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

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Abstract

Industrial foundations are foundations 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 the 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 113 foundation-owned Danish companies over the period 2003-2008.

We focus in particular on a composite structural factor that we term "managerial distance." We propose this as a measure of the extent to which the foundations obtain an identity different from that of the companies that they own. Distance, we argue, will increase the clarity and objectivity with which a foundation-owned company's top managers focus on the company's profitability. Managerial distance puts the foundation board in the position of "virtual owners," in the sense that the information and decisions facing their boards 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 almost 60% 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 are, on average, as profitable as 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 113 Danish companies and the foundations that control them.

We focus in particular on a composite structural factor that we term "managerial distance." We propose this construct 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's board of directors 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, and Section VI explores the robustness of those results. Section VII offers a more general discussion and interpretation of the empirical results, including possible implications for practice, policy, and future research. Section VIII concludes.

II. The Industrial Foundation Enigma

An industrial foundation is, in effect, a nonprofit corporation organized and operated principally to administer a large ownership stake – typically controlling and often 100% -- 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. Under Danish foundation law and foundation tax law the transfer to the foundation must be irrevocable.

The foundation is governed by its own board of directors. The foundation board 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 organization111 (The 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 sometimes, but not always, requires 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 via donations by private owners, not as an anti-takeover devised by company managers.

Industrial foundations were common in the U.S., prior to 1969 tax legislation that effectively prohibited private foundations from owning more than 20% of the voting shares in a business corporation (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.

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 exposed to the market for corporate control, subject to close discipline by controlling shareholders, or compensated in a manner that mimics the returns received by the firm's shareholders (e.g., Hart 1995, Shleifer and Vishny 1997). Industrial foundations are not, however, organized according to these precepts. Quite the contrary: because the foundation board is typically self-appointing, it is entirely insulated from the market for corporate control or a proxy fight. Moreover, in keeping with their status as nonprofit organizations, industrial foundations are subject to a "nondistribution constraint" that bars 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 Danish corporate governance code advises against stock options for directors, though not officers, of conventional business corporations) Industrial foundations are lightly regulated by a small government office confined to policing the legality of their activities – i.e. lawfulness, basic disclosure and adherence to the foundation's charter, and cannot intervene in business decisions. These authorities are entitled to replace the foundation board, but only in extreme cases of gross violations, which would not include mere inefficient management and low profitability. 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, Dzansi 2011). Table 1 offers illustrative statistics for three separate samples of Danish firms covering most of the 26 years 1982-2008. Average return on equity for foundation-owned companies is similar to the figures for either family-owned companies or companies with dispersed ownership.

// 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, prior to 1987, Danish law permitted the founder's initial gift of stock to escape inheritance taxation as well as taxation of accrued capital gains), 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 often have significantly lower debt/equity ratios than their investor-owned counterparts. Accounting biases do not offer a good explanation either, 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, 1996; Fama and Jensen (1983b); 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 largely 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 companies 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 with the firms' 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 controlling 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 agency costs. 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 incur exceptional costs from non-pecuniary goals, lower managerial competence in successor generations of the family, and intra-family conflict (Bertrand & Schoar 2006). Firms owned by dispersed investors may face high managerial agency costs or strong incentives for short-term earnings management. The evidence to date simply suggests that the special costs facing firms

owned by industrial foundations are not markedly different in magnitude from the costs brought by other forms of ownership.[5]

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. We try to solve the puzzle by examining *how* rather than *if* foundation ownership works. "Managerial distance" is the attribute of industrial foundations that we use to explore these issues. In the following section, we define this concept and discuss what might be learned from it.

III. Managerial Distance

Fama and Jensen (1983a) have argued prominently and persuasively 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. While this proposition is intuitively appealing, Fama and Jensen are not explicit about the behavioral mechanisms that underlie it. Our data permit us to explore whether a similar monitoring role might be performed by a second board placed above the company board, and more generally to explore the behavioral mechanisms that induce directors to perform their monitoring role effectively – a subject not explicitly addressed by Fama and Jensen.

A. The Concept of Managerial Distance

The advantage our data offer in exploring these questions derives from the substantial variation among industrial foundations 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 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. In substance, the arrangement would be no different if there were no separate foundation, and the operating company were itself formed as a nonprofit corporation.[6]

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[5] 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, which they market in competition with firms that have more conventional ownership structures.

[6] 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.

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, also controls other operating companies. In short, the foundation is a nonprofit holding company that is quite distinct from any of the operating companies in which it holds a controlling share.

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 profitability of the operating company will generally be a positive function of the foundation board's managerial distance from the operating company.

B. Pecuniary and Nonpecuniary Incentives

Our basic empirical strategy is to seek correlations between measures of economic performance and measures of managerial distance, holding other important factors constant. If there is such a correlation, and if it reflects causality from distance to performance, the reason evidently does not lie in direct pecuniary incentives. Foundation directors are given fixed compensation annually, at levels that are below compensation of directors in investor-owned firms. This is even built into the Danish Law on Industrial Foundations § 19, which states that *"Remuneration of board members must not exceed what is considered normal regarding the nature and scope of work."* Foundation regulators occasionally intervene to lower board fees that they consider excessive. Causality must therefore reflect some stimulus other than direct compensation.

Career Concerns. One plausible hypothesis is that the directors on the foundation board are motivated by indirect pecuniary incentives along the lines of the career concerns literature (Holmström 1999). In particular, membership in the board of an industrial foundation might be a means by which aspiring young managers signal their capacity to undertake more highly remunerated positions in the future. Greater managerial distance, in turn, might create stronger incentives for foundation board members by making the distinct contribution of the foundation board members, as opposed to the members of the company board, more transparent to potential future employers.

This hypothesis seems directly contradicted, however, by a comparison shown (in Table 2a) of the demographic profile of foundation board members with that of the directors of investor-owned companies. In particular, the average age of foundation board members is 64, which is nearly 10 years older than the average age for board members in investor-owned companies and clearly too late in life to be signaling one's capabilities to future employers. Foundation board membership is, in most cases, evidently an end-of-career rather than a mid-career position.

If we turn, however, to non-pecuniary influences on the behavior of foundation board members, we can discern at least three that might lead more distant foundation boards to perform better, and that have some basis in the existing literature.

Influence Activities. First, greater managerial distance is likely to reduce the costs of influence activities (Milgrom and Roberts, 1988), both by reducing the access of company personnel to the foundation board and by providing the board with more objective information with which to counter efforts at influence. This is the interpretation offered by Carlin, Charlton, and Mayer (2010), which is the paper in the existing literature that seems closest to ours. That paper focuses on multinational

corporations, and explores the efficiency with which parent corporations allocate capital to their various corporate subsidiaries around the world. They examine, among other considerations, two factors, which they call measures of "proximity," that are closely related to our concept of managerial distance: (1) the literal geographic distance between the parent and the subsidiary, and (2) the fraction of the shares of the subsidiary that is not held by the parent. They find that the efficiency of subsidiaries' investments is positively related to both measures.

Identity. Second, greater managerial distance may, in a sense, alter the personal preferences of the foundation's directors along lines explored in recent work on "identity economics" (Akerlof and Kranton 2010, Bénabou and Tirole 2011). As managerial distance increases, the foundation will take on more of the character of an entity that is distinct from the operating company. In consequence, the foundation's directors – and particularly those who are neither directors nor officers of the operating company – might identify increasingly with the goals of the foundation, accepting the set of norms that conventionally accompany the specific role of foundation director, while taking an increasingly instrumental view of the foundation's operating company. (For highly suggestive experimental results of this character, see Engel and Zhurakhovska 2012.) In the language of Akerlof and Kranton, foundation board members will become 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. These shifts in perceived identity might occur quite apart from any changes in the directors' exposure to influence activities, though as the immediately preceding reference to "cooptation" suggests, changes in the intensity of influence activities may be a stimulus to changes in identity.

Cognitive Biases. Third, familiar forms of cognitive bias likely to be found in corporate boards -- including overconfidence, over-commitment, confirmation bias, and groupthink (Langevoort 1997, 2001) -- may cause foundation directors' decision-making to improve with managerial distance. In theory, such biases could operate quite independently of either influence activities or alterations in perceived identity. In practice, however, all three phenomena are likely to overlap and reinforce each other.

Non-monotonicity. Under any theory of board behavior, it is of course intuitively unlikely that greater managerial distance will always improve company performance. Some minimum level of proximity is presumably necessary for the foundation board to be sufficiently well-informed to exercise active ownership. Consequently, it seems reasonable to expect that company performance is a non-monotonic (first increasing, then decreasing) function of managerial distance.

Director Independence. 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 basic question of whether board members have pecuniary conflicts of interest with the company's (non-controlling) shareholders, which has commonly been the principal measure of independence in empirical studies of corporate boards.

C. Components of Managerial Distance

In the empirical study we report here, we focus on six different characteristics of an industrial foundation's relationship to its captive operating company. We take each of these characteristics to be a component of our overall concept of managerial distance. We review all of those components 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. The precise measures we use for these components are described in Section IV.

Board Separation. If the foundation and company boards overlap completely, the same group of directors is faced with the awkward task of monitoring itself. Owing to the three considerations just surveyed – influence activities, identification with role, and cognitive bias – it seems likely that the directors would perform this role poorly. We conjecture, however, that as the degree of board overlap declines, the performance of the foundation's directors will improve, subject again to the proviso that some minimal level of board overlap might have the offsetting benefit of helping the foundation board remain informed about the affairs of the operating company.

Outside 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, and in fact a number of the companies in our sample have minority shareholders. Several considerations suggest that the presence of these minority shareholders might result in improved performance of the operating company. First, if the company performs poorly, the minority shareholders will complain. Second, even if the minority shareholders don't complain, the foundation directors may feel more responsible if they have minority shareholders to care for. Third, the minority shareholders may be members of the founder's family, and consequently either sit on the foundation board or have special influence over it. Fourth, the minority shareholders may be employees of the operating company, and the incentive effect -- or the salience -- of that shareholding may cause the employees to work harder, or to exercise their voice, through the worker representatives on the boards of the foundation and the operating company, to push the boards toward better performance. This measure of managerial distance is similar to one of the "proximity" measures that Carlin, Charlton, and Mayer (2010) find to be related to the efficiency with which a parent business corporation allocates capital to its international subsidiaries.

Listed Shares. Seventeen of the operating companies in our sample not only have (non-controlling) outside shareholders, but have shares that 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 confronts the foundation board with an unavoidable objective evaluation of the company's performance. That evaluation is, moreover, conspicuous to the general business community, and hence is likely to have a particularly strong effect on the reputation of the company's managers, and particularly the foundation's Board of Directors.

Multiple Companies. Many industrial foundations exercise control over just one operating company. Some foundations, however, control two or more operating companies. We conjecture that the directors of the latter foundations experience greater managerial distance, and consequently the foundations' operating companies exhibit superior performance. Control over two or more companies, we conjecture, attenuates the foundation board members' sense of personal identification with the management of a particular operating company, and also constantly confronts the foundation board members with a comparison of the performance of its different companies.

Physical Separation. Some industrial foundations conduct their activities in office space provided by their operating company. Other foundations have offices of their own, located away from the facilities of the operating company. We conjecture that, in the latter case, physical distance will augment managerial distance, and company performance will be stronger. This measure of managerial distance is roughly analogous to another of the "proximity" measures – the geographic distance between a parent and its international subsidiary – that Carlin, Charlton, and Mayer (2010) find to be related to the efficiency of capital allocation to the subsidiary.

Charitable Purpose. The charter of a typical industrial foundation sets out two purposes for the foundation -- to manage the operating company well and to make contributions to charity out of the net earnings of the company -- and gives the foundation board discretion in determining the relative emphasis to be placed upon these two purposes. The charters of some industrial foundations, however, do not mention support of charity as a purpose, while others limit the foundation's support of charity to particular fields, such as biomedical research. We conjecture that foundations with the charter commitment to support charity will seek more strongly than foundations without charitable purposes to maximize the profits of their operating company, since those profits will be framed for the foundation's directors as means to another end. In effect, such foundations have a profit motive. We also conjecture, more tentatively, that foundations committed to a general charitable purpose will outperform those with a more specific charitable purpose, both because directors of the former foundations will find it easier to identify worthy projects and because the directors will have greater freedom to make contributions to charities that they personally believe are especially worthy.

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 consists of governance and accounting variables collected for 113 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 113 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)

We also restricted the sample to companies in which the foundation has more than 50% of the voting rights, so that the foundation has unquestioned control.[7].

We hand-collected distance 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.[8] 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 distance variables, but in most regressions we have a sample of approximately 530-550 observations.

[7] There were an additional eight companies that met our size criteria, but in which the parent foundation's ownership share, while perhaps carrying control, represented less than a majority of the total shareholder votes.

[8] The company was kept in the sample for the years before it was divested by the foundation, and dropped for subsequent years.

A. Background on Foundation Boards

To provide some background for the discussion that follows, we begin with a comparison of foundation boards to normal Danish company boards, with the principal facts displayed in Table 2. We compare a subset (96) of the industrial foundations that we examine in this paper to the listed companies for which we could get sufficient information. Note that we examine the boards of the foundations rather than the companies that they own.

//Insert Table 2 around here //

We see from Table 2a that, in comparison to the boards of ordinary companies, industrial foundation boards are on average slightly smaller, much more exclusively Danish in composition, and less male-dominated. Foundation board members are also significantly older and serve longer[9] than their counterparts on conventional company boards. Although company employees by law have the right to elect 1/3 of the foundation board members, they do so in only 21% of the foundations that we studied; on average, only about 10% of the foundation board members are employee representatives. Some foundation board members are current or former executives or directors in the foundation-controlled companies, and around 10% are members of the founding family. Professors are particularly numerous (around 5%), probably as a consequence of the foundations' charitable contributions, more than half of which go to basic research.

Finally, as shown in Table 2b, average foundation director compensation is only a little more than $13,000 per year, which is about one third of the level in listed companies. Indeed, some foundation directors (10%) receive no compensation at all. This relatively low compensation for foundation boards does not directly reflect size differences in the managed companies. The average foundation-owned company has more employees than the average listed company (although of course the foundations themselves have very few employees) and, as shown in Table 2b, the average value of equity in the foundation-owned firms is only slightly smaller than that of listed companies.

These figures support the inference that foundation directors serve, in important degree, for purposes other than pecuniary gain. We will return to those purposes below.

B. Performance Measures

Since we are interested in examining the effect of managerial distance on company performance, we collected three sets of variables: performance variables, distance variables, and control variables. In Table 3 we provide descriptive statistics for the variables that we use. In Table 4 we present correlation matrices for the variables. The text that follows describes the construction of each of our variables, beginning with the performance measures.

//Insert Table 3 around here //

[9] Although other factors are likely involved, we note that foundation directors are not subject to the corporate governance code for listed companies, according to which board members automatically lose their status as independent directors if they serve for more than 11 years.

//Insert Table 4 around here //

The principal performance measures that we used as dependent variables in our statistical tests are standard accounting measures:

Return on Equity (ROE) -- accounting profits net of interest costs, before tax, as a percent of corporate equity capital

Return on Assets (ROA) -- gross profits, before interest and taxes, as a percent of total company assets

Growth -- annual percentage growth of sales.[10]

We also employ several productivity measures that we will explain subsequently.

As shown in Table 3, the foundation-owned companies earn, on average, 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 4% on average when we winsorize at the 2% level. We winsorize these performance variables at the 1% level 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 3 billion DKK (a little more than US $500 million at August 2012 exchange rates). However, as usual, the standard deviation is high given a long tail of smaller companies.

C. Managerial Distance Variables

We constructed a measure for each of the six components of managerial distance described in Section III. Each of these is a simple index that takes the value 0 or 1, with 1 indicating greater distance. We then construct an overall "distance index" that is the sum of the six individual variables. The definitions are as follows.

Board Separation

= 1 if no more than two members of the foundation board are also on the company board;

= 0 if there are three or more company board members on the foundation board.

Outside Ownership

= 1 if the foundation owns < 100% of the company's share capital (cash flow rights);

= 0 if the foundation owns 100% of the company's share capital.

Listed Shares

= 1 if the company's minority shares (if any) are publicly traded;

= 0 if the company's shares do not trade publicly.

Multiple Companies

= 1 if the foundation owns more than one company;

[10] Sales growth and asset growth were highly correlated. We chose sales growth as the more consistent measure. Note that average sales growth differs from what we report in table 1, because we winsorize in table 3 rather than omit outliers as we did in table 1.

= 0 if the foundation owns only the company in question.

Physical Separation

= 1 if the foundation office has a different address from the company;

= 0 if the foundation and the company have the same address.

Charitable Purpose

= 1 if the foundation charter expresses a general charitable purpose;

= 0 if the foundation charter expresses only a limited, or no, charitable purpose..

Distance Index

= the sum of the preceding six variables.

Because all of the six constituent distance variables[11] take a value of either 0 or 1, the Distance Index takes integer values between 0 and 6 (7 possible levels). This simple summation is a somewhat arbitrary way to construct an index. We also constructed a less arbitrary index in the form of a common factor using multiple component analysis. The correlation between that factor and our distance index was .94, and the statistical results were qualitatively the same as those obtained with the simpler summation index described here, as shown by regressions reported in Table 12. Consequently, in the results reported below we used the latter index, which is more transparent.

From the correlation coefficients in Table 4, we see that all of our performance measures are positively correlated with Return on Assets and, with the exception of Charitable Purpose, are all positively correlated with each other and, in particular, with the Distance Index. This tends to support the idea of a composite Distance Index. The control and performance variables are not excessively correlated, so multicollinearity is manageable.

We note that company size and age are correlated with distance, so these are factors which need to be controlled for statistically, especially company size which is correlated with our performance measures with a coefficient of 0.2. It makes more sense for larger companies to become listed, and they can more easily afford to separate the organization of company and foundation. Age, in contrast, is not significantly correlated with performance.

D. Control Variables

We employ the following, relatively standard, set of variables to control for factors other than distance that might affect company performance.

Company Size. The book value of the company's assets, to capture economies of scale[12]

Company Leverage. Equity as a percentage of assets, as an inverse measure of risk.

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[11] We initially included among our distance measures a seventh indicator variable, which took a value of 1 if the foundation had a manager or CEO of its own who was not employed by the company, and 0 otherwise. The intuition behind this variable was that the ability of the foundation to exercise active ownership would plausibly decrease to the extent that the foundation had to rely on the company for managerial and administrative assistance. This variable proved to add no predictive power to our other distance measures, however, and we have excluded it from the statistics reported here.

[12] We also used, as an alternative specification, the log of company assets, with similar results.

Year Dummies. Dummy variables for each of the six accounting years covered by our sample, to capture macroeconomic effects (such as the financial crisis in 2008).

Industry Dummies. Dummy variables for each of 21 industry groups, which we constructed by merging 8-digit NACE industries into broader categories, to capture industry-specific factors affecting company performance.

V. Statistical Results

For our data to demonstrate correlation between managerial distance and firm performance, much less causation, there must be some randomness in the distance exhibited by the firms in our sample. If each firm had chosen the optimal degree of distance given its other attributes, statistical analysis of our data would reveal little. It appears, however, that the various degrees of distance exhibited by the industrial foundations in our sample were, to a substantial degree, arrived at fortuitously. Until recently, there seems to have been little focus, and no consensus, among industrial foundations on the choice of governance structure. Rather, characteristics such as the overlap between the foundation board and the company board appear to have arisen in considerable part by happenstance, reflecting idiosyncrasies in the histories of particular firms. We expect the situation to change in coming years because, partly as a consequence of the research reported here, industrial foundations are becoming more self-conscious about their governance structures.

A. Means Differences

In Table 5 we present simple means of company performance by our discrete, binary distance measures.

// Insert Table 5 around here //

We observe stronger 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 is less volatile. 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 significant, 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 an example of these effects, companies whose directors occupy no more than two places on the foundation's board earn 2.8% more on their assets than companies with less Board Separation (6.6% against 3.8%). They also have higher ROE and higher average growth rates, and the difference is highly significant both for ROA and ROE. The absolute differences in returns seem, in fact, too large to reflect only a direct causal effect from distance to performance. In part they may reflect a degree of endogeneity, which we address more generally below. Our interpretation of these results is therefore not that foundation boards can double the returns on their companies by reducing the number of company directors on the foundation board from 3 to 2, or double them again by listing a minority stake, as a naïve reading of Table 5 would suggest. Since our measures of distance are correlated, the simple averages capture a bundle of governance and other effects that need joint consideration, and this is one rationale for aggregating them into an index.

Table 5 also lets us see more clearly the typical characteristics of our sample. We see that 58% of the companies (firm year observations) are owned by a foundation whose board overlaps with that of the company by more than two persons. In fact, the average share of the foundation board made up by the company's directors is 55%. Moreover, 42% of the companies are not 100% foundation-owned, 13% of the companies have publicly listed shares, 27% of the foundations own more than one company, 24% of the foundations have moved their office away from the company headquarters, and 73% of the foundations have a general charitable purpose.

Among the distance variables, charitable purpose appears to have the least explanatory power. Since there are in most cases no legal duties to distribute funds, it may be that the charter purpose exerts too little influence on company behavior to be noticeable. Moreover, our definition of this variable, distinguishing between general and specific charitable purposes, may not capture a distinction that boards feel is substantial.

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

B. Nonlinear Effects.

Two of our seven basic distance measures seem particularly likely to be non-monotonic in their effects on company performance: Board Separation and Outside Ownership. To test this, in Table 6 we break down each of these measures into six discrete intervals over the range from 0% to 100%.

// Insert Table 6 around here //

We find evidence of non-linear effects as hypothesized. With respect to Board Separation, company performance is highest for low, but non-zero, levels of overlap between the two boards; performance then drops off as the degree of board overlap increases. With respect to Outside Ownership, both ROA and ROE peak when the foundation holds between 50% and 75% of the operating company's equity. In both cases, an F-test confirms the existence of significant level effects. We find no significant effects of either measure of board composition on company growth rates, however, consistently with the ambiguity of growth rates as indicia of efficiency.

The profit optimum would seem to be a positive but limited board overlap of up to 25%, which corresponds to one or two persons (since average foundation board size is 6 members). We conjecture that this level of separation effectively makes the foundation and company boards independent, but informed, decision-making entities.

In the case of capital ownership, the profit optimum appears to be somewhere between 50 and 75%. Apparently there is value to attracting outside capital while not fully relinquishing foundation control -- or it is simply easier for well-performing companies to list minority shares. In interpreting the effects of capital ownership (i.e. the percentage of cash flow rights held by the foundation) it is important to recall that, in our sample, a majority of the voting rights are in all cases owned by the foundations, in some cases through dual class shares which makes it possible to separate votes from shares of capital. (The foundations invariably hold the high-vote shares).

In Figure 1 we plot the two performance measures against our aggregate Distance Index.

// Insert Figure 1 around here //

In this figure we observe a clear, almost monotonic, relationship between distance and profitability for both ROA and ROE. The economic effects are large: foundation-owned companies governed at greater distance do much better, and those with low distance in fact do very modestly with rates of return of only a few percentage points. While this chart is highly suggestive, however, it must be interpreted with caution, as must the simple bivariate correlations reported above. The relationships graphed in Figure 1, for example, are consistent with the hypothesis that only one of the components of our managerial distance index is related to firm profitability, and that firms exhibiting many of those components are simply more likely, as a matter of chance, to have the one important component than are firms that exhibit fewer of the components. We must turn to regression analysis for a clearer view.

C. Basic Regression Analysis

Although the sample is a panel, the governance variables change only 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 – Listed Shares and 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 Listed Shares, vary only by firm and would drop out in fixed-effects panel data estimation. Board Separation is more variable over time, but most members are not replaced every year, and the within-firm variation is still three times as large as between-firm variation, which would be neutralized if we controlled for fixed firm effects. Luckily, statistical testing (Hausmann test) allows us to treat firm effects as random (see below), which produces results that parallel normal regression analysis.

In Table 7 we regress company performance (ROA) on the distance index. The results are qualitatively the same for ROE, as we show later in table 12.

//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 roughly one percentage point (to be precise, 0.99%) higher ROA, which is both economically large and statistically significant at the 1% level. Since the standard deviation of the distance index is 1.4, this translates into an average effect of 1*1.4 or 1.4 percentage points higher ROA for the average firm. As seen in table 3 mean ROA is 5.1%, so 1.4 percentage points more is an economically important 27% increase.

We control for Company Size, Company Leverage, Industry, and Time (year) effects. Of these, leverage and size turn out to be insignificant, while industry effects appear to be important, as are the time dummies at the end of the period (2007, 2008), when the financial crisis began.

In Table 7 model 2 we test the extent to which our results are driven by the effects of having minority shares listed on the stock exchange by including Listed Shares as a separate control variable

while removing it from the Distance Index variable. The Listed Shares variable turns out to be insignificant, while the Distance Index remains highly significant. We conclude that our results are not driven by listing effects, although (as we show in table 12), there are differences in the effects of managerial distance in listed and unlisted firms.

As a further check on the robustness of our results, in Table 7 model 3 we control for two additional external influences: the founding family and the age of the company. Previous studies have found that family -- and particularly founder -- ownership may influence company performance, though not necessarily for the better (Bertrand and Schoar 2006). 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 foundation board.[13] In model 3, the presence of the founding family has a positive but statistically insignificant effect on ROA, while the effect of distance remains robust and significant at the 1% level. We conclude that the distance effect is not attributable to family presence.

We can also see reasons why distance might increase with the age of the foundation, as the company grows and the influence of the founding family wanes. This might affect our results if (for example) profitability were higher for older firms, perhaps because of selection effects. Consequently, in model 3 we control for the age of the company.[14] The regression suggests that age does not influence profitability in any significant way, and controlling for it does not qualitatively change our results.

Our data set is essentially cross-sectional in nature because of the limited within-firm variation in distance. Two of the Distance Index components do not vary over time, and the others change slowly (so that between-firm variation is much larger than within-firm variation). Consequently, in Table 7 model 4 we collapse the panel data to their average values over the five years of our sample. The Distance Index remains significant, and has the same magnitude as in the time series sample.

In Table 7 model 5 we take into consideration firm effects using a random effects model (as advised by the insignificant Hausmann test value of 7.83 comparing fixed and random effects). The Distance Index remains highly significant with a coefficient of roughly the same magnitude as before.

Altogether, the estimated effects of distance vary between 1 and 1.5, so the results indicate that one standard deviation increase in the Distance Index adds roughly – depending on model specification – a very substantial 1½-2 percentage points to ROA.

As we saw in Table 4b, the six components of our Distance Index, with the single exception of Charitable Purpose, are all highly correlated. This leads us to ask whether some of those components are more important than others in establishing the correspondence we observe between the Distance Index and company performance.

As one way of exploring this question, in Table 8 we present the results of forward and backward stepwise regressions with the threshold significance level for each set at 10%.

// Insert Table 8 around here //

[13] We were limited to checking whether current members of the board had the same family name as the foundation's founder, which may well have missed some of the descendants of the founders.

[14] We also collected data on the age of the foundations which, as one would expect, are on average about 30 years younger than the companies they control.

Both regressions identify Board Separation as clearly the dominant component of the Distance Index, while the second also points to Outside Ownership as an independently important influence. Again, the coefficients are economically important: Board Separation adds some 2 percentage points to ROA, while outside ownership adds a little less than that. Comparing the R-Squares of table 7 and 8, we see that the other distance index components, time dummies, and leverage add relatively little to the percentages of variance explained, which is some 28% in the full model in table 7 but 23% and 27%, respectively, in the reduced models of table 8.

VI. Endogeneity, Causal Mechanisms, and Robustness

Taken together, the results we have presented so far suggest an important connection between two components of our Distance Index – Board Separation and Outside Ownership – and company profitability. With our small and heterogeneous sample, we cannot establish that – with the possible exception of Charitable Purpose – the other components of our Distance Index play no role, directly or indirectly, in company performance. In any event, they seem of secondary importance.

So far, however, we have examined only correlation. We now turn to questions of causation.

As in most corporate governance research, there are potential endogeneity issues in this study. It seems quite possible, for example, that better economic performance will in some cases influence our distance measures so that the causal effect runs, not from distance to performance as we hypothesize, but from performance to distance. For example, 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. A profitable company may likewise generate funds that the foundation can use to buy other companies. Both public listing and outside ownership may in turn call for new outside directors on the board to persuade investors.

A. Tests of Causality

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 in our sample, it does not appear to be driven by exogenous changes in performance. As a crude test, we split the sample into two time periods: before the financial crisis (2002-2006) and after (2007-2008). Average performance (ROA) dropped from 5.6% to 4.3 % between these periods, a drop which is clearly exogenous to our distance variable. If changes in performance were driving changes in distance, we would expect that average distance would decrease following onset of the crisis. Instead, average distance actually *increased* modestly over that interval, from an average of 2.1 to 2.3.

To test for endogeneity, we constructed the distance index for the year 1998, which is five years prior to the beginning of our observation period. Some foundations did not disclose sufficient information for 1998, but we were able to construct this "Old Distance Index" for 84 companies. In table 9 we use it to address the endogeneity issue.

// Insert table 9 around here //

First, in model 1 we regress company performance (ROA) on Distance in 1998. In this case, reverse feedback from performance to distance is much less likely. We find that current performance (ROA) is significantly influenced by the Distance index as of 1998 with much the same effect as current distance. This makes some sense since, theoretically, managerial distance or other governance variables would be expected to influence company performance more in the long run than in the short run: it takes time for top level decisions to influence company behavior, and important results may reflect a cumulative series of decisions rather than one-off change.

Second, in models 2 and 3 we instrument the current Distance Index 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 ROA when we take this into account. The estimated magnitude of the distance effect increases considerably from 1 to 2. In model 3 we use a random effects specification.

Third, in model 4 we regress ROA in 2003-2008 on ROA in 1998 to check whether the correlation between distance and performance is caused by stability of both variables. We find no significant effect of idiosyncratic past profits on subsequent profits. This is not surprising in a dynamic business environment. Other studies of profitability have similarly found that profit rates show a relatively strong tendency to mean reversion over periods of time like the five to ten years separating our 1998 observations from our 2003-2008 observations (Daines 2001, Mueller 1990).

Fourth, in model 5 we find that profitability in 1998 does not predict distance in 2003-2008, which is inconsistent with reverse causality from performance to managerial distance. There is a great deal of variance in short run accounting profitability, and it is of course possible that 1998 was a outlier, and that a 5 year average would better predict subsequent distance, though even the numerical effect is quite small.

Taken altogether, then, the results reported in Table 9 indicate that distance in 1998 predicts both distance and profitability a decade later, but that profitability in 1998 does not predict either profitability or distance a decade later. This suggests, in turn, that causality runs predominantly from managerial distance to profitability rather than vice-versa.

B. CEO Turnover

Our confidence in the distance effect will be higher if we can point to mechanisms through which managerial distance translates into performance- enhancing behavior. One such mechanism is the propensity to replace weak managers. We hypothesize that greater distance will be associated with higher managerial turnover in the foundation-owned company (see Defond and Hung 2004, Bushman, Dai, and Wang 2010, and Taylor 2010).

For the reasons we have surveyed above, it is probably easier for a foundation board that operates at a distance from its company to have company managers replaced than it is for the company board. Formally, of course, this decision is made by the company board, but it is the foundation board that has the right of ultimate control.

We collected data on CEO change over our 5 year observation period and constructed a simple dummy variable (CEO Change = 1 if the name of the company CEO is different from last year, otherwise 0). We were unable to distinguish between forced and voluntary replacement, and we lack access to information on CEO age which could proxy for this distinction, but we nevertheless hope that some broad patterns are discernible. From the descriptive statistics we know that some 6.5% of the company CEOs in our sample are replaced annually, which is low in international comparison.

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 1. Managerial distance does indeed have a positive and significant effect on CEO change. More distance leads to more replacement. The distance effect is economically meaningful: the odds of replacement are almost doubled (1.91 times higher) for each unit increase in the distance index. 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 and to inclusion of control variables, including time and industry effects (models 2 and 3).

Interestingly, the direct (main) effect of company ROA is not significant, indicating that bad performance has no significant effect on CEO replacement rates at zero managerial distance. While we do not want to place too much confidence in any particular set of regressions, the story that is coming across from table 10 is that industrial foundations without distance would suffer from the familiar agency problem of too little attention to profitability, while companies substantially distant from their foundation owners obtain financial results which are comparable to, or perhaps even better than, those of listed companies with other ownership structures.

C. Further Robustness Analysis

In Tables 11 and 12 we report several additional tests of the robustness of our results.

Table 11a reports the results of multiple correspondence analysis, which (similarly to factor analysis) constructs artificial variables (dimensions) that explain as much of the variance in the indicator variables as possible. For our purposes we can think of these dimensions as statistically generated indices, each constructed as a linear combination of the six distance index components, with weights designed to maximize the share of explained variance among those components.

The MCA analysis yields two dimensions, of which only the first has substantial explanatory power in that roughly 80% of the variance in the six distance components is attributable to this single dimension. Table 11b shows that the first dimension correlates strongly with each of our six distinct distance measures with the exception of Charitable Purpose, and that it has a particularly strong correlation of .94 with our aggregate Distance Index. In practice, therefore, it should not make much difference whether we construct the index analytically or use the simple technique of adding up dummy variables. This is confirmed by model 1 in Table 12, which reports the same basic regression reported in model 1 of Table 7, but using, in place of our Distance Index, the first dimension from the multiple correspondence analysis. The results are essentially unchanged. We therefore prefer the simpler and more transparent Distance Index.

In model 2 of Table 12, we omit from our sample the 15 companies with listed shares, to control for the possibility that listed and unlisted companies are affected differently by managerial distance. The result is a reduction in significance of the Distance Index, though the magnitude of the associated coefficient remains very close to that of model 1 in Table 7, which includes the listed companies. Model 3 omits all companies with outside ownership, including those with unlisted minority shares. The result here is a small and insignificant coefficient for the Distance Index. This indicates that the strong effects of

board distance need to be seen in conjunction with ownership structure, which reinforces the idea of a distance index of multiple components. Model 4, in turn, includes just the largest 50% of the companies in our sample, and shows a large and highly significant coefficient for managerial distance. Taken together, models 2 through 4 suggest that managerial distance has its strongest effects among the larger firms in our sample. The equivalent regressions for small firms show less significant or insignificant distance effects. At the same time, model 5 provides further assurance that our results do not simply reflect a correlation between managerial distance and the size of the company owned by a foundation, with company size rather than managerial distance being the important determinant of company profitability. Model 5 uses the log of company assets as the measure of company size, rather than the direct value of those assets as in the results reported above, and still yields results essentially equivalent to those in model 1 of Table 7.

In the results reported above, Company Assets is not only used as an explanatory variable in itself, but is also used in calculating another of our independent variables, namely Company Leverage (computed as equity divided by assets), as well as our principal dependent variable (return on assets), hence creating a degree of correlation among the error terms for these variables. Model 6 seeks to avoid this problem by using company sales rather than assets as a measure of company size, and by using the ratio of debt to equity rather than equity to assets as a measure of Company Leverage. This substitution has only a slight effect on the magnitude of the coefficient for the Distance Index, and leaves that variable significant at the 5% level, though not at the 1% level as before.

In model 7, we replace return on assets with return on equity – a more volatile measure of profitability – as our dependent variable. The Distance Index again remains significant, though at the 5% rather than the 1% level.

Finally, in model 8, we use Sales Growth as our dependent variable. We find no significant relationship with managerial distance, which is consistent with the ambiguous nature of growth as a performance measure.

VII. 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.

In our discussion above, we noted that three different, though closely related, behavioral theories might explain why a foundation-owned company would perform better when the foundation board is characterized by substantial managerial distance: (1) influence activities; (2) identity effects, and (3) cognitive biases. Our data do not permit us to determine which, if any, of these three theories explain our results. Nonetheless, when combined with the evidence, reflected in Table 1, that foundation-owned companies perform on average as well as conventionally owned companies, our results encourage speculation. Theories (1) and (3) can help explain why, regardless of their motivation, foundation board members exercise more effective control over the operating company when managerial distance is relatively high. They do not suggest that the motivation of the foundation board members to manage the operating company well should become stronger with increased managerial distance. Only theory (2)

does the latter, positing that a foundation's directors will identify more strongly with the goals of the foundation, taking those goals as their own, as their distinct role as foundation directors becomes more clearly defined. Without positing such an identity effect, it is difficult to see why foundation directors would, on average, induce an operating company to perform as profitably as do conventional owners who receive residual earnings.

Difficult, but not impossible. Suppose, for example, that the strong performance of foundation-owned companies derives, not from identity effects and board members, but rather from some other source that affects all foundation-owned companies, such as insulation of the companies from short-term market pressures. Then our empirical results might be explained entirely by theories (1) and (3).

Even if one accepts the identity effects interpretation of our results, 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. Indeed, during the financial crisis some foundation-owned stock banks (converted financial mutuals not covered in our data because we excluded financial institutions) failed spectacularly, which was partly blamed on legally imposed overlaps between the foundation and bank boards (see Fode 2009).

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.

To this point 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.[15] One important element here may be the existence of two distinct boards, and indeed two distinct organizational entities (the foundation and the company). 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 consequently regard more or less from the perspective of owners rather than managers. In fact , under Danish law, they may be prosecuted (and some foundation board members have been) for favoring the interest of the operating company at the expense of the foundation.

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, or 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 own – 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. On the other hand, our results indicate that foundation-owned companies perform better when the foundation owns less than 100% of the operating company's shares, which might be interpreted to indicate the contrary: foundation directors are more effective when they believe that powerless shareholders depend upon them.

[15] Part of the answer may also lie in the amount of variance among the firms involved. As indicated above, there is reason to believe that the industrial foundations in our study arrived at their board structures (that is, their degree of managerial distance) more or less randomly. The US business corporations that have been the subject of the principal studies of independent directors, in contrast, have surely been self-conscious about director independence for decades, and individual firms may have already tended to settle upon the degree of independence that suits them best. On the other hand, the vastly larger number of firms included in the studies of director independence might be expected to compensate for this effect.

It follows that, 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.

Finally, we should note that there are explanations for the profitability of foundation-owned companies beyond those that we have described above. One of these, frequently invoked by foundation managers, is that foundation-owned companies are free from short-term market pressures and can therefore focus on long-run profitability (e.g., Jack 2011). Another is that employees are more productive when they believe that the company's profits are dedicated to charity.[16] These theories are not necessarily inconsistent with the concept of virtual ownership that we explore here. But, however that may be, the data presented here is not particularly probative for these theories, and we have not pursued them.

VIII. 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 evidence that suggests at least a partial 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.

[16] In an explicit effort to explain the comparative efficiency of companies controlled by industrial foundations, Dijk and Holmén (2012) report an experiment in which agents exhibit less moral hazard if the principal they work for contributes its income to charity as opposed to keeping it for personal consumption. The theory, in effect, is that workers are more productive in foundation-owned companies because they see themselves as making contributions to charity. This theory does not seem to provide an explanation for the results that we report here, since one would imagine that greater managerial distance would not provide greater assurance to employees that company profits are going to charity. Indeed, our results point toward the importance of managers' perceptions as opposed to employees' perceptions. At the same time, we cannot reject the possibility that the authors' employee donation theory offers part of the explanation for the comparative efficiency of foundation-owned companies.

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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	12.7		11.1
Sales Growth 1982-1992	8.9	11.6	10.2
Sales Growth 1995-2002	7.0	2.1	9.3
Sales Growth 2003-2008	6.0		6.0
Equity/Assets 1982-1992	36	38	47
Equity/Assets 1995-2002	50	56	54
Equity/Assets 2003-2008	50		50

Source: Thomsen (1996, 2004), Hansmann and Thomsen (2010).
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 109 foundation--owned firms to all listed Danish companies. Return on equity = ebit/shareholder equity (%) (omitted if > 100%) or <-100%). Sales growth= percentage growth in sales (omitted if > 100%) or <-100%). Negative equity/assets ratios have been deleted.

Table 2a. Background: Foundation Board Demographics Compared to Listed Companies

	Listed Danish Companies	Danish Industrial Foundations
Danish board members % of all board members	89%	99%**
International board members % of all board members	11%	1%**
Average Board Size	6.3	6.0
Average tenure of board members (years)	6.8	9.8**
Average age of board members	55	64**
Male Chair % of boards	100%	93%
Female Directors % of all board members	12.0	14.0**
Employee representatives on the board % of boards	45%	21%**
Employee representatives % of board members	20.0%	9.6%**
Sample (number of boards)	140	96

Note. The Information in this table is based on the most recently available figures at our disposal: for listed companies 2007 and for foundations 2007-2010.
**=significantly different from listed companies at 5% level.

Table 2b. Background: Foundation Board Compensation Compared to Listed Companies

	Average Board Fee Per Member	Average Size (Equity)	N
Listed (Non-Foundation-Owned) Companies (2011)	$38,773	$405m	149
Listed Foundation-Owned Companies (2011)	$76,015	$4,114m	14
All Listed Companies (2011)	$42,162	$714m	163
Largest Industrial Foundations (2010)	$13,593	$326m	78

Table 3. Descriptive Statistics

Variable	N (obs)	Mean	Std. dev.	Min	Max
Performance Variables					
Return on Assets %	543	5.1	8.1	-22.7	34.4
Return on Equity %	531	10.8	20.2	-65.0	65.3
Sales Growth %	**341**	4.3	24.4	-100	56.2
Managerial Distance Variables					
Board Separation	616	0.40	0.49	0	1
Outside Ownership	616	0.41	0.49	0	1
Listed Shares	616	0.13	0.33	0	1
Multiple Companies	616	0.27	0.44	0	1
Physical Separation	616	0.24	0.42	0	1
Charitable Purpose	615	0.73	0.44	0	1
Distance Index	614	2.18	1.41	0	6
Control Variables					
Company Size	543	3.0	8.84	0.005	61.2
Company Leverage (E/A)	542	50.9	21.63	3.98	96.7
Age	609	59.0	51.2	0	238
Founding Family Presence	616	0.44	0.49	0	1
Ceo Change	600	0.065	0.25	0	1

Note .Continuous control and performance variables are winsorized at the 1% level (sales growth at the 2% level).

Table 4a. Correlation Coefficients

	Return on Assets†	Return on Equity†	Sales Growth†	Distance Index	Company Size (Assets) †	Company Leverage (E/A) †	Company Age†
Return on Assets†	1.00						
Return on Equity†	0.71*	1.00					
Sales Growth†	0.20*	0.25	1.00				
Distance Index	0.30*	0.26*	0.08	1.00			
Company Size (Assets) †	0.20*	0.16*	0.10	0.35*	1.00		
Company Leverage (E/A) †	0.04	0.03	-0.17*	-0.06	-0.01	1.00	
Company Age†	0.01	0.09*	0.08	0.21*	0.15*	0.05	1.00
Company CEO Change	-0.02	-0.07	-0.05	0.15*	0.04	-0.01	0.03
Founding Family Presence	0.01	0.05	0.12*	0.05	-0.03	0.01	0.10*
Board Separation	0.17*	0.16*	0.05	0.57*	-0.07	-0.02	0.06
Outside Ownership	0.19*	0.08	-0.02	0.59*	0.25*	-0.03	0.18*
Listed Shares	0.26*	0.13*	0.05	0.73*	0.49*	-0.12*	0.13*
Multiple Companies	0.17*	0.12*	0.01	0.46*	0.14*	0.00	0.02
Physical Separation	0.16*	0.16*	0.07	0.60*	0.21*	-0.02	0.16*
Charitable Purpose	0.06	0.05	0.10	0.39*	0.11*	0.02	0.13*

*=significant at the 5% level. †=winsorized at the 1% level.

Table 4b. Correlation Coefficients (Continued)

*=significant at the 5% level.

	Company CEO Change	Founding Family Presence	Board Separation	Outside Ownership	Listed Shares	Multiple Companies	Physical Separation
Company CEO Change	1.00						
Founding Family Presence	-0.01	1.00					
Board Separation	0.09*	0.01	1.00				
Outside Ownership	0.10*	0.16*	0.15*	1.00			
Listed Shares	0.18*	0.03	0.26*	0.45*	1.00		
Multiple Companies	0.10*	-0.02	0.08*	0.03	0.35*	1.00	
Physical Separation	0.06	-0.13*	0.32*	0.23*	0.35*	0.15*	1.00
Charitable Purpose	-0.01	0.08*	-0.03	-0.00	0.10*	-0.02	-0.04

Table 5. Discrete Distance Measures and Company Performance

	N (Firm Years) %	Return on equity %	Return on assets %	Sales growth %
Board Separation				
>2 company officers on the foundation board	59%	7.7	3.8	3.1
≤2 company officers on the foundation board	41%	14.4***	6.6***	5.5 ns
Outside Ownership				
Foundation owns 100%	58%	9.5	3.8	3.6
Foundation owns <100%	42%	12.6*	7.0***	4.7 ns
Listed Shares				
Unlisted	87%	9.8	4.3	3.7
Listed	13%	18.0***	10.6***	7.1 ns
Multiple Companies				
Foundation owns one company	73%	9.4	4.3	4.1
Foundation owns more companies	27%	14.9***	7.4***	4.4 ns
Physical Separation				
Foundation and company have same address	76%	8.9	4.4	7.7
Foundation and company different addresses	24%	16.4***	7.3***	7.1 ns
Charitable Purpose				
No charitable aim	27%	9.3	4.4	0.7
Charitable aim	73%	11.3 ns	5.4 ns	5.7*
Total	100% (n=546)	10.8	5.1	4.2

Note: *= significant at 10% level, **=significant at 5% level, ***=significant at 1% level (t-tests with unequal variance). Ns: Not significant**. ROE and ROA winsorized at the 1% level, growth at the 2% level.**

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

	Observations (firm years)	Return on equity %	Return on assets %	Sales Growth %
Company share of foundation board (%)				
0%	7%	10.1	3.5	3.1
0 < % ≤ 25	16%	20.4	9.4	5.8
25 < % ≤ 50	17%	9.3	4.5	20.1
50 < % ≤ 75	18%	9.8	4.0	9.8
75 < % < 100	3%	6.1	4.5	7.8
100%	39%	7.7	4.0	7.9
Foundation capital ownership (%)				
0%		-	-	-
0 < % ≤ 25	4%	10.6	4.5	5.5
25 < % ≤ 50	14%	10.8	6.5	3.0
50 < % ≤ 75	12%	16.9	10.0	20.7
75 < % < 100	12%	9.8	4.8	3.4
100%	58%	9.8	3.9	10.5
Total	100% (n=546)	10.8	5.1	9.8

Note. ROE, ROA, and have been winsorized at the 1%. Level, sales growth at the 2% level.

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 values	Random firm effects
Independent Variables					
Managerial Distance Index	0.99*** (0.34)	1.23*** (0.46)	0.93*** (0.34)	1.52*** (0.38)	1.44*** (0.37)
Company Assets	0.07 (0.04)	0.09* (0.04)	0.07 (0.05)	0.06 (0.05)	0.09 (0.62)
Company Leverage	0.03 (0.02)	0.02	0.03 (0.02)	0.02 (0.03)	0.051** (0.02)
Time effects	YES	YES	YES	NO	NO
Industry effects	YES	YES	YES	NO	NO
Firm effects	NO	NO	NO	NO	YES
Listed Shares		-0.69 (1.80)			
Family Control			1.65 (1.03)		
Company Age			-0.00 (0.01)		
Constant	3.3** (1.57)	3.00* (1.59)	2.56 (1.61)		-1.31 (1.51)
R-square	0.28	0.28	0.28	0.17	0.09
F test (Chisq)	7.5***	7.3***	7.0***	7.41***	(28.02***)
N (firms)	112	112	111	112	113
N (firm years)	541	541	535	112	541

Note: Standard errors in brackets *= significant at 10% level, **=significant at 5% level, ***=significant at 1% level (t-tests). ns: not significant. Hausmann test of random versus fixed firm effects: 7.87 (not significant).

Table 8. Stepwise Regression of Managerial Distance Measures on Company Performance (ROA). (Robust OLS with standard errors clustered by firm)

	Model 1	Model 2
	Forward Stepwise Regression (10% criterion)	Backward Stepwise Regression (10% criterion)
Dependent Variable	ROA	ROA
Independent Variables		
Board Separation	2.38** (0.65)	2.12** (0.84)
Outside Ownership	-	1.81* (1.01)
Listed Shares	-	-
Multiple Companies	-	-
Physical Separation	-	-
Charitable Purpose	-	-
Company Size	0.12** (0.05)	0.11* (0.06)
Company Leverage	-	-
Firm effects	NO	NO
Industry effects	8 dummies	15 dummies
Time effects	-	-
Constant	3.28***	6.42***
R-square	0.23	0.27
F test	15.4***	17.9***
N (firms)	113	113
N (firm years)	541	541

Note: Standard errors in brackets. *= significant at 10% level, **=significant at 5% level, ***=significant at 1% level (t-tests).

Table 9. Past Managerial Distance (Index) And Company Performance (ROA)

Model	1	2	3	4	5
Dependent Variable	ROA	ROA	ROA	ROA	Distance Index 2003-2008
Estimation methods	Robust OLS Clustered Standard Errors	IV Estimation	IV Estimation Random Effects	Robust OLS Clustered Standard Errors	Robust OLS Clustered Standard Errors
Independent Variables					
Distance Index (1998)	1.16** (0.48)				
Distance Index Instrumented by 1998 Distance Index		2.36*** (0.66)	2.84*** (1.05)		
Company Size	0.13 (0.08)	0.05 (0.06)	0.05 (0.09)		
Company Leverage	0.04* (0.02)	0.04** (0.02)	0.08*** (0.02)		
Time Effects	YES	YES	YES	NO	NO
Industry Effects	YES	YES	NO	NO	NO
Firm Effects	NO	NO	YES	NO	NO
ROA 1998				0.06 (0.07) n..s.	0.007 (0.009) n.s.
Constant	2.67 (2.04)	0.23	-5.53** (2.72)	4.31*** (0.79)	1.99*** (0.13)
R-square	0.31	0.26	NA	0.44	0.00
F test (Chisq)	6.9***	6.45***	20.3***	0.00	0.47 ns
N (firms)	84	84	84	85	86
N (firm years)	409	409	409	415	465

Note: Old distance is managerial distance observed in 1998 or adjacent years. Models 2 and 3 instrument current managerial distance with old distance. 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	3
Dependent Variable	CEO Change	CEO Change	CEO Change
Estimation Methods	Logistic Regression	Logistic Regression	Logistic Regression Random Firm Effects
Independent Variables			
ROA (t)	0.004 (0.026)	-0.01 (0.02)	-0.01 (0.02)
Distance Index (t-1)	0.60*** (0.13)	0.65*** (0.17)	0.65*** (0.17)
Distance Index (t-1) * ROA (t)	-0.02** (0.01)	-0.03** (0.01)	-0.03** (0.01)
Company Size (t-1)		-0.03 (0.33)	-0.03 (0.03)
Company Leverage (t-1)		-0.02 (0.01)	-0.02* (0.01)
Time Effects	NO	YES	YES
Industry Effects	NO	YES	NO
Firm Effects	NO	NO	YES
Constant	-3.56*** (0.39)	-2.31*** (0.84)	-2.35*** (0.90)
Pseudo R-square	0.08	0.17	
F test (Chisq)	18.83***	39.77***	29.85 n.s.
N (firms)	109	109	109
N (firm years)	418	418	418

Note. CEO change (dummy) equals 1 if there is a new CEO in a given year compared to the year before. Size (assets), leverage (equity/assets), and ROA have been winsorized.

Table 11a. Multiple Correspondence Analysis of Distance Components

(Burt method of adjusted inertias)

Dimension	Principal Inertia	Percent	Cumulative Percent
Dimension 1	.03827	80.14	80.14
Dimension 2	.00011	0.23	80.37
Total	.04763	100.00	

Table 11B. Correlation of Individual Distance Measures with the Distance Factor (Dimension 1) Estimated by Multiple Correspondence Analysis

Distance Measure	Correlation with Dimension 1
Board Separation	0.55
Outside Ownership	0.63
Listed Shares	0.81
Multiple Companies	0.43
Physical Separation	0.66
Charitable Purpose	0.03
Distance Index	0.94

Table 12. Managerial Distance (Index) and Company Performance.

Robustness Tests. (Robust OLS with standard errors clustered by firm)

Model	1	2	3	4	5
Dependent Variable	ROA	ROA	ROA	ROA	ROA
Alternative Specification	Distance index constructed by multiple correspondence analysis	Unlisted firms	100% foundation ownership	Large firms	Size measured as log company assets
Independent Variables					
Managerial Distance Index	1.48*** (0.50)	0.87* (0.48)	0.09 (0.65)	1.16*** (0.39)	0.97*** (0.36)
Company Assets	0.06 (0.05)	0.32** (0.10)	0.33* (0.18)	0.07* (0.03)	0.32 (0.34)
Company Leverage	0.03 (0.02)	0.03 (0.02)	0.01 (0.03)	0.04 (0.04)	0.03 (0.02)
Time effects	YES	YES	YES	YES	YES
Industry effects	YES	YES	YES	YES	YES
Constant	5.61*** (1.58)	4.26*** (1.6)	6.23*** (1.46)	0.65 (2.58)	3.78** (1.56)
R-square	0.28	0.13	0.15	0.47	0.27
F test	7.6***	2.7***	2.15***	9.4***	7.44***
N (firms)	113	98	67	58	113
N (firm years)	542	471	318	281	541

Note. Standard errors in brackets: *= significant at 10% level, **=significant at 5% level, ***=significant at 1% level (t-tests), ns = not significant.

Table 12 (Continued). Managerial Distance (Index) and Company Performance.
Robustness Tests. (Robust OLS with standard errors clustered by firm)

Model	6	7	8
Dependent Variable	ROA	ROE	Sales Growth
Alternative Specification			
Independent Variables			
Distance Index	0.84** (0.35)	2.07** (0.87)	0.64 (0.98)
Company Assets		0.16 (0.15)	0.18* (0.09)
Company Sales	0.14** (0.06)		
Company Leverage (Equity/Assets)		0.03 (0.05)	-0.29*** (0.10)
Company Leverage (Debt/Equity)	-0.00*		
Time Effects	YES	YES	YES
Industry Effects	YES	YES	YES
Constant	6.38*** (2.10)	6.13 (4.29)	13.26 (7.95)
R-square	0.28	0.11	0.13
F test	7.91***	2.38***	1.76**
N (firms)	113	112	93
N (firm years)	541	530	341

Note. Standard errors in brackets: *= significant at 10% level,
=significant at 5% level, *=significant at 1% level (t-tests).
ROE AND ROA winsorized at the 1% level, Sales Growth at the 2% level.

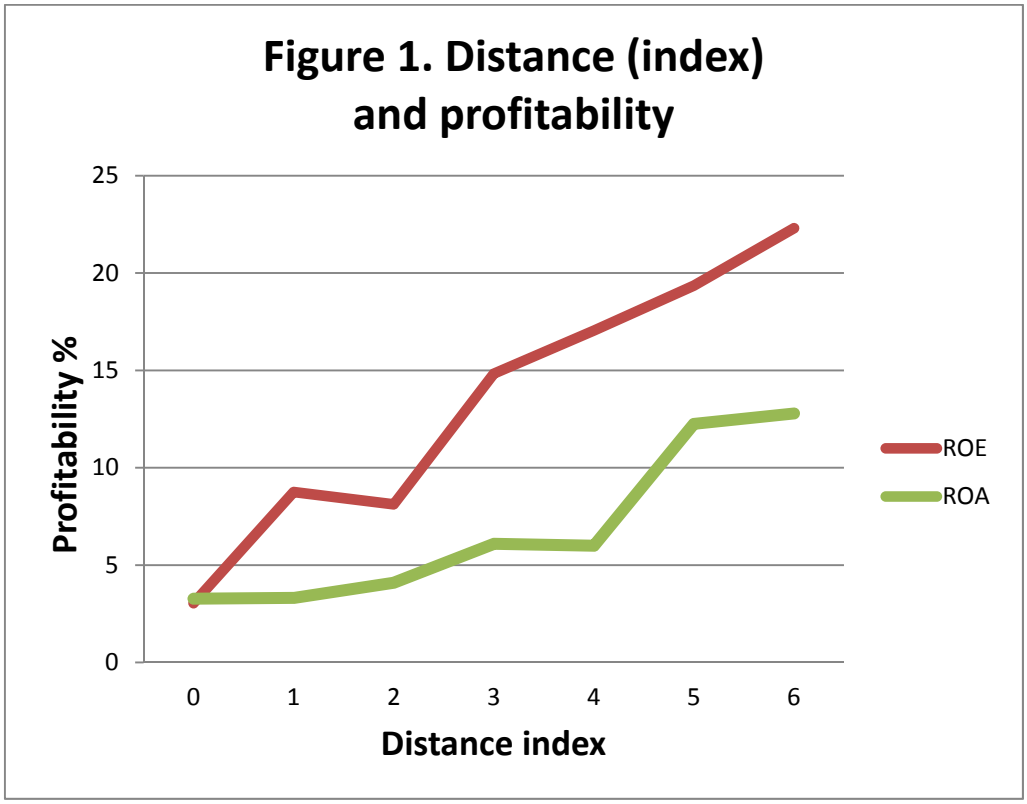
Figure 1. Distance (index) and profitability
Profitability %
25
20
15
10
5
0
0
1
2
3
4
5
6
Distance index
ROE
ROA