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Board of Trustee Composition and Investment Performance of US Public Pension Plans

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February 2008

This paper is a working paper and research in progress. Results are preliminary. Comments welcomed and appreciated. The support by ICPM research grant is greatly appreciated. The research assistance of Jeremy Burri, Bryan Mott, Lindsey Cunningham, and Andrea Qi is appreciated. This draft benefited from comments and suggestions from Keith Ambachtsheer, Paul Halpern, and Ramesh Rao. Please contact the author at Spears School of Business, Oklahoma State University, 700 N. Greenwood Ave., Tulsa, OK 74106; tel: 918-594-8460; email: joel.harper@okstate.edu.

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Abstract

A direct relationship between the composition of the board of trustees of a pension plan and several facets of performance is tested using a sample of US public sponsored pension plans, in particular the impact of outside or independent trustees. Data from 71 pension plans from fiscal years 2001 – 2005 show no relationship between board composition and characteristics and investment performance as measured by the excess return of the fund. However, board composition plays an important role in plan funding status and asset allocation decisions. In addition, the selection and performance of individual managers is negatively related to ex-officio trustees and board terms. Investment manager excess returns are positively related to the amount of assets under management, raising questions of access and favoritism.

Introduction

Business publications, texts, and research articles are replete with advice, theories, and studies on the effectiveness of good governance on organizations. In finance, the focus is on corporate governance and the effectiveness of the board of directors in monitoring and accomplishing the goal of maximization of shareholder wealth. Research such as Fich and Shivdasani (2006), Petra (2005) and Carter, Simkins and Simpson (2003) analyze the composition, expertise, and diversity of boards on the efficiency of the corporation and added value to owners. To date, the findings or corporate boards is somewhat mixed. Diversity and expertise tend to increase shareholder value. However, many studies, including Hermalin and Weisbach (2003) find little relationship between corporate performance and board composition.

The issue of effective governance structure is not solely academic. Significant legislation in the UK and US is constructed upon the notion of effective governance shares common structure. The Cadbury Report, issued in 1992, recommended at least three outside directors on publicly traded corporation boards in the UK. Hillier and McColgan (2006) and Dahya and McConnell (2007) document a significant increase in absolute and peer-benchmarked performance when companies added outside directors, as well as an increase in stock price. A

decade later, Sarbanes-Oxley (2002) and related proposals by US exchanges, mandated board audit committees consist of primarily of independent (outside) directors. Compensation committee structures should also be reorganized consisting outside board members.

Regulation pertaining to investment companies and affiliated mutual funds' boards of directors has been in effect since the Investment Company Act of 1940. Investment company boards must be 40 percent independent. More recently, an advisory committee of the Investment Company Institute recommended the percentage of independent directors be increased to two-thirds.

The above research and regulation point to a strong belief that board structure does matter in the effective and competent management of an organization. The purpose of this study is to determine if board composition affects the performance of public pension plans and the board factors leading to superior performance. There is little, if any, unified regulation on structure or composition of a public plan's board of trustees. In fact, the composition of the board is determined by state or municipal code. In many cases, the board consists of representatives of the sponsor, current employees, beneficiaries, and independent trustees. Given the previous empirical findings in the governance literature, there should be a positive relationship between outside, independent trustees and the performance of the pension fund. The complementary literature in agency theory suggests employee elected trustees act as effective monitors and improve fund performance.

Brief Literature on Corporate Governance

There is an expansive literature on the impact governance and management structure on the performance of corporations. However, the literature is not consistent with respect to the

overall impact on the firm. While empirical governance studies generally begin with the impact of large, institutional shareholders on firm performance and value, such as Fama and Jensen (1983) and Shleifer, and Vishny (1986), more recent studies have taken up the issue of board composition and performance directly. Generally, theory predicts outside, independent board members add to firm performance and value (Fama, 1980). Some empirical studies tend to support this theory. Perry and Shivdasani (2005) find companies with more independent directors restructure the firm more aggressively following poor performance, and therefore add value. Petra (2005) analyzes five board functions and concluded that outside, independent directors add value to the firm. Helland and Sykuta (2005) find companies with larger percentage of independent board members face significantly lower number of shareholder lawsuits, thereby concluding that independent board members effectively monitor the management of the firm and represent shareholders well. Finally, Bhorjraj and Sengupta (2005) find firms with strong, outside directors have lower rates on new bond issues than comparable firms, indicating independent directors lower firm risk.

While these studies support the notion that independent directors add value, several studies find little or no correlation between board composition and firm value. Fich and Shivdasani (2006) find independent directors serving on multiple boards decreases the value of the firm. This is in contrast to Ferris et al (2003), who find the directors on multiple boards do not shirk responsibilities or detract from firm value. Studies by Bhagat and Black (2002), along with Hermalin and Weisbach (2003), and Finegold, Benson, and Hecht (2007) find little or no correlation between board composition and performance. Bozec (2005) finds that a competitive business environment helps the board to be more effective, but board composition and structure in noncompetitive environments does not show any relationship to firm performance.

There is a smaller literature pertaining to governance and investment companies and pension plans. Tufano and Sevick (1997) find investment companies with smaller boards and a greater percentage of outside directors have lower shareholder fees. For closed-end funds, this finding is confirmed by Gemmill and Thomas (2006). They further find discounts for closed end funds are greater for funds with large, long-term ownership stakes by a management company or other blockholder, possibly indicating a discount for entrenched management. Khorana, Tufano, and Wedge (2007) use a sample of investment company mergers to study fund directors. Their study finds that independent directors are more likely to merge underperforming funds, even if it costs them their directorship in the merged fund. This supports the notion that independent directors add to shareholder value.

Research related to pension trustee competence and decision making are more related to the study at hand. Clark (2004), Clark, Caerlewy-Smith, Marshall (2006), Ambachtsheer, Capelle, and Scheibelhut (1998), and Ambachtsheer, Capelle, and Lum (2007) all consider pension trustee competence in some form. Ambachtsheer et al. (1998, 2007) survey pension managers about pension organization issues and board oversight. The responses are then matched to pension fund performance (net value added). They find strong correlation between boards and organizations that are perceived as effective and fund performance. Clark (2004) finds the organization design of public sector pension plans leads to ineffective governance and lack of expertise in critical areas of plan management. While policies and procedures have been put in place to cope with the problem, he suggests that plans would benefit from consolidating so that scarce resources could be used to employ competent professionals with requisite expertise. Further, Clark et al. (2006) use an experimental design of current pension trustees compared to undergraduate students. They find trustees do not consistently demonstrate the ability to apply

basic finance and investment principles. Ambachtsheer et al. (2007) suggests a stronger separation between board oversight and the management function. The authors suggest one of the key opportunities to improve fund governance is "develop templates for ideal boards of governors composition."

Along the lines of board composition in pension plans, Cocco and Volpin (2007) find that insider trustees (those that are also a part of the management of the company) tend to act in the interest of the plan sponsors, not necessarily in the interest of plan members. Kakabadse and Kakabadse (2005) find lay trustees display similar characteristics in as professional trustees and are capable of handling pension plan decisions.

Public sponsored pension plans present a particularly difficult problem in organizational design and plan management. Much of the analysis of public funds in the US determines the extent of politicizing the funds has on performance. Politicizing the fund either is a result of board composition and selection or through mandated investment strategies such as economically targeted investments (ETI) and shareholder activism. Boards are politicized because some members are appointed by elected officials and are nominated because of political allegiance. In this framework, inside trustees are those that are either appointees or are ex-officio, serving on the board due to the position or job function, and are not considered independent trustees.[1] Independent board members are defined as trustees elected by plan members.

A seminal work by Romano (1993) presents an overview of conflicts faced by public plans, primarily extending from the selection and composition of the board of trustees, but also the impact of legislative requirements and mandates from plans sponsors such as economically

[1] Ex-officio trustees may be elected positions, such as state treasurer or state senator, but also may be serving due to their job function in the public sector, such as director of human resources, police chief, city finance director.

targeted investments (ETI). She finds the percentage of independent trustees directly improve investment performance measured by total return on plan assets. This relationship is even present when asset allocation is considered. She also hypothesizes that the relationship between independent directors may not be linear, but finds no empirical evidence to support the hypothesis. She concludes by advocating a change in board structure with a greater proportion of trustees elected by plan members.

Additional studies on public plan board composition are inconsistent with the impact of member elected trustees on investment performance. Munnell and Sunden (2001) and Coronado (2003) find the percentage of elected trustees does not have a significant impact on fund total investment return. Hess (2005) refutes the politicizing hypothesis to some degree by finding a positive relationship between the percentage of appointed trustees on the board and fund total return. In addition, he also finds support for Romano's (1993) findings of a positive, and nonlinear, relationship between elected trustees and fund investment performance, but diminishing impacts as the percentage of elected trustees increase.

On the other question of political activism and investment policies, most studies either find negative impact on investment return performance or no significant impact. Romano (1993) finds a negative impact on investment performance from country prohibitions (investing in companies doing business in South Africa), but Nofsinger (1998) finds positive impacts on performance from such prohibitions. However, Nofisinger (1998) also finds negative impacts from ETI activities, and this is confirmed by Mitchell and Hsin (1997). Munnell and Sunden (1999), Coronado (2003), and Hess (2005) find no impact on investment return performance and ETI activity.

On final measure of public fund politicizing is the involvement with corporate governance and shareholder activism. Many funds, like CalPERS and the state of Florida have been active in calling for reforms by companies in whom they invest, either through backchannel communications, public pressure, or shareholder lawsuits. Del Guercio and Hawkins (1999) find pension fund activism is not an inconsistent strategy with fund value maximization, but do not directly test the impact on fund investment returns from activism endeavours. However, most studies find corporate activism does not have a significant impact on fund performance. Romano (1993), Munnell and Sunden (2001), and Hess (2005) find no significant impact on investment performance from shareholder activism. The exception is Coronado (2003) who reports positive investment return relationship from shareholder activism.

Overview of Public Pension Plans

Exhibit A describes the structure and function of many public sponsored pension plans in the US. This model is more indicative of municipal and smaller statewide plans, but is found in larger plans as well. In this structure, plan trustees are selected in a variety of ways from different representative groups. Employee and beneficiary trustees are either elected by their peers or appointed by the sponsor (or other board members) to serve a set term. Board terms range from annual to more than 6 years for most plans, with 3 or 4 year terms most common. These trustees have a fiduciary responsibility to the plan beneficiaries (both current and future). For elected trustees, the qualifications to serve range from being an employee and getting the most votes (no experience or knowledge) to demonstrating some minimal knowledge of the functions and duties of being a trustee before qualifying to be put on the ballot. The latter is a relatively small percentage of plans.

<Insert Exhibit A about here>

Other trustees sit on the board due to their public elected offices (mayor, city council member, state representative, etc.) or because of the public positions in the city government (city finance director, human resource director, etc.). These trustees serve ex-officio, with no set terms on the board. Primarily, these trustees also serve to represent the plan sponsor. Finally, trustees may come from the community at large and are appointed as independent or outside trustees. Outside trustees represent the community's interest in the plan (funded by tax revenue) as well as potentially bringing in outside expertise to the board with regard to plan management and decisions (investment expertise, organization expertise). In addition, the outside trustee can be more independent and balancing conflicts between plan sponsors and beneficiaries, as well as the interests of current and future beneficiaries. Outside trustees also face political pressures, since most of political appointees, and may not be as independent in decision making processes.

The board is charged with ensuring the viability of the plan to for all beneficiaries. The board reviews claims for benefits, modifies the plan benefits, oversees the management of plans assets and investments, and oversees the management of the plans administrative staff. Since most of the board members are not experts in all areas of plan management, they retain outside counsel to help facilitate decisions. Two main areas of outside expertise are actuarial and investment management. Actuaries provide information or current and future liabilities and the impact of plan changes on liabilities and funding levels. Investment management expertise is obtained primarily through the use of a pension consultant.

<Insert Exhibit B about here>

An alternative plan structure is presented in Exhibit B. In this structure, the pension board of trustees is not directly responsible for the investment function. A separate investment

board, usually appointed members with a small representation from the pension board, is charged with the management of plan assets. This structure is more common is statewide plans. In actuality, the investment board not only makes investment decisions on behalf of the pension plan, but also other state investments and dedicated funds. This type of investment board is more likely to be sophisticated with respect to investment decisions (often a requirement for appointment) and relies less on pension consultants for the totality of investment advice. In addition, this structure achieves economies of scale required for efficient investing.

Previous studies in board composition and investment performance have suffered from several deficiencies. First is trustee classification. By taking the political view of trustees, trustees elected by plan members are treated as independent or outsiders, less likely to have conflicts and agency problems. However, as has been noted in prior studies, elected trustees suffer from conflicts of interest because they are plan employees. The cost of the plan is not entirely born by the plan participants, but by the citizenry as a whole. Poor investment performance may be born by the participants (especially active participants) by increasing future contributions, but additional contributions come from the sponsor as well. Generally there are no declines in benefits resulting from poor performance. However, greater than expected investment returns and overfunding plan liabilities gives leverage to plan participant to negotiate plan improvements (reduction in contributions, greater benefits), especially if participants are unionized. This asymmetric impact to plan participants resulting from investment returns can lead to suboptimal investment decision by taking more risk than is necessary to achieve the objective return. In addition, member elected trustees serve for a limited time period. This results in high trustee turnover and lack of experience on the board. Since member elected

trustees generally do not have to explicitly demonstrate investment knowledge or experience, suboptimal investment decision making is again a problem.

The treatment of appointed trustees and ex-officio trustees as insiders also creates a problem. Ex-officio trustees serve as part of the position or job. These trustees have a greater stake in the performance of the plan than other trustees because mismanagement may result in ending the professional career of the trustee. Ex-officio trustees generally have some expertise related to pension plans, either from finance or human resource functions. In addition, some ex-officio trustees may also be plan participants, so they not only have a current interest in plan performance and sustainability, but also a stake with the plan participants at large. Not all trustees are civil servants. Some trustees, especially in large, state wide plans, are elected officials ranging from governor, and state treasurer to state senators and representatives serving on oversight committees in the legislature.

The treatment of appointed trustees as insiders also creates problems. Romano (1993) demonstrates the politicizing process of a board through the appointed trustees, however, the focus is primarily on large plans. Smaller, typically municipal plans, have much less political pressure. Hess (2005) finds appointed trustees guide the plan to superior investment performance, partly due to this class of trustees as having greater investment expertise than those elected by plan members.

A second deficiency of prior studies on board composition and public plan performance is the focus on total fund investment return. Total investment return will be determined by many factors beside board composition, namely asset allocation, manager selection, and overall market performance. Two of these three are determined can be decided by the board, creating an endogeneity problem, but overall market performance, arguably the biggest factor, and one that

is economically dependent, is not. A more appropriate measure is the actual fund return from the return on the benchmark portfolio. This excess return is used by Ambachtsheer et al. (1998, 2007). This measure leads to a more precise test of board decisions on the investment function, taking into account the state asset allocation targets, deviations from those targets and the impact of manager selection on beating the benchmark return.

A final problem with prior studies is the measure of performance. Most studies take the view the objective is to achieve high rates of return. However, a more general view of plan management is to provide enough assets to meet liabilities. In other words, asset and liability management, full funding of plan liabilities should be the overriding objective. In this context, investment management is part of the board responsibilities, subject to constraints. It is not the primary objective of the fund to achieve the highest fund return possible. A major problem with analyzing funding level is the dependence upon actuarial assumptions, where a slight change has a major impact on funding levels, and manipulation of assumptions leads to inaccurate funding measures. Chaney et al. (2002) and Schneider and Damanpour (2002) discuss the importance and abuses of actuarial assumptions on funding levels. Eaton and Nofsinger (2004) find some evidence underfunded plans tend to use more favorable assumptions, and the actual state of underfunded plans is worse than reported.

This study considers asset allocation, excess rate of return on plan assets, and funding levels as endogenously determined by the board, not as independent, exogenously determined variables. A simultaneous framework reflects the actual board decisions and estimates the impact of board composition on public plan performance in several areas.

Research Sample and Data

This study uses a sample of public sponsored pension plans in the US that are over $200 million, excluding the largest of the pension plans due to statistical skewness considerations. The primary reason for using only public plans is twofold. First, information is more accessible for public plans due to government information regulations. However, this does not mean that information is readily available. Information of public pension plans is public domain, but does not exist in a single source database. The second rationale for using only public plans is there are fewer regulations on public plans. Public plans are not subject to IRS and PBGC regulations, but are monitored by the sponsor. There are no explicit funding requirements, and any liabilities are ultimately those of the government unit sponsor. This allows for greater variation in plan characteristics to examine the impacts of the board on the performance of the plan. This data sample overlaps with the commonly used PenDat survey by the Public Pension Coordinating Council, but includes many plans choosing not to participate in the survey. By using a sample that does not rely upon voluntary survey participation, the sample reduces selection bias inherent in survey data. Finally, by collecting data directly from plans, more detailed information is obtained than in a typical survey, including investment and return performance, manager selection and detailed asset allocation.

<Insert Table 1 about here>

The time period for the study is fiscal years 2001 – 2005. There are over 300 plans in the universe, and 125 plans are selected to include in the sample. Requests for information were sent to 125 plans for annual reports (financial statements) and investment reports and performance and costs. In addition, information on board structure was collected from municipal and state codes. Currently, seventy-one plans submitted the majority of information requested. Some plans did not comply with information requests based upon perceived confidentiality of the

information requested. Other plans were not required to submit information due to statutory rules and chose not to submit information voluntarily. Finally, other plans submitted information but were excluded because the investment structure pooled investment funds from various sources and plan assets could not be disaggregated. Table 1 presents descriptive statistics on sample plans, including average assets, asset allocation, funding levels, and investment returns. Sample plans range from very small to large plans. There is a relatively even split between state-wide and municipal plans. In addition, there is a split between the employment type of beneficiaries, such as public employees, teachers, safety, or other (or combined) groups.

During the 2001 – 2005 sample period, the average plan liability increased from $5.8 billion to $8.7 billion. At the same time, the average funding level fell from 96.9% to 83.6%. While early decreases can be attributed to market conditions in 2001 and 2002, the funding levels do not rebound with investment returns in the latter part of the sample period. In addition, funding levels continue to fall in 2003 and beyond. Primarily this is due to dollar value of liabilities growing at a much faster rate than assets and additional contributions are not being made to stabilize the funding status.

Information was gathered from plan annual reports, quarterly investment reports, and other sources. Data points gathered included basic financial information such as investment assets, net plan assets, liabilities, sponsor and employee contributions, investment income, investment expenses and administrative expenses. In addition, actuarial value of assets and actuarial accrued liabilities were also collected. Investment information from plans included target asset allocation, actual asset allocation, and returns for each asset class (where available), and fund investment return. Information was gathered on individual service providers such as

investment managers (asset class and style, amount invested, investment returns and expenses, and benchmark performance).

Table 2 presents information on the composition of boards of trustees for sample plans gathered either from annual reports or applicable statutes. Board size ranges from 5 trustees to 16. On average, boards consist of about 10% outside (independent) directors, 45% employees or beneficiaries, and 45% ex-officio members, but composition ranges from all employee elected trustees (most common in safety plans) to all ex-officio trustees (municipal public employee plans). As noted above, board terms also vary across boards.

<Insert Table 2 about here>

Hypotheses and Methods

The basic research question for this study is the impact of board composition on fund performance. Specifically, does board composition, especially the impact of outside, independent trustees, affect the investment performance of the fund by increasing fund return above the benchmark return. Simultaneously, does board composition affect the target asset allocation of the fund (and the appropriate benchmark). Finally, to what extent are investment decisions driven by board composition and the overall funding level of the plan. If there is an impact due to board composition, then what is the optimal board structure? If there is not an impact, are there other pension fund characteristics that lead to superior plan performance?

Most pension funds engage in some degree of active management, either directly by employing an investment staff and managing the fund's portfolio, or by employing investment managers taking active strategies. By employing an active strategy, the board implicitly believes it can outperform the market, and its investment decisions matter. The competence of the board

should be a function of the board composition, especially the influence of outsiders who potentially bring independence and investment expertise to the board table.

How outside trustees are chosen is determined by state statute or municipal code. Three examples of these codes are:

> "One (1) person who is a resident of the city and shall not be a Participant in the Plan, a City employee or elected City official."
>
> "...four (4) residents of Mecklenburg County as trustees for three year staggered terms, one of whom is designated Chairman of the Board."
>
> "The remaining three are appointed investment experts"

As examples of these codes demonstrate, the requirements for expertise for outside members range from absent to vague. In many cases, outside members have no investment expertise beyond the average person. Even when investment expertise is specified in the code, there is not a standardized definition or requirement to certify individuals as experts.

To test the impact of board governance structure and composition on investment performance, two methods are used. First, using simultaneous panel estimation methods, the impact of board composition, with other fund characteristic control variables, is estimated with respect to fund portfolio excess returns (*ExRet*), asset allocation as measured by the target asset allocation (*TgtEqAll*) and funding level (*Funded*). Funding level may affect the asset allocation as plans become more aggressive with the investments to achieve higher returns. The ability to achieve higher than expected returns is measured by the excess return. These two variables impact the funding level of the firm by the growth (or decline) in plan investment assets. These variables are considered to be endogenous. Exogenous and instrumental variables used in the estimation are board composition and structure, timing effects, investment expenses, fund size,

contribution levels, and types of plans (participant pool and sponsors). Second, the ability of the board to select individual investment managers is tested in a pooled regression.

In the panel estimation, the estimated model takes the form:

$$ExRet_{i,t} = \alpha_i + \beta_1 TgtEqAll_{i,t} + \beta_2 Funded_{i,t} + \beta_3 Out\%_{i,t} + \beta_4 Elect\%_{i,t} + \beta_5 ExOff\%_{i,t} + \beta_6 Size_{i,t} + \beta_7 Timing_{i,t} + \beta_8 Fees + \varepsilon_{i,t} \quad (1)$$

$$TgtEqAll_{i,t} = \alpha_i + \beta_1 ExRet_{i,t} + \beta_2 Funded_{i,t} + \beta_3 Out\%_{i,t} + \beta_4 Elect\%_{i,t} + \beta_5 ExOff\%_{i,t} + \beta_6 Term_{i,t} + \beta_7 BoardSize_{i,t} + \beta_8 Size_{i,t} + \beta_9 Teachers_{i,t} + \beta_{10} Muni_{i,t} + \varepsilon_{i,t} \quad (2)$$

$$Funded_{i,t} = = \alpha_i + \beta_1 ExRet_{i,t} + \beta_2 Funded_{i,t} + \beta_3 Out\%_{i,t} + \beta_4 Elect\%_{i,t} + \beta_5 ExOff\%_{i,t} + \beta_6 Term_{i,t} + \beta_7 BoardSize_{i,t} + \beta_8 Size_{i,t} + \beta_9 Muni_{i,t} + \beta_{10} Size_{i,t} + \beta_{10} Contrib\% + \varepsilon_{i,t} \quad (3)$$

Where *Out%*, *Elect%*, *ExOff%*, is the percentage of board members who are outsiders, elected, and ex-officio, respectively and reflects board composition. *Term* and *BoardSize* is the minimum term of elected or appointed trustees and the number of trustees on the board. *Teachers* and *Muni* are dummy variables indicating if the plan is for teachers and if the plan is a municipal (not statewide) sponsored plan. *Size* is the log of plan net assets. *Timing* is the excess return due to timing effect, the portfolio attribution due to differences in actual and target asset allocation. *Fees* is the investment expense scaled by investment assets and *Contrib%* is the contribution for the year divided by plan assets. Since there is a time series of 5 years, a random effects, time-series cross-sectional model is appropriate.

For the ability of the board to select investment managers, data on individual managers for the fund are used in a pooled regression model. Since not all funds invest in alternative investments or real estate (typically only larger funds), the analysis focuses on public equity and fixed income investments. Typically, investment managers' evaluation period extends from three to five years. However, due to the relatively short period of the study, annual manager returns are measured against their benchmark, *ExRet*.

The pooled regression model is

$$ExRet_{i,t} = \alpha_i + \beta_1 Out\%_{i,t} + \beta_2 Elect\%_{i,t} + \beta_3 ExOff\%_{i,t} + \beta_4 Term_{i,t} + \beta_5 BoardSize_{i,t} + \beta_6 Teachers_{i,t} + \beta_7 Funded_{i,t} + \beta_8 Muni_{i,t} + \beta_9 Size_{i,t} + \beta_{10} IMSize_{i,t} + \beta_{ij} Style + \beta_{ik} Year + \varepsilon_{i,t} \quad (4)$$

Where the control variables are defined above. *IMSize* is the assets invested with the investment manager. *Style* and *Year* are dummy variables to indicate the style of investment in equity (i.e. large cap, small cap, high yield, etc.) and fiscal year of the return (dummy variable for FY 2001 omitted).

If trustees elected by employees are beneficial to plan management, then there should be a positive relationship between the percentage of elected trustees and performance. If appointed outside trustees bring in investment expertise, then this relationship should also be positive. As hypothesized by Clark and Urwin (2007), smaller boards are more beneficial, so there should be a negative relationship between board size and performance. The length of term is an empirical question. However, longer terms have the potential of developing conflicts of interest and lower monitoring as trustees and service providers (actuaries, investment managers, pension consultants) develop relationships.

Empirical Results

Simultaneous panel method results estimating the impact of board composition on asset allocation, investment performance (proxied by excess return above their benchmark), and funding levels are presented in Table 3. Portfolio benchmarks are constructed by using the target asset allocation of each asset class and multiplying it by the return for the benchmark for that year. The excess return above (or below) the benchmark achieved by the fund is attributed to

investment decisions by the trustees and can be attributed to timing of investments (overweighting, underweighting asset classes) and manager selection.

<Insert Table 3 about here>

Board composition has a significant effect on both asset allocation and funding levels. For asset allocation, the percentage of elected trustees and the percentage of outside (appointed) trustees, has a negative effect on the amount of assets allocated to public equity (domestic and international equity combined). While a complete asset allocation view is not tested, results indicate elected and outside trustees tend to state a more conservative portfolio allocation.[2] Ex-officio trustees do not have a significant impact on asset allocation. Other board variables, including board term and size, do not affect asset allocation. Neither does fund size (larger plans have similar equity allocations as small plans) or plan sponsor or participant group.

The percentage of the board that is elected by members or serve ex-officio has a positive effect on funding level (or appearance of funding). The results of the asset allocation and the funding level indicate member elected trustees are more focused on a stable, sustainable plan to provide future benefits as opposed to chasing higher returns through a riskier asset allocation. The object of higher funding is strengthened by the presence of ex-officio trustees, who serve as part of their job responsibilities. Elected trustees also have a positive impact on plan funding levels, consistent with agency theory. The findings from these two estimations present a rather conservative view of investment and plan management. In addition to ex-officio and elected trustees, municipal plans are better funded than their state (and usually larger) counterparts.

Two other factors are important in influencing funding levels. First is the size of the board. Larger boards are associated with lower funding levels, consistent with Clark and Urwin

[2] It could also be argued that equity allocations were reduced to invest in riskier asset classes such as real estate and private equity. However, given the relatively low amounts in these assets classes, this does not seem to be the case.

(2007). The second is contribution percentage (plan contributions from both sponsor and participants divided by plan assets), which has a negative impact on funding status. This may seem counterintuitive, but if a plan becomes underfunded, the funding deficiency is compensated by higher contributions to the plan. This can also be seen from the insignificant impact of target equity allocation on funded ratio. Funded ratio does not impact the asset allocation, and vice versa, after controlling for common effects of board composition. The effects may occur over a longer time horizon than the 5 years of the sample data, but it appears the funding deficiency is not attributed to portfolio investment asset allocation. A more likely candidate is the growth in liabilities and the overpromise of benefits to public employees.

When evaluating strictly investment performance, i.e. excess portfolio return, board composition has no effect on investments. The primary excess return results from the timing effect (differences in return from allocations different than the portfolio targets). Whether this is due to investment skill, advice from money managers or consultants, or wilful neglect in rebalancing the portfolio, cannot be determined from the data. However, the board composition does not have a direct effect on excess return.[3]

<Insert Table 4 about here>

The performance of individual investment managers is an important function for many public plan boards of trustees. Since many of the sample plans are relatively small and do not have a full-time investment staff, investment decisions, including selection of investment managers, are made by the board. The question of whether board composition and other characteristics lead to selection of individual managers that outperform their benchmarks also needs to be addressed. Table 4 presents a pooled regression of manager results, and fixed

[3] Board composition variables were regressed against both the timing effect and selection effect. None of the board composition variables were significant in explaining these effects.

income managers are estimated separately from public equity managers. The managers' performance (net of fees) against the stated benchmark is the dependent variable and measure of outperformance.

There are board characteristics that significantly correlated with investment manager outperformance. For fixed income managers, the proportion of ex-officio trustees is negatively related to performance, as is the total assets of the pension plan. For equity managers, another board characteristic is significantly correlated with manager performance. The length of the board term has a negative relationship with manager returns versus the benchmark. Longer board terms (less turnover) leads to lower net returns. Consistent with the previous estimation, outside trustees do not have a positive impact on performance for either asset class.

Another variable in the model is positively related to manager performance, for both fixed income and equity. The amount invested with a manager is positively related to manager performance. Typically, it is more difficult to outperform the market as portfolio size increases, so this particular finding is contrary to previous results. In addition, it raises a question of whether investment managers favor large clients over small ones, or a question of access. If better performing managers are hired by larger funds, smaller funds may be effectively locked out of the best managers. Alternatively, large and small allocations may employ the same manager for the same investment style, but the portfolio performance of larger clients are favored over small clients, either through assignment of better managers within the firm, trade executions, etc. Manager fees, which are usually larger for smaller clients due to the sliding fee structure employed by most managers, is also an explanation for the differential performance. However, when the same analysis is done using gross of fee returns, the results are qualitatively

the same. So while fees potentially play a role in the differing performance, it is not the entire story.

Summary and Conclusions

Using a sample of public sponsored pension plans, the effect of board of trustee composition and structure on investment performance is tested. Specifically, are there certain types of trustees that improve (or detract) from pension fund investment performance. For the 2001-2005 sample period, the proportion of outside trustees on the board is not correlated with investment excess return performance. However, there is strong evidence the board composition affects both the funding level and asset allocation. In addition, there seems to be little evidence in the sample of boards becoming politicized.

The analysis also produces some other interesting results. First, outside trustees and elected trustees are negatively related to allocations in equity, but funding level is not related to asset allocation and vice versa. It appears the plan funding status and portfolio allocation decisions are independent, after considering the board composition on each measure. Second, individual investment manager returns are positively related to the amount invested with the manager. Two possible explanations are given, one of access to better investment managers and one of favoritism by the investment manager. The data cannot distinguish between the two explanations at this point, and this question is also left for future research.

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Exhibit A

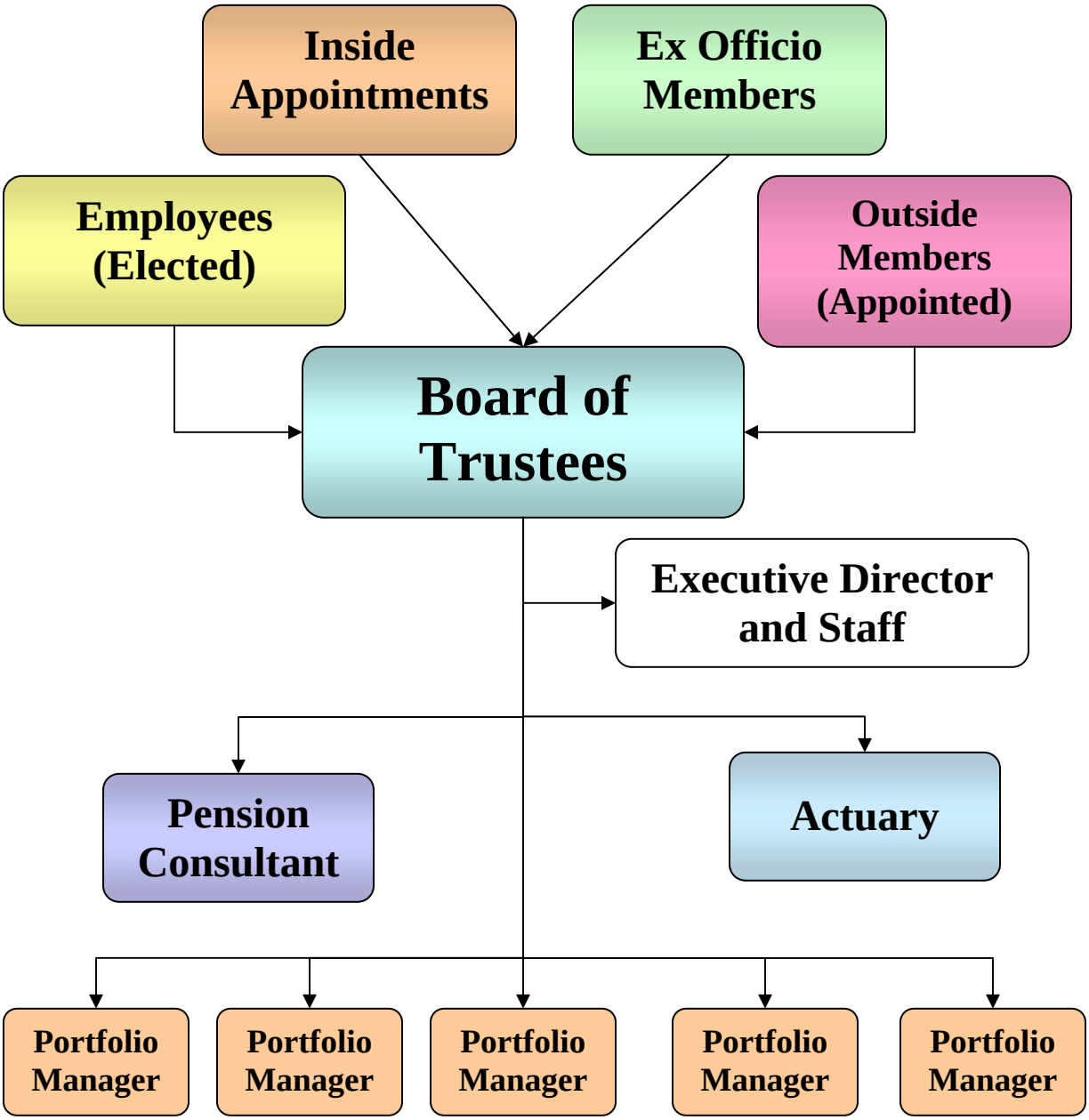
Inside Appointments
Ex Officio Members
Employees (Elected)
Outside Members (Appointed)
Board of Trustees
Executive Director and Staff
Pension Consultant
Actuary
Portfolio Manager
Portfolio Manager
Portfolio Manager
Portfolio Manager
Portfolio Manager

Exhibit B

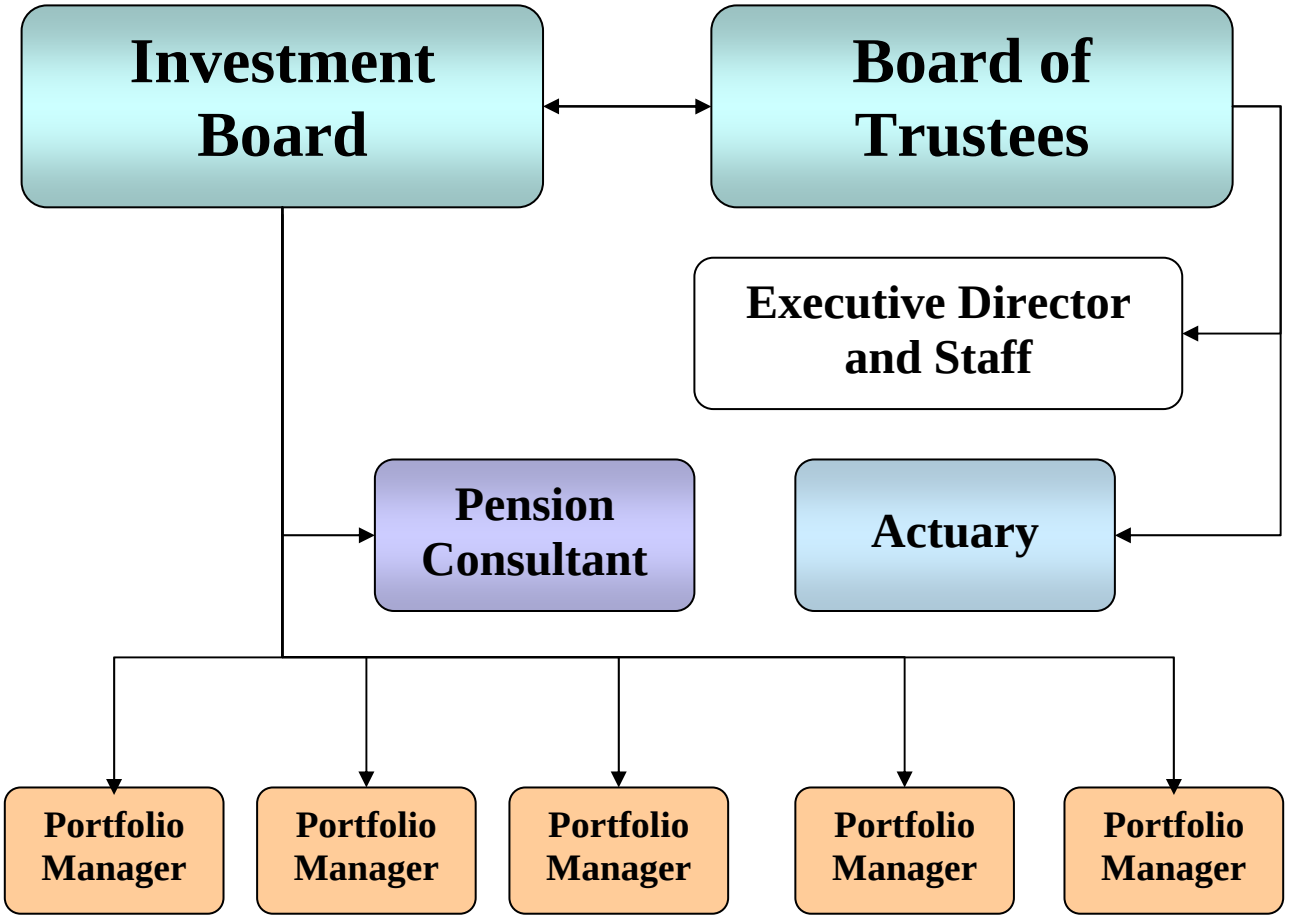
Investment Board
Board of Trustees
Executive Director and Staff
Pension Consultant
Actuary
Portfolio Manager
Portfolio Manager
Portfolio Manager
Portfolio Manager
Portfolio Manager

Table 1
Descriptive Statistics by Employee Type and Plan Sponsor

Values reported are over the 5 year period except N, represent the number of distinct plans in the subsample. Investment Assets are the value of investments reported at fiscal year end. Contribution % is the total contribution to the plan divided by plan net assets. Funded is the actuarial funded ratio and Fund Return is the gross return on investment assets for the fiscal year. Equity and Fixed Inc. Allocation are the target allocations of the fund to public equity (domestic and international) and Fixed Income. Plans are divided by beneficiary type (public employees, safety (police and/or fire), teachers, combination of beneficiaries) and by sponsor type (municipal or statewide plans).

Public Employees

	N	Mean	Median	Max	Min	Std Dev
Investment Assets	31	5,841	2,355	33,809	164	7,425
Contribution %	31	3.9%	3.9%	12.4%	0.0%	1.7%
Funded	31	92.5%	92.8%	158.5%	59.6%	15.7%
Fund Return	31	4.6%	5.2%	28.7%	-12.1%	9.6%
Equity Allocation	31	60.0%	60.0%	75.0%	45.0%	5.9%
Fixed Inc. Allocation	31	34.5%	35.0%	58.0%	10.0%	6.5%

Safety

	N	Mean	Median	Max	Min	Std Dev
Investment Assets	11	722	489	2,257	217	579
Contribution %	11	4.0%	4.2%	8.0%	0.6%	2.0%
Funded	11	87.3%	86.6%	122.5%	53.4%	15.9%
Fund Return	11	5.8%	6.5%	25.0%	-10.4%	9.5%
Equity Allocation	11	56.6%	60.0%	70.0%	40.0%	8.9%
Fixed Inc. Allocation	11	34.3%	35.0%	55.0%	15.0%	8.9%

Teachers

	N	Mean	Median	Max	Min	Std Dev
Investment Assets	12	13,777	9,394	52,938	844	14,602
Contribution %	12	5.4%	4.0%	19.8%	0.4%	3.7%
Funded	12	77.3%	82.1%	123.8%	42.1%	20.5%
Fund Return	12	5.6%	5.3%	23.1%	-8.8%	9.0%
Equity Allocation	12	58.7%	60.0%	70.0%	45.0%	6.0%
Fixed Inc. Allocation	12	29.6%	30.0%	48.0%	18.0%	6.3%

Combined

	N	Mean	Median	Max	Min	Std Dev
Investment Assets	12	4,411	904	34,574	129	8,620
Contribution %	12	5.1%	3.5%	25.1%	0.1%	4.4%
Funded	12	88.9%	90.1%	148.9%	44.3%	24.0%
Fund Return	12	5.8%	8.0%	24.9%	-11.7%	10.2%
Equity Allocation	12	60.8%	63.0%	72.5%	50.0%	6.3%
Fixed Inc. Allocation	12	33.2%	35.0%	46.0%	18.0%	7.8%

Table 1, Continued

Municipal

Variable	N	Mean	Median	Max	Min	Std Dev
Investment Assets	36	1,175	455	10,591	129	1,768
Contribution %	36	3.9%	3.2%	25.1%	0.1%	3.1%
Funded	36	93.8%	93.9%	148.9%	44.3%	15.5%
Fund Return	36	5.9%	7.1%	24.9%	-12.1%	9.7%
Equity Allocation	36	59.1%	60.0%	70.0%	40.0%	7.1%
Fixed Inc. Allocation	36	34.4%	35.0%	46.0%	15.0%	6.2%

State

Variable	N	Mean	Median	Max	Min	Std Dev
Investment Assets	33	11,784	8,135	52,938	397	11,391
Contribution %	33	5.0%	4.6%	19.8%	0.0%	2.4%
Funded	33	81.5%	83.9%	123.8%	42.1%	17.5%
Fund Return	33	4.4%	4.3%	25.0%	-11.8%	9.3%
Equity Allocation	33	59.5%	60.0%	75.0%	45.0%	6.1%
Fixed Inc. Allocation	33	32.5%	30.0%	58.0%	10.0%	8.2%

Table 2
Board Composition Measures, Terms, and Size

Board composition measures by sponsor type and for the sample. Out%, Appt%, Elect%, and Ex-Officio% are the percent of board members who are outsiders, appointed, elected and serve ex-officio. Mean will not sum to 100% because outside trustees are appointed. Appointed trustees may also be insiders. Board term is the number of years of the elected board members (or appointed members if none are elected) and board size is the total number of board members.

Municipal

	N	Mean	Std Dev	Min	Max
Out%	36	20.3%	16.9%	0	60%
Appt%	36	38.8%	25.9%	0	100%
Elect%	36	42.0%	22.0%	0	90%
Ex-Officio%	36	21.6%	24.2%	0	100%
Board Term	36	3.47	1.28	2	9
Board Size	36	8.42	2.32	5	13

Statewide

	N	Mean	Std Dev	Min	Max
Out%	33	29.1%	22.5%	0	80%
Appt%	33	43.0%	37.5%	0	100%
Elect%	33	41.8%	31.6%	0	100%
Ex-Officio%	33	14.7%	14.7%	0	50%
Board Term	33	4.15	1.28	4	6
Board Size	33	10.03	3.14	5	16

All Plans

	N	Mean	Std Dev	Min	Max
Out%	69	24.5%	20.1%	0	80%
Appt%	69	40.8%	31.8%	0	100%
Elect%	69	41.9%	26.8%	0	100%
Ex-Officio%	69	18.3%	20.3%	0	100%
Board Term	69	3.80	1.31	2	9
Board Size	69	9.19	2.84	5	16

Table 3: Simultaneous Panel Estimation

Instrumental variable panel estimation with random effects for Excess Return, Funding Ratio and Asset Allocation. Individual plan year data from fiscal years 2001 – 2005. Dependent variables are the plans' stated target asset allocation for equity, Fund Return – Benchmark Return gross of fees, and actuarial funded level. Out%, Elect%, Ex-Officio% Board Term and Board Size are board composition and characteristic measures described in Table 2. Teachers is a dummy variable if plan is only for teachers. Municipal is a dummy variable to indicate municipal sponsored plan. Fund Size is the log of plan assets. Contribution % is the total contribution as a percentage of net plan assets. Timing effect is the excess return attributed to differences in actual asset allocation and target allocation. Fees is an estimate of the basis point fee paid for investment managers. Standard errors are reported in parentheses.

	Tgt. Equity Allocation	**Excess Return**	**Funded Ratio**
Intercept	0.586***	0.086	-0.140
	(0.099)	(0.147)	(0.803)
Funded Ratio	-0.005	0.004	
	(0.066)	(0.019)	
Excess Return	-0.460		1.014
	(0.647)		(1.104)
Tgt. Equity Allocation		-0.223	1.467
		(0.234)	(1.330)
Elected Member %	-0.056***	-0.011	0.209**
	(0.021)	(0.014)	(0.086)
Ex Officio %	-0.018	-0.006	0.188**
	(0.027)	(0.010)	(0.085)
Outside Member %	-0.071***	-0.008	0.120
	(0.023)	(0.022)	(0.107)
Board Size	0.002		-0.015**
	(0.002)		(0.007)
Board Term	0.001		0.006
	(0.004)		(0.015)
Fund Size	0.002	0.002	0.004
	(0.005)	(0.002)	(0.017)
Teachers	-0.004		
	(0.018)		
Municipal	-0.005		0.113**
	(0.016)		(0.046)
Timing Effect		0.495**	
		(0.194)	
Fees		2.093	
		(1.557)	
Contribution Percent			-0.947***
			(0.335)
Overall R^2	0.0874	0.0357	0.2474
Wald Chi Square	21.58**	17.27**	38.61***
N	277	277	277

***, **, * indicate statistical significance at 0.01, 0.05, and 0.10 levels respectively.

Table 4

Estimates of Manager Excess Returns (net of fees)

Dependent variable is annual manager return (net of fees) – benchmark return. Dependent variables are the same as described in Table 3. Inv. Mgr. Size is the log of the assets under management at fiscal year end. Models are estimated for Fixed Income and Public Equity separately and include dummy variables for style and year.

	Fixed Income Estimates	Public Equity Estimates
Intercept	0.004	-0.066
	(0.044)	(0.059)
Out%	-0.004	-0.003
	(0.009)	(0.014)
Elect%	-0.009	0.004
	(0.006)	(0.009)
Ex-Officio%	-0.032***	0.009
	(0.012)	(0.016)
Board Term	-0.002	-0.005**
	(0.002)	(0.002)
Board Size	0.001	-0.002
	(0.001)	(0.001)
Inv. Mgr. Size	0.011***	0.010***
	(0.002)	(0.003)
Fund Size	-0.010***	-0.003
	(0.002)	(0.003)
Muni	-0.007	0.005
	(0.005)	(0.007)
Funded	0.014	0.000
	(0.011)	(0.016)
Teachers	0.009*	-0.003
	(0.004)	(0.006)
Style Dummies	Yes	Yes
Year Dummies	Yes	Yes
N	704	1,757
Adj. R-Square	0.0653	0.0330
F-Stat	3.73***	4.33***

***, **, * indicate statistical significance at 0.01, 0.05, and 0.10 levels respectively.