-owned	0.16	0.09	0.48	316
Total	0.16	0.11	0.51	594

*= significant at 10% level, **=significant at 5% level, ***=significant at 1% level (t-tests).

Table 7. Foundation ownership and Firm Sales Growth (growth)
(t-tests for differences in means with uneven variance)

Full sample 1995-2009	Mean	Median	Std deviation	N
Non foundation-owned	17.86	9.03	38.91	8,360
Foundation-owned	6.66***	5.49	19.8***	769
Total	16.91	8.58	37.8	9,129
Same Industries 1995-2009	**Mean**	**Median**	**Std deviation**	**N**
Non foundation-owned	16.91	8.44	39.38	2,634
Foundation-owned	6.66***	5.64	20.34***	668
Total	14.84	7.75	35.57	3,302
Matched 2004-2009	**Mean**	**Median**	**Std deviation**	**N**
Non foundation-owned	12.17	6.9	33.65	387
Foundation-owned	6.19***	5.49	20.42***	311
Total	9.5	6.12	28.66	698
Listed Companies 1995-2009	**Mean**	**Median**	**Std deviation**	**N**
Non foundation-owned	17.86	9.03	38.91	8,360
Foundation-owned	7.92***	7.07	16.98***	380
Total	17.42	8.82	38.27	8,740
Listed & Matched 1995-2009	**Mean**	**Median**	**Std deviation**	**N**
Non foundation-owned	14.85	7.55	33.33	357
Foundation-owned	8.04***	7.08	16.84***	379
Total	11.34	7.29	26.37	736

*= significant at 10% level, **=significant at 5% level, ***=significant at 1% level (t-tests).

Table 8. Standard deviations of first differences

(t-tests for differences in means with uneven variance)

Sample	Variable	Non foundation-owned	Foundation-owned	Significance level
All firms	Std dev dQ	0.95	0.66	0.00***
All firms	Std dev dROA	14.2	7.4	0.00***
All firms	Std dev dgrowth	48.1	23.2	0.00***
All firms	Std dev dea	12.8	9.0	0.00***
Same Industries	Std dev dQ	0.92	0.72	0.00***
Same Industries	Std dev dROA	14.2	7.1	0.00***
Same Industries	Std dev dgrowth	51.7	23.3	0.00***
Same Industries	Std dev dea	12.3	8.4	0.00***
Matched sample, all firms	Std dev dQ	0.73	0.74	n.s.
Matched sample, all firms	Std dev dROA	10.6	6.1	0.00***
Matched sample, all firms	Std dev dgrowth	43.4	24.1	0.00***
Matched sample, all firms	Std dev dea	10.2	9.8	n.s.
Listed Firms	Std dev dQ	0.94	0.66	0.00***
Listed Firms	Std dev dROA	14.2	6.6	0.00***
Listed Firms	Std dev dgrowth	48.1	20.8	0.00***
Listed Firms	Std dev dea	12.5	7.5	0.00***
Matched sample, listed firms	Std dev dQ	0.59	0.66	0.00***
Matched sample, listed firms	Std dev dROA	9.3	6.2	0.00***
Matched sample, listed firms	Std dev dgrowth	40.0	20.7	0.00***
Matched sample, listed firms	Std dev dea	9.1	7.3	0.00***

dRoa=first differences in Return on assets %. dRoe= first differences in Return on equity %. dQ= first differences in (Market value+debt)/assets. dGrowth= first differences in annual sales growth %. dea=first differences in equity/assets %.

Table 9. Foundation ownership and company performance

Regression Analysis (Robust OLS with standard errors clustered by firm)

Model	1	2	3	4	5	6
Sample	All firms 1995-2009	Matched firms 2004-2009	All listed firms 1995-2005	Matched Listed 1995-2009	Matched Listed 1995-2009	Matched Listed 1995-2009
Dependent Var.	ROA	ROA	ROA	ROA	Q	Growth
Independent Variables						
Foundation ownership	0.044** (0.022)	0.011 (0.044)	0.04* (0.02)	0.041* (0.023)	0.159 (0.110)	-0.030 (0.054)
Company size	0.019*** (0.001)	0.011** (0.005)	0.020*** (0.002)	0.012 (0.007)	-0.033 (0.307)	0.021 (0.022)
Equity/Assets	0.001*** (0.000)	0.001** (0.000)	0.001*** (0.000)	0.001** (0.000)	0.012 *** (0.003)	-0.009*** (0.003)
Time effects	YES	YES	YES	YES	YES	YES
Country effects	NO	NO	NO	NO	NO	NO
Industry effects	YES	YES	YES	YES	YES	YES
Constant	NO	NO	NO	NO	NO	NO
R-square	0.12	0.21	0.13	0.29	0.56	0.09
F test	11.3***	6.4***	11.8***	12.9***	28.6***	9.06***
N (firms)	1055	143	951	62	62	62
N (firm years)	10025	801	9431	800	776	736

Standard errors in brackets.
*= significant at 10% level, **=significant at 5% level, ***=significant at 1% level (t-tests)
Note: To correct for skewness ROA is logistically transformed to ROA/(100-ROA), Growth to growth/(100-growth) Q to log(Q), Q is transformed to log Q, and size to log (size/1000).

Table 10. Foundation Ownership and ROA.

(t-tests for differences in means with uneven variance, Matched, listed firms)

Row		Column		
		1	2	3
		Small firms assets< 98 mill €	**Large Firms** Assets >98 mil €	**Size effect** **(c2-c1)**
1	**Foundation-owned**	7.5	10.5	3.0**
2	**Non Foundation-owned**	3.5	7.6	3.1**
3	**Foundation effect** (r1-r2)	+4.0***	+2.9**	
		Low solvency **(e/a < 48%)**	**High Solvency** **(e/a > 48%)**	**Solvency effect** **(c2-c1)**
4	**Foundation-owned**	7.5	14.4	6.9***
5	**Non Foundation-owned**	7.0	5.5	-1.5 n.s.
6	**Foundation effect** (r4-r5)	+0.5 n.s.	+9.9***	
		Low R&D **Industries**	**R&D** **Industries**	**R&D effect** **(c2-c1)**
7	**Foundation-owned**	7.4	11.0	3.9***
8	**Non Foundation-owned**	9.5	5.5	-4.0***
9	**Foundation effect** (r7-r8)	-1.9**	+5.5***	

*= significant at 10% level, **=significant at 5% level, ***=significant at 1% level (t-tests).
Notes. Small firms: Assets < 98 mill €, Large firms: assets > 98 million € High solvency;
Equity/Assets > 48%. Low Solvency: Equity/Assets < 48%. Low R&D industries: Industries with no
recorded R&D activity in the sample. R&D industries: Industries with some recorded R&D activity.

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