Virtual Ownership and Managerial Distance:
The Governance of Industrial Foundations[1][2]

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Abstract

Industrial foundations are nonprofit holding companies that own business firms. These entities are common in Northern Europe, and many successful international companies are owned in thus fashion. Because of their strong economic performance and unusual combination of nonprofit and for-profit entities, they present interesting challenges to theories of the firm. In this paper, we present the first study of the manner in which the foundations govern the companies that they own. We work with a rich data set comprising 121 foundation-owned Danish companies over the period 2003-2008.

We focus in particular on a composite structural factor that we term "managerial distance." We interpret this as a measure of the clarity and objectivity with which a foundation-owned company's top managers are induced to focus on the company's profitability. More particularly, managerial distance seems best interpreted as a factor, or aggregate of component factors, that put the foundation board in the position of "virtual owners," in the sense that the information and decisions facing the managers are framed for them in roughly the way they would be framed for profit-seeking outside owners of the company. Our empirical analysis shows a positive, significant, and robust association between managerial distance and company economic performance. The findings appear to illuminate not just foundation governance, but corporate governance and fiduciary behavior more generally.

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I.   Introduction: Industrial Foundations

In the nations of Northern Europe, nonprofit foundations own a controlling interest in a substantial number of industrial firms, including world-class companies such as Bertelsmann, Heineken, Robert Bosch, and Ikea. In Denmark, where they are particularly numerous, such "industrial foundations" control companies comprising a quarter of the 100 largest Danish corporations and close to half the value of the major Danish stock index (C20). These companies operate in a wide range of industries, from pharmaceuticals to consulting engineering, and include such internationally prominent firms as Carlsberg beer (the world's fourth largest brewery group), A. P. Møller (the world's largest container shipping company), and William Demant (one of the world's largest producers of hearing aids).

Previous studies have indicated, surprisingly, that companies controlled by industrial foundations perform, on average, as efficiently as do companies with conventional patterns of investor ownership. In this article, we explore the reasons for this performance, not by comparing foundation-owned firms with conventional investor-owned firms, but rather by focusing on differences among the industrial foundations themselves. We seek to understand the extent to which the substantial differences in profitability among foundation-controlled companies can be explained by differences in the governance structures of their parent foundations. Toward this end, we work with a rich data set comprising 121 Danish industrial foundations and the companies they control.

We focus in particular on a composite structural factor that we term "managerial distance." We interpret this as a measure of the clarity and objectivity with which a firm's top managers are induced to focus on the controlled company's profitability. More precisely, managerial distance seems best interpreted as a factor, or aggregate of component factors, that put the foundation board in a position of "virtual ownership," in the sense that the decisions and information facing the foundation's directors are framed for them in roughly the way they would be perceived by profit-seeking outside owners of the firm. Our empirical analysis shows a positive, significant, and robust association between managerial distance and company economic performance. These results appear to cast light, not just on the reasons for the success of foundation-owned companies vis-à-vis conventionally owned firms, but also on the governance structures of business corporations in general, on the benefits and costs of incentive-based compensation for corporate managers, and on the effectiveness of pure fiduciaries, free from control by their beneficiaries, in managing productive enterprise.

The paper proceeds as follows: Section II describes the organization of industrial foundations and the puzzle presented by their strong performance. Section III develops the concept of "managerial distance" within organizations, and discusses its relationship to more familiar concepts such as board independence. Section IV describes the data sample on which our empirical analysis is based. Section V presents the results of that analysis, while Section VI offers a more general discussion and interpretation of the empirical results, including possible implications for practice, policy, and future research.

II.   The Industrial Foundation Enigma

Formally, an industrial foundation is a nonprofit corporation organized and operated to administer a large – typically controlling and commonly 100% -- ownership stake in a particular

industrial company. The foundation is usually created, and endowed with its ownership stake in the company, by the company's founder as an alternative to passing ownership to his heirs or to outside investors. Kronke (1988) provides an overview of the legal status of industrial foundations in different national jurisdictions. By law - and particularly under tax law, which sets out conditions for the founder's gift of his ownership stake to the foundation to escape estate taxation -- the transfer to the foundation must be irrevocable. The foundation is governed by its own board of directors. The foundation board is is generally self-electing, though sometimes one or more of a foundation's directors is required to be a descendant of the founder or is appointed by an independent outside organization. (The entire board of the Carlsberg Foundation, for example, is appointed by the Royal Danish Academy of Sciences). The foundation's charter sets out the foundation's purposes and the details of its organization. Many industrial foundations are long-lived; the Carlsberg Foundation, for example, was created in 1876 and took control of the eponymous brewery in 1882.

Under tax and foundation law, industrial foundations can have both charitable and business goals. Just running a business is considered an acceptable goal, but most industrial foundations combine charitable and business purposes. There is no fixed requirement that the foundation distribute some minimum amount annually; it is free to reinvest any amount of a captive company's earnings in that company or in other companies. Accordingly, the charters of most industrial foundations make specific provision for supporting other worthy causes by donating excess revenue to outside charities, but generally leave the amount of such distributions to the foundation board's discretion. .

An industrial foundation's charter may require the foundation to maintain majority ownership of the company. The founder's family continues to play a role on the boards of some industrial foundations, but many others (we estimate around half) no longer have such ties. Although foundation ownership has often been used elsewhere – most conspicuously, in the Netherlands -- as a means of entrenching control of a corporation by company managers (de Jong, DeJong, Mertens, and Roosenboom 2007; Roosenboom and van der Goot 2003), Danish industrial foundations are established as a donations by private owners, not as an anti-takeover devised by company managers.

Industrial foundations were common in the U.S. prior to 1969 legislation that effectively prohibited private foundations from owning more than 20% of the voting shares in a business corporation[5] (Fleishman, 2001). A prominent example that, for idiosyncratic reasons, survived that legislation is the Milton Hershey School Trust, which for nearly a century has owned a majority of the voting shares of the Hershey Company, the largest confectionary firm in North America (Sitkoff and Klick 2008). Also unaffected by the private foundation legislation are the increasingly common holding company structures for U.S. hospitals, in which a nonprofit foundation controls and effectively owns a separately incorporated hospital, and often as well a captive insurance company and a firm that administers health plans, all of which effectively operate as commercial firms with no meaningful income from charitable donations, making the structure look very much like the Danish industrial foundations that we focus on here.

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[5] The 1969 legislation applies only to tax-exempt foundations. An alternative would be to establish an industrial foundation in the form of a non-tax-exempt nonprofit corporation. But – at least until recently -- the rule against perpetuities would probably be interpreted to bar the creation of such an entity.

A. **Looking for Agency Costs**

Industrial foundations are a puzzle for economic theory (Thomsen, 1996). At least since Jensen and Meckling's (1976) classic article on managerial agency costs, the dominant tendency has been to assume that, if managers are to perform efficiently, they must in general either be subject to close discipline by the firm's ultimate owners, or be compensated in a manner that mimics the returns received by the owners (e.g., Hart 1995, Shleifer and Vishny 1997). Industrial foundations are not, however, organized according to these precepts. Quite the contrary: in keeping with their status as nonprofit organizations, industrial foundations are subject to a "nondistribution constraint" that bars any distribution of the organization's net earnings to individuals who exercise control over the organization, such as members, directors, or managers. That is, the industrial foundations do not have owners or members, but rather are essentially self-owning. Consistent with this constraint, the (apparently universal) practice in Denmark is to grant only fixed compensation to directors of industrial foundations, and not to award them stock, stock options, or other incentive pay. (The same is true for directors, but not officers, of conventional business corporations in Denmark.) Industrial foundations are lightly regulated by a small government office largely confined to policing basic disclosure and adherence to the foundation's charter. However, in extreme cases of gross violations the authorities are entitled to replace the foundation board. Private parties generally lack standing to call foundation directors to account for mismanagement. Simple agency theory would therefore predict that foundation-owned companies would perform poorly compared to investor-owned companies.

Such a prediction, however, is inconsistent with empirical studies, which have found the economic performance of foundation-owned companies -- when compared in terms of accounting profitability, growth, stock market value, or stock returns -- to be, on average, no worse, and often slightly better, than that of companies with more conventional ownership structures (Herrmann and Franke 2002, Thomsen 1996, 1999, Thomsen and Rose, 2004). Table 1 offers illustrative statistics for the 300 largest firms in Denmark for 3 separate samples covering most of the 26 years 1982-2008. For all samples, average return on equity is actually higher for foundation-owned companies than for either family-owned companies or companies with dispersed ownership, while growth rates and ratios of equity to assets remain comparable.

// Insert Table 1 around here //

To be sure, the single empirical study of an industrial foundation using U.S. data (Sitkoff and Klick 2008) purports to find strong evidence of inefficiency, consistent with the authors' hypothesis that such an arrangement involves large managerial agency costs. That analysis, however, involves an event study of a single action involving a single company -- the Hershey Company. And, though the authors do not address the fact, their own charts show clearly that, if one considers the entire four-year period surrounding the brief event interval on which they focus, the foundation-controlled Hershey Company – whose minority shares trade publicly -- strongly outperformed both the industry average and the overall Dow Jones Industrial Average.

Some obvious potential explanations for the success of the Danish industrial foundations do not appear to work (Thomsen, 1999). Taxation, for example, clearly helps to explain the creation of foundations (since Danish law formerly permitted the founder's initial gift of stock to

escape estate taxation), but should not affect the subsequent relative performance of foundation-owned companies, which are taxed like their proprietary counterparts. Market power also fails as an explanation, since the foundation-owned companies are overall more international than other companies (hence facing more competition than the small Danish economy itself can offer) and are spread across a broad range of industries. Creditor monitoring as a substitute for monitoring by equity investors cannot be the reason, since foundation-owned companies have significantly lower debt/equity ratios than their investor-owned counterparts. And accounting biases are not a good explanation, since foundation-owned companies with listed shares tend to have the same Q-values and market rates of return as other companies, even after adjusting for the conventional risk measures.

B. Theories of Nonprofit Enterprise

The dominant theories of nonprofit enterprise offer only modest help in explaining the success of industrial foundations, and indeed are challenged by that success. Those theories generally take it for granted that, as suggested by agency theory, nonprofit firms are managed less efficiently than their for-profit counterparts – for example, in terms of minimizing costs. Consequently, the theory suggests, nonprofit firms tend to be formed – and, in the long term, survive – only where their managerial inefficiency is offset either by a countervailing efficiency advantage, or by a subsidy.

The offsetting efficiency advantage most commonly attributed to nonprofits is that they serve as a crude form of consumer protection in situations in which the firm's patrons are incapable of observing with any accuracy either the quantity or quality of the goods or services that the firm has contracted to provide to them (Hansmann, 1980; Glaeser and Shleifer, 2001). By virtue of the nondistribution constraint, managers are not faced with the high-powered incentive of profit, and consequently are more likely to be guided by lower-powered incentives – such as personal honor, pride in their work, and identification with the firm and its products and services – that are less likely to induce the managers to exploit the firm's informational advantage over its patrons. This theory is most obviously applicable where the organization's patrons are completely incapable of observing the (marginal increase in) output produced in return for their payment, as when the patrons are paying the firm to provide public goods or to provide services to remote (and often indigent) third parties. This is the role of philanthropically-supported "donative" nonprofits -- i.e., typical charities. The theory is also sometimes offered to explain the presence of nonprofit organizations in service industries (such as health care and education) that involve more modest levels of asymmetric information, and that are provided on a fee-for-service basis by "commercial" nonprofits (such as hospitals and nursing homes), often in competition with for-profit firms.

Yet the types of goods and services that Danish foundation-owned firms typically produce– such as beer, container shipping, and hearing aids -- do not appear to be characterized by unusual degrees of asymmetric information between the firm and its customers. Consequently, reassurance to consumers can have little to do with the motives for putting these firms under the control of nonprofit foundations, or for their profitability.

Rather, in industrial foundations the nonprofit form is evidently chosen as protection for the company's one large donor – its founder. In most cases, presumably, the founder is effectively seeking a degree of immortality. He wishes to assure, as far as possible, that the firm he built will live on in perpetuity -- often with his name on it. In short, he wants to perpetuate his control over

the firm beyond the grave. Or, put differently, he is making an ongoing gift from his live self to his dead self. But clearly his dead self will be unable to police the fulfillment of any arrangement to this effect that his living self makes with the persons who will control the firm after his death. So the founder reduces the incentive for those persons to deviate from his wishes by constraining their ability to profit from deviation – which he accomplishes by giving ultimate control of the firm to a nonprofit organization.

The conventional view of nonprofits, as we have noted, suggests that the founder must pay a price for the protection of the nonprofit form, and that this price comes in the form of managerial inefficiency. Thus, in the prototypical model of competition between nonprofit and for-profit firms offered by Glaeser and Shleifer (2001) (following Holmstrom and Milgrom 1991, 1994), entrepreneurs who form and control either nonprofit or for-profit firms all have the same utility function, which is a function of both income and the quality of the output produced by the manager's firm (with which the manager identifies). Managers of for-profit firms appropriate all of the firm's profits. Managers of nonprofit firms have a fixed income, and can convert the remainder of the firm's profits into perquisites that the managers value at less than their cost to the firm. Entrepreneurs managing nonprofit firms therefore face a steeper trade-off between material consumption and the quality of their firm's products than do entrepreneurs managing for-profit firms, with the consequence that nonprofit firms will produce higher-quality products, though at a higher cost. Consumers value the quality of a firm's output, but know that they cannot observe some aspects of that quality. In equilibrium, the customers who are least capable of assessing product quality patronize nonprofit firms and pay a higher price for the product, while others patronize for-profit firms. The presence of the nonprofit firms counters some of the inefficient low-quality bias of the for-profit firms, but at the cost of some inefficiency in production (perquisites provided at a cost well above their value).

What is most striking about the Danish industrial foundations is that this cost is hard to detect. Or, more precisely, it is not obvious that the cost of production is higher for companies owned by industrial foundations than it is for firms with more conventional owners. All forms of ownership have their special costs. Family-owned firms may impose upon their owners the costs of illiquidity, concentrated risk, nonpecuniary goals, restricted access to the capital markets, and errors in family decision-making. Firms owned by dispersed investors may face high managerial agency costs (particularly if the managers are permitted strong defensive tactics) or strong pressure for short-term earnings management (particularly if the managers are exposed to the market for corporate control or are given incentive pay). The evidence to date simply suggests that the special costs facing firms owned by industrial foundations – which may include limited access to the capital market induced by the foundations' need to maintain a controlling interest in the operating company – are not remarkably different in magnitude than the costs brought by other forms of ownership.[6]

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[6] The many efforts to study the relative productive efficiency of nonprofit versus for-profit firms in service industries that contain large numbers of both kinds of firms-- the U.S. hospital industry, in particular -- have not yielded clear results, in part because nonprofit and for-profit firms in these industries tend to differ systematically in the character and quality of services they deliver (Eldenburg, Hermalin, Weisbach, and Wosinska 2004). The Danish industrial foundations are of particular interest because the firms they control produce reasonably standardized goods and services, such as beer and container shipping.

In the remainder of this essay, we compare Danish industrial foundations among themselves, rather than with other forms of ownership, in an effort to discern the mechanisms by which they compensate for the seeming absence of conventional incentives for managerial efficiency. Our object is both to understand better the reasons for the widespread success of industrial foundations and to see if industrial foundations offer insights into efficient structures for corporate governance that can be applied more broadly.

III. **Managerial Distance**

A firm controlled by an industrial foundation differs in two important respects from firms with more conventional ownership structures. First, the firm is owned and controlled by a holding company that exists largely or exclusively to control that particular firm. Second, the holding company is a nonprofit organization under the direction of individuals who have no direct pecuniary stake in the profitability of the firm that the foundation owns. The empirical work that we report here focuses on the first of these – namely, the relationship between the operating company and the foundation that controls it -- although interpretation of our results requires that we focus on the foundation's nonprofit character as well.

Fama and Jensen (1983) have argued prominently that managerial agency problems – in nonprofit corporations as well as in widely held business corporations – can be mitigated by separating "decision management" (initiation and implementation of decisions) from "decision control" (ratification of proposed initiatives and monitoring the consequences of decisions after they are implemented). The latter function, they suggest, is the role and rationale for a board of directors that is formally distinct from a corporation's management. An important question raised by industrial foundations is whether similar logic extends to the creation of a second board above the company board.

Our data permit us to get some purchase on this question because industrial foundations differ substantially in their governance structures. At one extreme, the foundation and its captive company are essentially a single organization. The board of directors of the foundation is comprised of precisely the same individuals who serve on the company's board of directors, and the foundation has no officers or staff of its own, much less its own office space. The foundation owns 100% of the company's stock, and nothing else. The only distinction between the operating company and the industrial foundation that controls it is that sometimes the individuals comprising the board(s) of directors declare themselves to be acting in the name of the operating company, and sometimes in the name of the foundation.[7]

At the other extreme, both the foundation and the operating company have their own distinct board of directors, with no overlap in membership between them. The foundation has its own CEO and staff, and occupies offices of its own that are well removed from the operating company's facilities. The stock in the operating company is only partially held by the foundation, with the remainder listed and traded on the stock exchange. And the foundation, in turn, controls one or more other operating companies.

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[7] In fact, some Danish industrial foundations are comprised of just a single legal entity, the foundation, which produces and markets commercial goods and services by itself rather than through a subsidiary business corporation. None of the industrial foundations in our sample take this form, however.

We will say that these two extreme arrangements exhibit substantially different degrees of "managerial distance" -- a term that we use to denote, roughly, the extent to which the foundation's board of directors is detached from direct involvement in the affairs of the operating company and is placed, instead, in a position where the operating company's objective performance is highly salient.

We conjecture that the efficiency with which the operating company is managed will be a function of its managerial distance from the foundation board. Thus we would generally expect a positive effect of distance on company performance. However, it is also possible that some minimum level of proximity is necessary for the foundation board to be sufficiently well-informed to exercise active ownership, in which case we expect company performance to be a non-monotonic (first increasing, then decreasing) function of managerial distance.

As we define it here, managerial distance is clearly related to the familiar notion of director "independence." The double-board structure of industrial foundations, however, together with the absence of shareholders at the foundation level, offers the opportunity to isolate and explore elements of board structure and composition that go beyond the simple question of whether board members are employees of the company or not, which has commonly been the principal measure of independence in empirical studies of corporate boards.

Perhaps most closely analogous to our focus on managerial distance are several empirical studies of the relationship between parent companies and their foreign subsidiaries. Of these, Carlin, Charlton, and Mayer (2010) is particularly relevant. That paper measures the "distance" between a parent and its foreign subsidiaries by two factors: geographic distance and the fraction of the shares of the subsidiary that are held by the parent (with a lower share taken as greater distance). The authors find that greater distance from a subsidiary correlates with greater efficiency in allocating capital to the subsidiary – a result that they attribute to the higher influence costs that presumably come with proximity.

The two measures of distance between parent and subsidiary used by Carlin, Charlton, and Mayer correspond to two of the five general measures of managerial distance we employ in our study of the relationship between industrial foundations and their subsidiary operating companies. We review all of our measures here, in general terms, both to offer a more nuanced notion of the concept of managerial distance and to provide the basis for the empirical analysis that follows.

Board Separation. If the foundation and company boards overlap completely, the same group of directors is faced with the awkward task of monitoring itself. At the risk of stating the obvious, we note two broad reasons why a foundation board composed in part or entirely of nonoverlapping directors might be superior. First, if the company board members are consciously self-serving -- skimping on effort or, more seriously, using their authority over the operating company to engage in self-dealing transactions -- they of course have little incentive to discipline themselves, Second, if members of the company board are incompletely self-conscious, and are thus subject to confirmation bias and other cognitive limitations, they are unlikely even to recognize their errors, much less take steps to correct them. When, in contrast, the foundation board shares no members in common with the board of the operating company, members of the foundation board might be expected to take a more objective and critical view of the performance of the operating company and its management, and to be less bound by opportunistic, cognitive, and collegial constraints that inhibit them from acting on the information they have. Intermediate levels of overlap between the foundation board and the operating company board might, for the

same reasons, be expected to lead to intermediate levels of company performance -- again subject to the proviso that some minimal level of board overlap might have the offsetting benefit of helping the foundation board remain reasonably well informed about the affairs of the operating company.

Outside Company Ownership. Although we are concerned here with companies in which a foundation has a controlling interest, that leaves room for minority outside ownership of the operating company. In particular, minority shares in a number of the operating companies in our sample trade publicly on the Danish stock exchange. We consider such a public float to be another component of managerial distance. The share price quoted on the stock market has the obvious advantage of facing the foundation board with an unavoidable objective evaluation of the company's performance. The presence of minority shareholders also seems likely to reinforce the foundation board's sense that maximizing the value of the operating company is an important fiduciary duty.

Outside Foundation Investments. Some industrial foundations have all their assets invested in a single operating company. A few foundations control more than one operating company, however, and a number of foundations maintain other portfolio investments of some type. We conjecture that these additional investments also contribute to managerial distance, and consequently to better operating company performance, both by attenuating somewhat the board members' sense of personal identification with the management of a particular operating company and by constantly confronting the board members with a comparison between the performance of the operating company and the performance of the foundation's other investments.

Administrative Independence. The ability of the foundation to exercise active ownership will obviously be constrained by its administrative resources. To the extent that **it** has to rely on the company for managerial and administrative assistance, managerial distance seems likely to decrease. We therefore expect company performance to be stronger when the foundation employs a manager of its own, as is the case in some but not all industrial foundations. Likewise, we conjecture that managerial distance will increase, and company performance will be stronger, if the foundation is located in offices that are physically removed from those of the company, at least so long as the physical distance is not too extreme.

Charitable Purposes. Finally, the charters of some industrial foundations commit the foundation, not just to managing the operating company, but to pursuing some other charitable activity as well -- for example, by donating excess profits from the company to organizations pursuing particular philanthropic purposes. Foundations that are charged with such additional charitable purposes will, we conjecture, seek more strongly to maximize the profits of the operating company, since those profits will now be framed for their directors as means to another end. In effect, such foundations have a profit motive.

We turn now to the data we have collected, and the variables we have constructed, to test these and related conjectures.

IV. **Data**

The data used in this paper consist of governance and accounting variables collected for 121 Danish foundation-owned companies and their foundation owners over the period 2003-2008. These foundations were selected from a gross list of some 1100 industrial foundations provided by

the Danish Foundation Office at the 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 sample to companies in which the foundation has more than 50% of the voting rights, which reduces the sample to 113 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. Not all companies were consistent in reporting governance variables, but in most regressions we have a sample of approximately 530-550 observations.

Since we are interested in examining the effect of governance distance on company performance, we collected 3 sets of variables: performance variables, governance variables, and control variables. Both the performance and control variables are fairly standard in corporate governance research, while the governance variables are more unusual and require more explanation.

In Table 2 we provide a variable list.

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A. **Performance Measures**

The performance that we used as dependent variables in our statistical tests are standard accounting measures: return on equity (accounting profits net of interest costs, before tax, as a percent of corporate equity capital), return on assets (gross profits, before interest and taxes, as a percent of total company assets), and growth (annual percentage growth of assets or sales). Sales and asset growth were highly correlated, but there were slightly more asset growth observations and we mainly use asset growth (results for sales growth were qualitatively similar). We also used productivity measures such as value added per employee (a crude measure of labor productivity), value added to assets (a crude measure of capital productivity), or value added controlling for employment and company assets (a measure of total factor productivity). Value added is measured as net sales minus purchases from suppliers outside the company, including raw materials, trade goods, and other inputs. On average, value added accounts for approximately 50% of company sales.

B.   **Control Variables**

The control variables include company assets (a size measure) and equity to assets as a percentage (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. In addition we also use 21 industry dummies, which we constructed by merging 8-digit NACE industries into broader categories.

C.   **Governance Variables**

The governance variables include measures of board separation, ownership separation, administrative independence, and differences in organizational objectives.

Board Separation.   As a first step in measuring this variable we collect the names of managers and board members in the foundation and in the company for each year during the observation period. We then construct measures of the degree to which the members of the two boards overlap (which are, strictly speaking, measures of proximity and therefore inverse distance measures);

> - Cofbsum: the company share of the foundation board: the fraction of foundation board members who are also members of the company board or company managers.

> - Cofb1 (a dummy variable for whether or not the foundation board is exclusively composed of company board members or managers, i.e. whether or not cofbsum=1).

To test the hypothesis of non-linearity, we stratify cofbsum into levels, using a set of dummy variables (cofo1, cofo2, cofo3, cofo4, cofo5, cofo6) such that:

> Cofo1 = 1 if the company share of the foundation board is zero, i.e., if cofbsum = 0 (and zero in other cases)

> Cofo2 = 1 if 0 < cofbsum < 0.25

> Cofo3 = 1 if 0.25 ≤ cofbsum < 0.5

> Cofo4 = 1 if 0.50 ≤ cofbsum < 0.75

> Cofo5 = 1 if 0.75 ≤ cofbsum < 1

> Cofo6 = 1 if cofbsum = 1

Here our non-monotonicity hypothesis is that high, but less than maximal, managerial distance will be most likely to lead to efficient governance and high economic performance. In other words, we are particularly interested in the effect of having some, but limited board overlap (i.e. cofo2). We also create a similar set of variable based on focbsum (the share of the company board made up of directors and officers of the foundation). The two sets of variables are obviously highly correlated.

Finally, in addition to the above inverse measures of distance, we also construct a proportional distance measure, cofodis = 1 if the company share of the foundation board is equal to or less than 2 persons (and zero in other cases). We use this measure later in constructing an index of the overall managerial distance between foundations and the companies that they own.

Ownership separation. Here we are interested in whether the foundation is the sole owner of the company (i.e. whether or not it has minority owners), how large a fraction it owns, and whether or not it owns other companies. To capture these distance dimensions, we assembled two continuous measures of foundation ownership:

- focapown: the foundation's percentage share of the company share capital (i.e. the foundation's share of cash flow rights).

- fovoteown: the foundation's share of company voting rights (i.e. the foundation's share of control rights).

Note that these two measures are again inverse distance measures. They are identical in case of voting proportionality (one-share-one-vote), but may differ if the company has issued different classes of shares with different voting rights. Note also that we have restricted the sample to cases where the foundation has majority control, i.e., fovoteown > 50%.

Based on these continuous measures, we constructed the dummy variable:

- focapoi: whether or not the foundation owns 100% of the company's share capital (and therefore also 100% of the voting rights).

We also created two additional ownership variables:

- listed: whether or not the company's shares are publicly listed (which is the case for 13 companies).

- otherown: whether or not the foundation owns more than one company.

Listing is correlated with foundation ownership (focapoi) since it presupposes the existence of minority investors, but not all companies with minority shareholders are publicly listed. In some cases members of the founding family hold minority shares in privately held, non-listed companies. In other cases employees hold stock in the company.

Administrative independence. To capture this concept we define 2 dummy variables:

- foman: whether or not the foundation has employed a manager of its own.

- sameadr: whether or not the foundation and the company are located at the same address.

The idea here is that a foundation with its management and its own physical facilities is better able to act independently as an active owner.

Organizational objectives. We focus on the presence of a special commitment by the foundation to support charity, for which we collected information on:

- gencharity: whether the foundation charter includes a general charitable purpose (over and beyond running a company).

- donations: whether the foundation made donations in the given year. This variable should be regarded with caution, however, since it is likely to be especially subject

to reverse causation (i.e., profitable companies will generate dividends which will then be used for donations).

Distance index. Finally, we constructed an aggregate distance index as the sum of 6 distance variables:

> - distance; general charitable purpose (0/1) + different address (0/1) + other ownership (0/1) + listed company (0/1) + company share of the foundation board ≤ 2 members (0/1) + outside ownership (foundation owns less than 100% of the company) (0/1).

Because all the constituent variables are dummy variables, the index varies between 0 (minimum) and 6 (maximum). This simple summation is a transparent, but somewhat arbitrary, way to construct an index. We also constructed a less arbitrary index in the form of a common factor using factor analysis, but since the statistical results were qualitatively the same as those obtained with the simpler summation, we used the simple version.

In Table 3 we provide descriptive statistics for the variables that we use.

//Insert Table 3 around here //

We learn from Table 3, for example, that only 28% of the companies (firm year observations) have independent boards with less than 25% overlap with the foundation. In fact, the average share of the foundation in the company board (cofbsum) is 55%. Moreover, in 41% of the companies the foundation owns less than 100%, 13% of the companies have publicly listed shares, 27% of the foundations own more than one company, 25% of the foundations have moved their office away from the company headquarters, 26% of the foundations have employed a foundation manager, 75% of the foundations have a general charitable aim, and 74% make donations in an average year.

On average, the foundation-owned companies earn roughly 11% return on equity and 7% return on assets, which is respectable in a period with low interest rates (and quite good compared to average Danish figures, in accord with Table 1). Their growth rates are also quite high (8% on average). We truncate these performance variables to +/- 100% to avoid extreme reliance on outliers such as small companies with denominators close to zero. The balance sheets of the companies are financially well consolidated, with equity-to-assets ratios of 50%. The average company in the sample .has assets of 4.5 billion DKK (800 million US $).

In Table 4 we present correlation matrices for the variables that we will subsequently use in statistical analysis.

//Insert Table 4 around here //

In Table 4a we see that return on equity is positively associated with measures of managerial distance like the distance index and negatively correlated with a measure of managerial proximity (the fraction of company board members and managers on the foundation

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board: focbsum). Distance also turns out to be negatively correlated with labor productivity and positively associated with capital productivity.

In Table 4b we see that the distance measures are positively correlated with performance, although insignificantly so for geographical distance and charitable goals. We also observe that the individual distance components are significantly positively correlated and highly correlated with the overall distance index. This tends to support the idea of a composite distance index.

While the sample is a panel, the governance variables only change slowly over time; consequently, the bulk of the variance is cross-sectional (between firms). For example, the mean value of the distance index is 2.1, and the between firm standard deviation is 1.4, but the within firm standard deviation is only 0.23 or 1/6 of the between-firms variation. Two of the component variables – listing and general charitable purpose – do not change at all during the observation period. Our preferred estimation is therefore regression analysis with standard errors clustered by firm. Time-constant variables, such as listing, vary only by firm and would drop out in fixed-effects panel data estimation. The board overlap variable (focodis) is more variable over time, but between-firm variation is still three times as large as within-firm variation, so that this variable would also to a great extent be neutralized if we controlled for fixed firm effects. Luckily, statistical testing (Hausmann tests) allows us to treat firm effects as random (see below), which produces results that parallel normal regression analysis.

V. **Statistical Results**

In Table 5 we present simple tables of discrete, binary distance measures and company economic performance. For performance measures we use coroe (company return on equity), coroa (company return on assets), and growth (growth of company assets).

// Insert Table 5 around here //

We observe higher performance in companies characterized by greater managerial distance between the foundation board and the company. Generally, the results are numerically larger for ROE than for ROA, but more significant for ROA, which varies less. All except one of the ROE and ROA effects are positive, and most of them are statistically significant. The effect of distance on growth rates is less statistically insignificant, but generally points in the same direction. One interpretation of this result is that company managers without active foundation monitoring tend to put relatively more emphasis on growth, which may then reflect empire building rather than competitiveness.

As examples of these effects, companies with limited foundation representation on their boards (<25%) earn 10% more on their equity than companies with more foundation overlap (17.2% against 8.4%). They also have higher returns on assets and higher average growth rates, and the difference is highly significant both for ROE and ROA   The differences are too large to reflect a realistic causal effect, but still indicate that something is going on.

In terms of ownership distance, companies that are 100% owned by the foundation (i.e. with less ownership "distance") fare worse on all three performance measures, and companies

with listed shares also perform better. In addition, if the foundation owns more than one company, the company in question will tend to do significantly better in terms of ROE.

As hypothesized, the company does better if physically separated from the foundation, although the difference is only significant for ROA.

Finally, companies that have a general charitable aim have significantly higher ROA and (insignificantly) higher ROE. This could reflect pressure to generate revenue for charity.

Altogether, these basic statistics provide strong support for the distance hypothesis. We go on to examine whether there are non-linear effects as hypothesized (i.e., that very high distance may have a negative effect on performance).

Nonlinear Effects. In Table 6 we examine the association between company performance measures and three continuous distance measures.

// Insert Table 6 around here //

Examining the performance effects of cofobo (percentage of foundation board made up of company managers and board members), we find evidence of non-linear effects as hypothesized. Company performance is highest for low, but non-zero, levels of company representation; performance then drops off as the degree of board overlap increases. An F-test confirms the existence of significant level effects.

The same pattern is found for focobo -- the share of the company board made up of foundation board members and managers. Company performance is highest for small but non-zero levels of focobo -- between 0 and 25% -- but drops for higher levels.

We find no significant effects of either measure of board composition on company growth rates, consistently with the ambiguity of growth rates as indicia of efficiency.

In figure 1 we plot the three performance measures against our aggregate distance index comprising all the relevant distance measures, including board independence, ownership separation, and physical separation.

// Insert figure 1 around here //

In this figure we observe a clear, but non-monotonic, relationship between distance and profitability. ROE increases with the distance index up to 5, but declines from index value 5 to index value 6 (maximum distance), which indicates non-linear effects. The same trend is observable for ROA, which increases continuously with the distance index up to index value 5, where we see a somewhat weaker drop than for ROE. Growth rates appear not to covary systematically with the index.

The Effect of "Distance." In Table 7 we regress company performance (ROA) on the distance index. The results are qualitatively the same for ROE.

//Insert Table 7 around here //

The results support the impression we get from the descriptive statistics.

In Table 7 model 1 we find that a one point increase in the distance index is associated with 1.81% higher return on assets, which is both economically large and statistically significant at the 1% level. We control for company size, capital structure, and time (year) effects.

In Table 7 model 2 we see that this result is robust but slightly smaller (1.16) when we control also for industry and year effects as well as company size and solvency (e/a).

In Table 7 model 3 we test the extent to which our results are driven by the effects of having minority shares listed on the stock exchange by including public listing as a separate control variable. The listing variable turns out to be insignificant, while the distance index remains highly significant. We conclude that our results are not driven by listing effects.

In Table 7 model 4 we collapse the panel data to average values of return on assets, distance, and control variables. The distance measure remains significant, and has the same magnitude as in the time series sample. Essentially, our data set is cross-sectional in nature because of the limited within-firm variation in distance. Two of the index components do not vary over time, and the others change slowly (so that between-firm variation is much larger than within-firm variation). But accounting profitability and the control variables vary considerably over time

In Table 8 model 5 we take into consideration firm effects using a random effects model (as advised by the Hausmann test). The distance effect remains highly significant and of roughly the same magnitude as before.

Altogether the results indicate that one standard deviation of distance adds some 2.5 percentage points (1.4*1.5 +/-) to asset returns depending on model specification.

Distance Performance Drivers. In Table 8 we introduce a horse race between the different distance dimensions by regressing on them, jointly, first ROE (model 1) and then ROA (model 2) and asset growth (Model 3) including control variables and time dummies. We find that the effects of board composition are by far the strongest on ROE, while other index components become insignificant. However, board representation and voting distance both have marginally significant effects on ROA, while physical separation (different address) and goal separation (general charity) both have marginally significant effects on asset growth.

Since many of the other distance variables are correlated with our board distance measure, it is not fair to say that only board structure matters. In fact, it seems likely that board distance is itself influenced by other variables such as ownership structure. Nevertheless, board distance appears to capture much of the performance-relevant variation in distance.

Distance and Productivity. If distance has an effect on performance, it is interesting to inquire how this plays out. How could corporate decisions be shaped by distance, for example? We conjecture that greater managerial distance will (at least up to a point) improve monitoring and increase cost efficiency and productivity in the company. Low distance implies that company boards are in effect monitoring themselves, plausibly reducing pressure to maximize shareholder

returns. Unpleasant decisions like laying off workers or closing down production lines will be easier to put off, and there will be fewer checks and balances on empire building and reinvestment of free cash flow. This would imply lower productivity of both capital and labor. In Table 9, we try to examine the effect of distance on various productivity measures. Other recent papers studying the effect of corporate governance on productivity include Tian and Twite (2011) and Giroud, & Mueller, H. M. (2011).

// Insert Table 9 around here //

In Table 9 model 1 we regress company value added on managerial distance, controlling for inputs of labor (company employment) and capital (company assets). The residual productivity not attributable to these inputs can be interpreted as a simple measure of total factor productivity. We realize of course that more refined measures of labor input could be devised, such as accounting for the quality of labor by using labor costs, or deducting assets such as cash reserves that are only indirectly associated with output. Accounting assets are a crude measure of capital inputs. But fine tuning runs the risk of fitting our variables to confirm prior beliefs, and we therefore stick to measures that are crude and simple, but relatively transparent. Using these, we find that distance has a positive, marginally significant effect on what could be (controlling for capital and labor inputs) regarded as a measure of overall factor productivity. The statistical weakness of the distance effect (significant only at the 10% level) could be attributable to measurement problems. In addition to what has already been mentioned, our estimation ignores obvious differences in technology between firms from many different industries.

In Table 9 model 2 we instead regress distance on a measure of labor productivity (value added per employee), controlling for capital intensity (assets per employee). Using this specification we find that distance has a strong and significant effect on labor productivity. It could be, for example, that stronger monitoring and ownership pressure make foundation-owned companies less reluctant to fire employees. This result is quite strong, although not robust to control for industry effects. Foundations at arm's-length distance to the firm may, for example, exert more pressure on companies to rationalize production and let go of employees.

In Table 9 model 3 we regress on distance a measure of capital productivity (value added/assets), controlling again for the capital-labor ratio (assets per employee). Estimated in this way we find that distance has a positive, but insignificant effect on capital productivity in foundation-owned firms. The lack of full significance may again be attributable to measurement problems. It is also conceivable that foundations are, regardless of distance, patient owners that let companies reinvest a substantial share of their profits.

Altogether, the productivity estimates indicate a more efficient use of labor as the managerial distance between foundation and company becomes greater. Foundation-owned companies are evidently not captured by their employees.

Distance and CEO Turnover. Another mechanism through which managerial distance could influence company performance is the propensity to replace managers. We hypothesize that greater distance will be associated with higher managerial turnover in the firm because owners can assess company performance more objectively if they are less directly involved, and because they

will be less influenced by social effects. For other papers using this approach see Defond and Hung (2004), Bushman, Dai, and Wang (2010), or Taylor (2010).

We collected information on CEO change over our 5 year observation period using a simple dummy variable (CEO Change = 1 if the name of the CEO is different from last year, otherwise 0). We report results on the effect of managerial distance on CEO Change in table 10.

// Insert Table 10 around here //

We find support for our hypothesis in model 10.1. Managerial distance does indeed have a positive and significant effect on CEO change. More distance leads to more replacement. Moreover, financial results have a stronger effect on the probability of CEO replacement, when distance is high. A negative interaction effect indicates that CEOs are less likely to be fired when ROA is high and correspondingly more likely to be fired when ROA is low. These effects are robust to specification, inclusion of control variables, time, and industry effects (models 10.1 and 10.2).

Endogeneity. As in most corporate governance research, there are potential endogeneity issues in this study. It seems possible, for example, that better economic performance will in some cases influence our distance measures so that the causal effect runs from performance to distance. A strongly-performing company may find it easier to list its shares, and may also have more of an incentive to do so to obtain capital with which to pursue profitable growth opportunities. This may in turn generate funds for the foundation which it can use to buy other companies. Both public listing and other ownership may call for new non-executive directors to enter the board to persuade investors. Well-off foundations will be better able to afford setting up an independent office for the foundation and hiring a foundation manager.

The stability of the distance index over time, however, makes reverse causality less plausible. The governance structures of industrial foundations are very stable over our 5 year observation period, whereas company performance varies considerably. Substantial stability would, of course, tend strongly to undercut the possibility that causation here runs from economic performance to the firm's governance structure.

Moreover, to the limited extent that distance actually changes it does not appear to trace exogenous changes in performance in the predicted way. As an initial crude test of stability, consider table 11.

// Insert table 11 around here //

As that table shows, if we split the sample into two time periods – before (2002-2006) and after (2007-2008) the financial crisis – we find that distance is lower in the profitable pre-crisis period and drops slightly during that period while performance (ROA) drops from 5.6% to 3.8%, in the crisis period and drops by 2.1 during that period. Most observers would attribute to the drop in performance to the financial crisis, which is exogenous to our distance variable. The exogenous shock fails to show not only a strong causal effect from performance to distance, but even a

positive effect, as would be necessary to explain the positive correlation between distance and profitability in our data.

Lagged Distance Measures. As an additional test of endogeneity, we constructed the distance index for a year (1998 or adjacent years) five years prior to the beginning of our observation period. Some foundations did not disclose sufficient information for 1998, but we were able to reconstruct this "Old Distance Index" for 66 companies. In table 12 we use it to address the endogeneity issue.

// Insert table 12 around here //

First, in model 1 we regress company performance (ROE) on Old Distance. In this case, reverse feedback from performance to distance is much less likely. We find that current performance (ROE) is significantly influenced by Old Distance.

Second, in models 2 and 3 we instrument current distance with old distance to capture the notion that distance is in part historically determined. We find that distance retains a positive and significant effect on company return on equity.

Third, in model 3, we regress ROE in 2003-2008 on ROE in 1998. We find no significant effect of past profits on current profits, although a weakly significant constant term indicates some degree of stability. This is not surprising in a dynamic business environment where companies cannot rest on their laurels for long. Past studies of profitability have found that profit rates show some persistence, but also a relatively strong tendency to mean reversion over time such that abnormally high profits are eroded by competition and other forces, while losses and bad performance are corrected by restructuring and control changes.

Taken together, these results suggest that causality runs from managerial distance to profitability rather than vice-versa.

Charter Provisions as Instruments. Finally, we instrument managerial distance with foundation charter provisions. Foundation charters typically stem from the time of founding, but continue to influence the foundation, so in principle they constitute ideal instruments. However, foundations can their charters subject to approval by the foundation regulators. The changes will typically be trivial (e.g. change of address), but may also in some cases be more serious – such as the Carlsberg foundation getting permission to reduce its shareholdings to below 50% of the share capital of the Carlsberg company. We therefore include a control variable for charter change during the period. We use four charter provisions coded as dummy variables:

- whether or not the foundation charter mandates separation of the foundation and company boards. Mandatory separation requires greater managerial distance.

- whether or not the foundation is allowed by the charter to sell the company or parts of it. Allowing the foundation to sell shares allows greater managerial distance.

- whether or not the foundation is allowed to sell the company or parts of it in a crisis situation,   Allowing the foundation to sell shares under distress enables greater managerial distance.

- whether or not the foundation charter specifies that the foundation is allowed to own other companies. Allowing the foundation to run other business would enable greater managerial distance.

We regard all three provisions as distance enhancing. In Table 13 we use them as instruments for distance in our standard performance regressions.

// Insert table 13 around here //

In Table 13.1 we find that distance retains an economically significant effect on company performance (ROA) at the 5% level. In Table 13.2 we control for charter change during the period. Unfortunately we are unable to verify how these charters were changed, although we believe that many changes were purely cosmetic. Nevertheless, changes during the period do raise the issue of reverse causality.

Controlling for charter change, we find that distance retains a positive and significant effect on company performance (ROA) at the standard 5% level. This therefore increases our confidence in a causal effect from distance to performance,

Robustness Checks. Below we examine the robustness of our results to some external influences. We report the results in table 14.

// Insert table 14 around here //

One possible confounding factor could be the role of the founding family. Previous studies have found that family -- and particularly founder -- ownership may influence company performance. To check for this we collected information on whether the founding family is active in the foundation or the foundation-owned company through a seat on the board or in a managerial role. In model 14.1 we then check whether this (dummy) variable influences the effect of distance. It turns out that presence of the founding family has a positive but statistically insignificant effect on ROA. The effect on ROE (not reported) is positive and significant at the 10% level. In both cases, however, the effect of distance remains robust and significant at the 5% level. We conclude that the distance effect is not attributable to family presence.

In model 14.2 we control for the age of the company. We can see reasons why distance would increase with the age of the foundation as the company grows and the influence of the founding family wanes. This might influence our results if (for example) profitability were higher for older firms. But age does not turn out to influence profitability in any significant way and controlling for it does not qualitatively change our results.

VI. **Discussion**

Our empirical results suggest that the economic performance of foundation-owned companies depends importantly upon both the governance structure of the foundation and the structure of the foundation's asset holdings. Strikingly, these structural elements, which we

aggregate into a composite that we term "managerial distance," are largely unrelated to the pecuniary compensation received by members of the foundation's board. Rather, they seem best understood in behavioral or psychological terms. Our hypothesis, and tentative interpretation of our results, is that two basic elements are involved.

The first element, which resonates with recent work in "identity economics" (Akerlof and Kranton 2010), is the foundation directors' identification with a particular role and consequent acceptance of a set of norms that accompany that role. Where the foundation is a distinct entity that is relatively "distant" from its operating company, the members of the foundation board – and particularly the members who are neither directors nor officers of the operating company – will identify with the foundation and its principal purpose, which is to assure the effective management of the operating company. They will view the operating company in objective terms, as something on which the foundation acts. In the language of identity economics, foundation board members will be Outsiders rather than Insiders with respect to the operating company, and hence less subject to the cooptation that comes with Insider status, while the reverse will be true with respect to the foundation.

The second element, which resonates with work in behavioral economics, is the effect of organizational structure in reducing biased decision-making. Directors who sit on the foundation board but not on the company board are presumably less subject to the confirmation bias that might result from participation in decisions taken within the company. And when a foundation controls an operating company whose minority shares are traded on the exchange, or has investments in other operating companies, poor relative performance by the operating company is likely to have particularly high salience for the foundation's directors, and hence lead to corrective action.

The combination of these two elements, we hypothesize, may be sufficient to induce the board of directors of many industrial foundations to act as "virtual owners," in the sense that they exert effort, and make decisions, much as if they were the operating company's real owners – that is, as if they not only had control of the operating company but also were entitled to appropriate for themselves its residual returns. And this, in turn, may go far in explaining the success of foundation-owned companies in Denmark relative to family-owned companies and companies with dispersed investor ownership.

Carlin, Charlton, and Mayer (2010) interpret the benefits of distance between parent and subsidiary that they observe to an attenuation of influence costs. That may be a reasonable general characterization of what is happening among the industrial foundations as well. We specifically suggest questions of identity because we suspect that some of the behavioral difference that is apparently created by managerial distance in industrial foundations involves changes in the foundation managers' goals and sense of responsibility: they are being induced to accept a change of norms – to act as virtual owners -- without being compensated as owners.

Even if we accept this interpretation of our results, however, there remain many questions about their implications outside the special realm of Danish industrial foundations.

To begin with, one can wonder whether there is something special about Denmark. Perhaps the Danish business community is so small and tight, compared to its counterparts in other countries, that norms of good business behavior play a much larger role in Denmark than elsewhere vis-à-vis pecuniary incentives. There may well be some truth in this, yet our data suggest that, even within Denmark, the quality of corporate governance varies substantially

according to the context in which decisions are made, rather than being governed by a single universal set of norms.

Moreover, there are successful industrial foundations in a number of other countries besides Denmark. And, as we have noted, even in the United States we see an apparent parallel to industrial foundations in the hospital sector, where it is common to encounter a hospital, an insurance company, and a health plan administrator all separately Incorporated and controlled by a nonprofit foundation that has no other purpose than to manage the controlled entities. Indeed, our results here suggest a rationale for the rapidly increasing popularity of that holding company structure since the 1980s (McGovern 1988), when the market for hospital services became more competitive owing to changes in technology and the structure of hospital payment plans.

Yet so far we have focused just on commercial firms that are controlled by nonprofit foundations. It remains to ask if our results have any implications for firms that have more conventional patterns of ownership?

In this regard, one cannot help but compare our empirical results with those from studies of the effect of independent directors in the United States. In general, that literature shows no significant performance effects of the presence or percentage of independent directors on company boards (Bhagat and Black 1999, 2002; Hermalin and Weisbach 2003; Adams, Hermalin, and Weisbach 2010). The conventional interpretation of these results is that independent directors bring a trade-off. On the one hand, their independence provides them with a degree of objectivity in assessing the firm's problems and opportunities. On the other hand, by virtue of their independence -- that is, the absence of other relationships with the firm -- they lack the detailed knowledge of the firm required as a basis for effective decision-making. How could it be, then, that our "managerial distance" variables, which to an important degree reflect the independence of the foundation's board from the affairs of the operating company, are correlated with good performance?

Part of the answer may lie in other structural aspects of industrial foundations. One important element here may be the existence of two distinct boards, and indeed two distinct corporations. The directors on the foundation board are not simply independent of the operating company in the sense of not being employed by it (which is commonly the sole measure of independence in the United States). They are also, generally, not even members of the company board. They owe their loyalty to a different entity, namely the foundation, and presumably identify with that distinct entity rather than directly with the operating company, which they may regard more or less from the perspective of owners rather than managers.

For similar reasons (e.g., one rather than two entities) and some others as well (e.g., codetermination), the dual board systems found in Germany and several other European countries are substantially different from the double board arrangement in industrial foundations, and there is no particular reason to expect that the apparent benefits of the latter would be seen in the former.

Rather, the closest parallel to the industrial foundations that we see among conventional investor-owned firms is arguably the situation in which control over one or several operating companies is held by a holding company that serves no other purpose than to control its subsidiaries -- the difference from the industrial foundations being that the holding company is investor-owned rather than nonprofit. In this respect it is interesting to compare our results with studies of conglomerates. While the empirical literature casts doubt on the efficiency of large

diversified conglomerates, there is evidence that smaller conglomerates – those operating in three industries or less – perform comparatively well (Lee and Cooperman 1989). This is consistent with the hypothesis that it is an advantage of the industrial foundations that they generally control only a single operating company, and at most several, with whose affairs they can become well acquainted.

There are, however, reasons to doubt whether the single-firm holding company structure can be as effective when the holding company is investor-owned rather than nonprofit. It may be that the directors of industrial foundations have a much more proprietary feeling toward the foundation and the company it owns -- that is, that they act more like virtual owners – than they would if they were serving as fiduciaries for a group of dispersed shareholders, or a family. In a sense, the board of a nonprofit foundation is the foundation, and what the foundation owns, they effectively owns – not for purposes of personal consumption, but to manage (within their legal rights) free from the competing authority of any other person. Put differently, the board of a holding company may be less motivated to produce profits for what it sees as the personal well-being of mere speculators in the company stock than it is to produce profits that either will be reinvested to increase the glory of the company and the foundation that owns it, or will go to a worthy charity.

For similar reasons, even if we should conclude that foundation-owned firms can be at least as efficient as investor-owned firms, it does not necessarily follow that the directors of business corporations are likely to manage their firms more effectively if they are insulated from outside pressures, such as shareholder votes and the market for corporate control, and turned into pure fiduciaries.

VII. **Conclusion**

Industrial foundations are a fascinating anomaly. As nonprofit entities with minimal diversification, their continuing success is something of a puzzle for standard agency theory. In this paper we have presented a possible solution to this puzzle. The performance of foundation-owned companies is closely associated with measures of "managerial distance" between the company and the foundation board. With the appropriate forms and degree of managerial distance, information and decisions are framed for the company board in a fashion that encourages board members to act as "virtual owners" of the operating company. As predicted by our theoretical reasoning, managerial distance does in fact correspond with better company performance. While these results suggest that pure fiduciaries can play a more effective role in business enterprise than is commonly supposed, there remain many questions about the extent to which these insights can be applied in other settings.

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	Table 1 Ownership and Performance (All Figures Are Percentages)		
	Dispersed Investor Ownership	Family Ownership	Foundation Ownership
Return on Equity 1982-1992	10.9	11.3	11.4
Return on Equity 1995-2002	9.1	12.4	14.5
Return on Equity 2003-2008	6.0		7.6
Sales Growth 1982-1992	8.9	11.6	10.2
Sales Growth 1995-2002	7.0	2.1	9.3
Sales Growth 2003-2008	7.4		5.5
Equity/Assets 1982-1992	36	38	47
Equity/Assets 1995-2002	50	56	54
Equity/Assets 2003-2008	49		51

Source: Thomsen (1996, 2004)
Note: The 1982-1992 figures compare companies among the 300 largest by sales. The 1995-2002 figures compare companies among the 1000 largest by sales. The 2003-2008 figures compare our sample to all listed Danish companies. Return on equity for the reference group of listed Danish companies 2003-2008 is here defined as net income/shareholder equity to facilitate comparison, whereas we use ROE=earnings before taxes/equity in the rest of this paper. For the same reason we also use a different growth measure here (sales growth).

Table 2. Variable List

Variable	Explanation
Governance variables	
Cofodis	Board distance. Less than 25% of the foundation board members are also board members or executives at the company
Votedis	Ownership distance I. The foundation owns less than 100% of the votes of the company
Listed	Ownership distance II. The company majority-owned by the foundation is listed (dummy variable)
Otherown	Ownership distance III. The foundation owns more than one company
Difadr	Geographical distance: The company and the foundation have different addresses (dummy variable)
Gencharity	Goal distance. General charitable donations is an objective stated in the foundation charter
Distance	An index measuring overall distance between company and foundation: cofodis+votedis+listed + otherown+difadr + gencharity
Foman	Foundation has employed a manager (chief executive)
Donation	The foundation made donations this year (dummy variable)
Cofbsum	Foundation (management and board) share of company board
Control variables	
Coassets	Company assets (bill DKR) – controlling for economies of scale
Ea	Company equity to assets % - controlling for leverage (financial risk)
T1-t6	Time dummies – controlling for macro tends (e.g. financial crisis 2007-2008)
I1-I21	Industry dummies – controlling for industry effects
Performance variables	
Coroa	Company return on assets %
Coroe	Company return on equity %
Coval	Company value added (a productivity measure when controlling for inputs of assets and number of employees
cl	Company value added/number of employees: a labor productivity measure
cp	Company value added /company assets: a capital productivity measure
Growth	Annual growth of company assets%
Growth2	Annual growth of company sales%
Lp	Value added (coval) per employee: labor productivity measure

Table 3. Descriptive Statistics

Variable	N (obs)	Mean	Std. dev.	Min	Max
Governance variables					
Cofodis	549	0.28	0.44	0	1
Votedis	549	0.41	0.49	0	1
Listed	546	0.13	0.33	0	1
Otherown	546	0.27	0.44	0	1
Difadr	545	0.25	0.43	0	1
gencharity	535	0.75	0.43	0	1
Distance	531	2.11	1.42	0	6
Foman	549	0.26	0.44	0	1
Donation	533	0.74	0.44	0	1
Cofbsum	549	0.55	0.34	0	1
Control variables					
Coassets	546	4.57	25.87	0.00055	343.11
Ea	545	50.82	21.69	0.84	99.8
Performance variables					
Coroa	543	5.01	9.36	-82.02	53.5
Coroe	543	10.5	25.5	-100	100
Growth	527	5.2	19.3	-92.2	92.3
Growth2	335	3.5	23.9	-100.0	94.
Coval	485	1.14	3.88	0.00	35.44
Cp	485	0.36	0.25	0.00026	1.37
Lp	467	0.00089	0.0023	0.000	0.031

Table 4. Correlation Coefficients

Table 4a. Correlation matrix (regression variables)

	coroe	Distance	Cofbsum	Coassets	Ea	CP	Growth	LP
Coroe	1							
Distance	0.21**	1						
Cofbsum	-0.12**	-0.55**	1					
Coassets	0.09**	0.19**	-0.09**	1				
Ea	0.03	-0.11**	0.06	-0.03	1			
Cp	0.22**	0.23**	-0.27**	0.03	-0.21**	1		
Growth	0.12**	-0.03	-0.05	0.03	-0.10	-0.01	1	
LP	0.03	-0.093**	0.14**	0.01	0.12**	-0.15**	-0.15**	1

**=significant at 5% level

Table 4b. Correlation matrix (distance measures)

	Coroe	cofodis	votedis	listed	otherown	diafdr	gencharity	distance
Coroe	1							
cofodis	0.18**	1						
votedis	0.09**	0.24**	1					
listed	0.17**	0.39**	0.46**	1				
otherown	0.16**	0.09**	0.05	0.36**	1			
difadr	0.06	0.32**	0.23**	0.34**	0.09**	1		
gencharity	0.05	-0.05*	-0.03	0.10**	-0.004	-0.06	1	
distance	0.21**	0.61**	0.61**	0.77**	0.47**	0.58**	0	1

**=significant at 5% level

Table 5. Discrete Distance Measures and Company Performance

	Return on equity %	Return on assets %	Asset growth %	N (Firm years)
Foundation share of company board				
>25%	8.4	4.1	4.0	395
≤ 25%	17.1***	7.3**	8.3**	154
Foundation ownership of the company				
100%	9.5	3.5	5.6	322
<100%	12.5**	7.1***	4.6 ns	227
Company publicly listed				
Unlisted	9.8	4.2	5.2	476
Listed	18.0 ***	10.7***	5.9 ns	70
Foundation owns more than one company				
One company	9.4	4.2	4.8	401
More companies	14.7***	7.2**	6.4 ns	145
Foundation = company address				
Same address	8.9	4.2	4.3	1.
Different address	16.4***	7.3**	8.7*	2.
Foundation has general charitable aim				
No general charitable aim	9.3	3.8	3.3	135
General charitable aim	11.3 ns	5.5**	6.0 ns	400
Foundation employs a CEO (dummy)				
No foundation CEO	10.6	5.0	6.5	401
Foundation CEO	11.3 ns	4.8 ns	1.8 *	148
Total	11.2	7.0	5.3	549

Note: Outliers greater than 100% and less than -100% have been omitted.
*= significant at 10% level, **=significant at 5% level, ***=significant at 1% level (t-tests with unequal variance).
Ns: Not significant.

Table 6. Continuous Distance Measures and Company Performance (means)

	Return on equity %	Return on assets %	Sales Growth %	Firm years	F tests
Foundation share of company board %					
0	6.20	9.09	21.71	42	
0 $< \% \leq$ 25	22.21	10.15	26.22	131	
25 $< \% \leq$ 50	8.37	4.28	31.75	148	
50 $< \% \leq$ 75	9.32	6.43	27.58	118	F Value(cofobo,roe) 8.37***
75 $< \% \leq$ 100	7.50	6.04	19.62	163	F Value(cofobo,roa) 2.86**
100	6.51	6.19	23.59	119	F Value(cofobo,growth) 1.76
Company share of foundation board %					**Company share of foundation board %**
0	3.73	8.23	20.32	43	
0 $< \% \leq$ 25	23.50	10.01	26.13	112	
25 $< \% \leq$ 50	8.99	5.56	29.61	121	
50 $< \% \leq$ 75	9.12	4.10	25.81	123	F Value(cofobo, roe) 8.87***
75 $< \% \leq$ 100	8.52	7.073	24.34	203	F Value(cofobo, roa) 2.43**
100	7.35	5.91	22.03	117	F Value(cofobo, growth) 0.48
Foundation capital ownership %					**Foundation capital ownership %**
0	-	-	-	0	
0-25	9.80	7.32	22.58	35	
25-50	11.06	8.82	25.57	112	F value (focapo, roe) 3.94***
50-75	21.38	9.79	25.26	70	F value (focapo, roa) 2.55***
75-100	6.40	4.47	26.14	65	F value (focapo, growth) 0.05
100	9.48	5.23	25.79	317	
Total	11.18	6.79	25.75	602	

Note. 1. This table includes all 121 foundation-owned companies, not just those with >50% voting ownership.
   2. The Performance variables in this table have been truncated to +/- 100%. In other tabled outliers +/- 100% were deleted.
   3. *= significant at 10% level, **=significant at 5% level, ***=significant at 1% level (F-tests) .

Table 7. Managerial Distance (index) and company performance (ROA).

(Robust OLS with standard errors clustered by firm)

Model	1	2	3	4	5
Dependent Variable	ROA	ROA	ROA	ROA	ROA
Estimation methods	Robust OLS Clustered standard errors	Robust OLS Clustered standard errors	Robust OLS Clustered standard errors	OLS on averaged variable values	Random firm effects
Independent Variables					
Managerial distance index	1.81*** (0.50)	1.16*** (0.35)	1.25** (0.50)	1.94*** (0.48)	1.64*** (0.39)
Company assets		0.005 ns (0.008)	0.007 ns (0.010)	0.009 ns (0.020)	0.009 (0.019)
Equity/Assets		0.03 ns (0.02)	0.032 ns (0.023)	0.012 (0.033)	0.053** (0.022)
Time effects	NO	YES	YES	NO	YES
Industry effects	NO	YES	YES	NO	YES
Firm effects	NO	NO	NO	NO	RANDOM
Listed company			-0.66 ns (2.24)		
Constant	0.94 ns (1.15)	3.02* (1.70)	2.89 ns (1.71)	-0.03 ns (2.14)	-1.66 ns (1.62)
R-square (adjusted)	0.07	0.27	0.27	0.13	
F test (Chisq)	12.87***			5.71***	(24.82)***
N (firms)	113	113	113	112	113
N (firm years)	542	541	541	112	541

Note. This table includes only companies in which a foundation owns more than 50% of the votes
Managerial distance is an index sum of 6 distance variables: Board distance (cofodis), ownership distance (votedis),
public listing (listed), ownership of other companies (otherown), general charitable aim, physical distance (difadr:
different address .   Standard errors in brackets *= significant at 10% level, **=significant at 5% level,
***=significant at 1% level (t-tests). Hausmann Random-Fixed: 8.25 ns: not significant.

Table 8. Managerial distance measures and company performance(ROA).
(Robust OLS with standard errors clustered by firm)

	Model 1	Model 2	Model 3
Dependent Variable	ROE	ROA	Growth
Independent Variables			
Company representation on foundation board ≤ 2 (cofodis)	5.58** (2.50)	1.57* (0.89)	0.58 ns (3.21)
Voting Distance (votedis)	2.61 ns (3.01)	1.94* (1.11)	-5.40 ns (4.30)
Listed Company (listed)	-2.48 ns (6.05)	0.51 ns (2.05)	-0.93 ns (6.85)
Other Ownership (otherown)	1.67 ns (4.44)	0.43 ns (1.38)	-4.51 ns (6.00)
Different Address (difadr)	0.27 ns (4.88)	1.17 ns (1.47)	7.05* (4.02)
General Charitable Aim (gencharity)	1.65 ns (3.45)	0.41 ns (1.20)	6.08* (3.55)
Company assets	0.075 *** (0.025)	0.006 ns (0.011)	0.046 ns (0.032)
Equity/Assets	0.075 ns (0.068)	0.031 ns (0.023)	-0.33*** (0.11)
Firm effects	NO	NO	NO
Industry effects	YES	YES	YES
Time effects	YES	YES	YES
Constant	1.75 (5.20)	3.71 (1.84)	12.57 ns (11.08)
R-square (adjusted)	0.25	0.28	0.16
F test			
N (firms)	113	113	93
N (firm years)	541	541	335

Note. This table includes only companies in which a foundation owns more than 50% of the votes
Standard errors in brackets *= significant at 10% level, **=significant
at 5% level, ***=significant at 1% level (t-tests).

Table 9. Managerial Distance (index) and company productivity.

(Robust OLS with clustered standard errors)

	Model 1	Model 2	Model 3
Dependent Variable	Company value added	Company value added per employee	Company Value added/assets
Independent Variables			
Managerial distance index	0.25* (0.14)	0.00007** (0.0003)	0.020 ns (0.016)
Company assets	0.17 nc (0.11)		
Company employees	0.0003* (0.0001)		
Assets per employee		0.065*** (0.007)	-1.9*** (0.34)
Firm effects	NO	NO	NO
Time effects	YES	YES	YES
Industry effects	NO	NO	NO
Constant	-0.50 (0.27)	0.0002** (0.00008)	0.34*** (0.04)
R- square (adjusted)	0.82	0.86	0.09
F test	6.02***	48.03***	7.59***
N (firms)	101	101	101
N (firm years)	467	467	467

Note. This table includes only companies in which a foundation owns more than 50% of the votes

Old distance is managerial distance observed in 1998 or adjacent years. Models 2 and 3 instrument current managerial distance with old distance. Managerial distance is an index sum of 6 distance variables: Board distance (focodis), ownership distance (votedis), public listing (listed), ownership of other companies (otherown), general charitable aim, physical distance (difadr: different address . Standard errors in brackets *= significant at 10% level, **=significant at 5% level, ***=significant at 1% level (t-tests).

Table 10. Managerial Distance (index) and CEO turnover.

Model	1	2
Dependent Variable	CEO Change	CEO Change
Estimation methods	Logistic regression	Logistic regression
Independent Variables		
Managerial distance index (t-1)	0.62*** (0.16)	0.70*** (0.21)
Company return on assets (t)	0.055 ns (0.048)	0.07 ns (0.05)
Distance (t-1) * company return on assets (t)	-0.032* (0.017)	-0.040* (0.022)
Company assets		-0.029 ns (0.035)
Equity/Assets		-0.022* (0.011)
Time effects	NO	YES
Industry effects	NO	YES
Firm effects	NO	NO
Constant	-3.75*** (0.45)	-2.79*** (1.01)
Pseudo R-square	0.07	0.16
F test (Chisq)	16.1***	37.7***
N (firms)	109	109
N (firm years)	418	418

CEO change (dummy) equals 1 if there is a new CEO in a given year compared to the year before.

Table 11. Distance and profitability before and after the financial crisis

	Mean Distance	Mean ROA	Mean Distance change	Mean ROA change	N (firm years)
Before the crisis (i.e. years 2002-2006)	2.1	5.6	-0.01	0.4	420
After the Crisis (i.e. years 2007- 2008)	2.3	3.8	0.04	-2.1	196

Note. Because of missing values mean changes do not add up to differences in means.

Table 12. Past Managerial Distance (index) and company performance (ROE)

Model	1	2	3	4
Dependent Variable	ROE	ROE	ROE	ROE
Estimation methods	Robust OLS Clustered standard errors	IV Estimation	IV estimation Random effects	Robust OLS Clustered standard errors
Independent Variables				
Old Managerial distance index	5.41** (2.09)			
Managerial distance index		4.2*** (1.4)	4.99** (2.07)	
Company assets	0.08 (0.11)	-0.03 (0.13)	0.04 (0.17)	
Equity/Assets	0.15 (0.11)	0.19** (0.08)	0.37*** (0.09)	
Time effects	Yes	Yes	Yes	
Industry effects	Yes	Yes	No	
Firm effects	No	No	Yes (Random)	
Listed company	-12.0 (7.64)			
Past ROE (in 1998)				0.11 ns (0.17)
Constant	-6.68 (8.86)	-8.76 (7.19)	-23.07*** (7-23)	6.58* (3.47)
R-square (adjusted)	0.23	0.19		0.005
F test (Chisq)		4.02***	23.39***	0.049 ns
N (firms)	66	66	66	69
N (firm years)	321	321	321	337

Note. This table includes only companies in which a foundation owns more than 50% of the votes
Old distance is managerial distance observed in 1998 or adjacent years. Models 2 and 3 instrument current managerial distance with old distance. Managerial distance is an index sum of 6 distance variables: Board distance (focodis), ownership distance (votedis), public listing (listed), ownership of other companies (otherown), general charitable aim, physical distance (difadr: different address .   . Standard errors in brackets *= significant at 10% level, **=significant at 5% level, ***=significant at 1% level (t-tests).

Table 13. Instrumenting Distance with Foundation Charter Provisions

Model	13.1	13.2
Dependent Variable	ROA	ROA
Estimation methods	IV Estimation	IV Estimation
Independent Variables		
Instruments (charter provisions)	Mandatory separation No divestiture Crisis divestiture Other firms	Mandatory separation No divestiture Crisis divestiture Other firms
Managerial distance index	2.25** (1.11)	2.37** (1.09)
Company assets	-0.001 ns (0.015)	-0.009 ns (0.014)
Equity/Assets	0.034 (0.016)	0.035** (0.016)
Time effects	YES	YES
Industry effects	YES	YES
Firm effects	NO	NO
Charter change		-2.37** (1.01)
Constant	0.37 ns (3.06)	1.47 ns (2.68)
R-square (adjusted)	0.21	0.22
F test (Chisq)	6.06***	6.50***
N (firms)	541	541
N (firm years)	113	113

Note. This table includes only companies in which a foundation owns more than 50% of the votes
Models 1 and 2 instrument current managerial distance with foundation charter provisions: no divestiture (foundation must not sell the company), crisis divestiture (foundations must to sell the company except in a crisis situation), other firms (the foundation is allowed to own other firms). Charter change is a dummy for change in the foundation charter during the observation period 2003-2008 (we cannot observe the nature of the change). Managerial distance is an index sum of 6 distance variables: Board distance (cofodis), ownership distance (votedis), public listing (listed), ownership of other companies (otherown), general charitable aim (gencharity), physical distance (difadr: different address) . Standard errors in brackets *= significant at 10% level, **=significant at 5% level, ***=significant at 1% level (t-tests).

Table 14 Robustness Tests. Controlling for Founding Family Presence and Company Age.

Model	1	2
Dependent Variable	ROA	ROA
Estimation methods	Robust OLS Clustered standard errors	Robust OLS Clustered standard errors
Independent Variables		
Managerial distance index	1.13*** (0.35)	1.16*** (0.35)
Family members in management or supervisory board (dummy)	1.56 ns (1.06)	
Company age		-0.002 ns (0.010)
Company assets	0.004 (0.008)	0.006 ns (0.073)
Equity/Assets	0.030 (0.022)	0.035 (0.023)
Time effects	YES	YES
Industry effects	YES	YES
Firm effects	NO	NO
Constant	2.36 ns (1.77)	3.04* (1.65)
R-square (adjusted)	0.28	0.27
F test (Chisq)		
N (firms)	113	110
N (firm years)	541	535

Note. Family presence is a dummy for founding family members in management or on the supervisory board. Managerial distance is an index sum of 6 distance variables: Board distance (cofodis), ownership distance (votedis), public listing (listed), ownership of other companies (otherown), general charitable aim (gencharity), physical distance (difadr: different address) .   Standard errors in brackets *= significant at 10% level, **=significant at 5% level, ***=significant at 1% level (t-tests).

Figure 1. Distance (index) and performance