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## THE EFFECT OF BOARD COMPOSITION ON PUBLIC SECTOR PENSION FUNDING

Gang Chen, Kenneth Kriz and Carol Ebdon\*

**ABSTRACT.** Public pension plans in the U.S. are seriously underfunded, especially following the financial market crisis of 2008-2009 which resulted in large investment losses. However, funding levels vary widely across plans. Pension boards of trustees make key management decisions in pension systems and these decisions have significant effects on funded levels, yet our empirical knowledge of board management is limited. This study explores the effect of board composition on pension funding levels. Existing theoretical debates lead to differing expectations, and previous studies have mixed results. Our research uses a panel data set of large public pension plans from 2001-2009. We also collect data for pension board composition from this time period. We find that increasing political appointees and employee members on the board increases the funding performance of the pension system.

### INTRODUCTION

Public pension plans are an integral part of financial management in state and local governments. In the United States, public pension plans hold about \$2.7 trillion in assets and cover more than 19 million state and local civil servants, teachers and uniformed workers

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(U.S. Census Bureau, 2010). Most state and local employees are covered by defined benefit (DB) plans, in which employees' pension benefits are decided by preset formulas that depend on retirement age, average salary and years of service. These defined benefit pension plans are facing serious underfunding problems, particularly since the financial market crisis of 2008-2009 which resulted in large investment losses. One recent study found a \$1.38 trillion shortfall in funding for promised retirement benefits (including health care benefits as well as pensions) across the country (The Pew Center on the States, 2012).

Pension funding shortfalls create issues for governments, public employees and taxpayers. If future investment gains are not large enough to fill the gap between assets and liabilities, the governments have to increase contributions to the pension systems or reduce benefits. The underfunding problem also creates uncertainty for retirees; even though most pension benefits are protected by state constitutions, governments may reduce cost-of-living adjustments (COLAs). Unfunded pension liabilities also send a signal to the financial markets about the government's poor financial management, which may reduce the government's bond rating and result in higher borrowing costs for capital projects. For example, in August of 2012, Standard and Poor's lowered the State of Illinois' credit rating from A+ to A because of its "weak pension funding levels and lack of action on reform measures" (Wills, 2012).

While public pension underfunding is a pervasive problem, it is not universal. Some plans have been managed better than others (The Pew Center on the States, 2010). Governance structure and administration vary markedly among plans. Pension plans are usually managed by a board of trustees, who make decisions over the areas of setting investment strategy, adopting actuarial assumptions, and approving methods for system control and reporting (GAO, 2008). The structure, organization, and policies of a pension board may have a significant effect on decisions which may influence pension funding levels. Better understanding of this effect is important as governments look for methods of improving pension management.

This study focuses specifically on one aspect of plan governance, the composition of pension boards. Boards typically include active employees and retirees who are elected to the board, members who are appointed by elected officials, and ex-officio members who serve



based on their role in the government. In some systems, independent citizens and financial experts are also appointed or elected to the board. Board members represent interests of specific groups or have expertise in pension management. Previous studies have found mixed results regarding the question of whether the board composition has an effect on pension funding. We use a recent panel dataset of large state and local plans and collect board composition data over a nine-year period (2001-2009) to further explore these effects.

### LITERATURE REVIEW

Pension boards are responsible for setting operating rules for pension systems, such as financial reporting, accounting, information management, risk management, personnel management and performance evaluation, within the framework of state statutes. Boards usually establish policies in three major areas: establishing methods for system control and reporting; setting investment policy and allocating plan assets; and adopting actuarial assumptions and determining the required contributions to fund the pension plan (GAO, 2008; Peng, 2008). Each of these areas can significantly affect plan funding. In this section, the role of the pension board is discussed, relative to pension funding, followed by a review of prior studies of board composition and board functions.

#### The Role of the Pension Board

On average, investment earnings account for 63.7% of the funding sources for public pension plans (GAO, 2007). Investment management is viewed as the most important responsibility of the pension board (Peng, 2008). Some pension plans have a separate investment committee that is responsible for setting investment policies, although one study found a trend in the 1990s of pension boards increasingly setting asset allocation directly (Useem & Hess, 2001). For those pension boards that are responsible for investment management, board members review and approve investment policies, which outline the investment goals, allocation categories, investment guidelines, and reporting and monitoring processes (GFOA, 2003). Pension boards also hire financial experts or money managers to make operational decisions in asset allocation. Those investment managers are usually required to submit performance reports to the

board. Pension boards also review performance reports and evaluate the performance of those managers. Through the design of investment policies and the monitoring of investment managers, a pension board performs important functions in investment management. Prior studies have found that pension board governance could make a significant difference in the selection of investment portfolios and eventually affect the investment returns. However, empirical research provides mixed results in testing these effects (Albrecht & Hingorani, 2004; Albrecht, Shamsub, & Giannatasio, 2007; Harper, 2008; Mitchell & Hsin, 1997; Romano, 1993; Useem & Mitchell, 2000).

A GAO report (2007) found that about 24.3% and 12% of pension plan funding comes from employer and employee contributions, respectively. In many public pension systems, the amount of the employee contributions is set at a fixed rate (Wisconsin Legislative Council, 2011). In contrast, the decision on the employer's contribution varies across pension systems. As found by a Wisconsin Legislative Council report (2011), employer contributions change significantly from year to year and are highly affected by investment return volatility. An important measurement of contribution level is how much of the annual required contribution (ARC) is paid each year. In the actuarial report of a pension plan, the ARC is the amount calculated in order to set aside sufficient money to pay for a plan's projected pension liabilities over time. The ARC is usually set based on the actuarial assumptions suggested by actuaries and adopted by the board. Making the full ARC payment has been suggested by prior studies as the most effective way to improve the funding levels (Eaton & Nofsinger, 2004; Munnell, Aubry, & Haverstick, 2008; Peng & Boivie, 2011). Percentage of ARC payment is an important factor for the funding status, according to Mitchell and Smith (1994). However, a plan can choose not to fully pay their ARC each year. In some plans, full ARC payment is required by statutes but not guaranteed in practice (Peng, 2008). In some other plans, the employer's contribution is directly set by statutes and the employers have to fully pay the required amount. The authority to decide the statutory contribution rate resides with the state legislature or the state executive agencies. While the determination of the payment is beyond the board's control, they could exert pressure on the employer's contribution in two ways. First, the board oversees and audits the contributions from employers and employees, so can

monitor the timely payment of the contributions. Second, the board has direct influence on the ARC amount through its adoption of actuarial assumptions. Governments must report the amount of contributions made relative to ARC, which gives them pressure to increase their contributions.

Actuarial assumptions are important because they provide the parameters to calculate the pension funding level and the ARC. For example, the rate of return assumption is used to discount the future liabilities to present value in calculating the funding ratio; a lower discount rate will lead to higher liabilities and lower funding status. Currently, a discount of 8% is used by most governments (The Pew Center on the States, 2010), although some scholars argue that 8% is too high (Novy-Marx & Rauh, 2009 & 2011). The board takes advice from professional actuaries when they are making decisions on actuarial assumptions. Some studies have found that actuarial assumptions can be set strategically, and a plan's funding ratio can be manipulated by these assumptions (Eaton & Nofsinger, 2004). For example, Munnell, Aubry and Quinby (2011) found that using a typical 8% discount rate in a sample of 126 state and local plans resulted in an unfunded liability of \$0.7 trillion in 2009, while using the riskless discount rate of 5% increased the unfunded liability to \$2.7 trillion. Hsin and Mitchell (1994) have also found that the characteristics of a pension board can make a difference in their choice of actuarial assumptions. If so, a pension board could also affect a plan's funding ratio through changes in actuarial assumptions.

Benefit provisions determine the size of pension liabilities for a pension plan. In the U.S., public pension plans are considered to be more generous in benefit provisions than the private sector (Hustead & Mitchell, 2001). Irresponsible benefit increases have been considered as one of the reasons for the funding problems (The Pew Center on the States, 2010). Some plan features have fostered the increase of benefits, such as post-employment cost-of-living adjustments (COLAs). COLAs allow the benefits to adjust for inflation to preserve the purchasing power of pension benefits over time. They are designed for the purpose of maintaining the living standards of retirees, but they also increase the cost of pension plans. COLAs in public pension plans may be ad hoc, automatic, based on investment performance, or linked with the Consumer Price Index (CPI) (Peng, 2008). The core benefit and the COLA basis are decided by plan

statutes that are approved by legislatures. Benefit changes are subject to legislative approval, hearings, public disclosure, and sometimes bargaining with the worker's union. However, the pension board still has some discretion over pension benefits. For example, statutes may set the basis for the cost-of-living adjustments (COLAs), but for those plans that have ad hoc or investment-based COLAs, the board can decide the amount of COLAs from year to year (Peng & Boivie, 2011). The pension board might also recommend pension, disability, and/or retiree health benefit levels to legislators, which may eventually affect the actual benefit level (National Education Association, 2011).

Another important function for the pension board is the general operation of the pension system (Peng, 2008). The board hires professionals with special expertise, including investment consultants, actuaries, and legal counsel. The board typically appoints an executive director and other staff for system operation. The retirement system staff takes responsibilities of day-to-day operations, including benefit payment, technology, customer service, and financial services. When the board delegates authority to staff members or professionals, the board also establishes roles and responsibilities for each position and monitors their performance. The governing board prepares annual financial reports of the pension system based on accounting standards set by the Governmental Accounting Standards Board (GASB). The financial report contains information such as asset allocation, schedule of funding, and actuarial assumptions. The last responsibility for the board is for auditing and risk management. Successful operating and financial reporting procedures will affect the pension system in various ways, such as reducing administrative expenses and detecting fraud in benefit claims, which may eventually be reflected in the funding performance of a plan.

In summary, pension boards have significant responsibility for governance of pension plans. These duties relate to investments, contributions, benefit provisions, actuarial assumptions, and reporting. There is some variation across plans in the level of control the board holds; for example, some boards have the ability to make cost-of-living adjustments while others do not. While these variations might be expected to affect outcomes, existing research is relatively sparse and has mixed findings. Our interest specifically relates to the

effects of board composition on funding levels, which will be discussed next.

### **The Effects of Board Composition**

Procedures and criteria for selecting board members are usually set by state or local statutes. A typical pension board has eight to nine members (Useem & Hess, 2001). Board members are primarily selected in three ways to represent competing demands in the retirement system (GAO, 2008; Hess, 2005). First, employees elect their representatives to the board to protect their benefits. Second, the executive or legislative leaders appoint certain board members to represent their interests. Third, ex-officio trustees, who automatically serve on the board due to their public office, represent the financial concerns of the government (GAO, 2008). Some boards also include independent citizens who represent the interests of the public (GAO 2010). Financial experts with experience in investment or pension management also serve as non-voting or voting trustees to broaden the knowledge of the board (GAO, 2010). One study found that elected members comprise 29.1% of board membership, with appointed members 51.7% and ex-officio members 19.1% (GAO, 2008).

Several theories relate to the potential effect of board composition on pension funding performance. On one side are those that lead to expectations of better funding with a higher proportion of employees as board members and lower funding with a higher proportion of political appointees as board members. Fiscal illusion theory contends that taxpayers will perceive the costs of service to be lower if the service will be financed by future tax dollars. Thus, political officials may behave opportunistically to underfund pensions while maintaining or expanding spending, to improve their popularity and reelection chances (Marks, Raman & Wilson, 1988).

Similarly, fiscal stress theory posits that pension contributions could be used as a countercyclical budgetary tool (Peng 2004). In this view, governments may reduce pension contributions in the face of budget deficits to solve immediate fiscal problems. A number of studies have found that governments under financial stress tend to underfund pension plans or change the actuarial assumptions to lower the required contribution (Chaney, Copley & Stone, 2002; Eaton

& Nofsinger, 2004; Hsin & Mitchell, 1994; Mitchell & Hsin, 1997; Schneider & Damanpour, 2002).

Finally, political appointees serving on pension boards may be more sensitive to political pressures than employee members. This may be manifested in efforts to target investment of a portion of pension assets within the state or locality, or to impose restrictions on investments in certain industries or countries (Coronado, Engen & Knight, 2003). While these mandates may be beneficial for society, they may not be in the best interests of the pension plan. However, at least one study has not found evidence to support the theory of this type of influence on plan funding levels (Eaton & Nofsinger, 2004).

According to these theories, employees on the board serve as the “watchdog” to constrain the opportunistic behavior of political appointees (Hsin & Mitchell, 1994). The board trustees who are elected by employees represent the plan participants who otherwise would not be aware of the complex issues of pension funding. Employee-elected members may also have the chance to apply pressure on plan sponsors to improve pension funding when the funding level is inadequate. Thus, more employee-elected members on the board may lead to higher funding levels.

On the other side, politically appointed board members represent the interest of the executive officials or the legislators, who have different interests than the employees. Appointed members are more likely to succumb to political pressure and follow the politician’s policy agenda. However, according to the previous theories, it is still not clear whether politicians prefer higher or lower funding in the pension systems. Politicians may prefer a better funded system, because better performance in pension management shows fiscal responsibility of the government system. Politicians may also prefer other policy agendas, such as increased spending on certain policy programs or lower taxes, which may reduce the funding for pension systems.

There are also theories suggesting that plans with a higher proportion of employee-elected members on the board would have lower funded status. Ordinary employees may lack the financial expertise to understand the complexities of pension funding and investments (Mitchell & Hsin, 1997). They may have poor knowledge of plan provisions, contributions and other features (Mitchell, 1988), which would impede their ability to push for changes. Or they may

prefer benefit expansion or greater cost-of-living adjustments which would negatively affect the funded status (Munnell, Haverstick & Aubry, 2008). On the other hand, political appointees are more informed about the financial condition of the sponsoring government and the pension system, so they can make responsible decisions and consider the sustainability of the pension system in the future.

Empirical studies provide mixed results for the effect of board composition on pension funding. Mitchell and Hsin (1997) and Yang and Mitchell (2005) found that having more elected members on the board, either retirees or active members, lowered the funding rates of the pension system. In contrast, Harper (2008) found a positive correlation between funding levels and the representation of employees on the board. Finally, two recent studies using data from large public plans found no significant effect of employees/retirees on the board on the plans' funding ratio (Munnell, Haverstick & Aubry, 2008; Munnell, Aubry, & Quinby, 2011).

In summary, there are theoretical frameworks in which a larger portion of employee/retiree members would be expected to lead to a higher funded ratio, while other theories suggest the opposite. Opposing theories are also used to argue that more appointed and ex-officio members will lead to a higher or lower funded ratio. The limited empirical studies in this area have had mixed findings. These mixed results may be due to differing models, operationalization of variables and time periods. Empirical studies on board composition usually suffer from problems of poor data and measurement errors (Boone, Casares, Karpoff, & Raheja, 2007). For example, both Mitchell and Hsin (1997) and Yang and Mitchell (2005) used the PENDAT data for their board composition variables. PENDAT data came from a series of surveys conducted by the Public Pension Coordinating Council (Zorn, 1991). These studies used the percentage of board members elected by retirees and elected by current members to measure board composition. However, in our study, we found that there is no clear division between these two categories. Munnell, Aubry, and Quinby (2011) used the Public Plan Database for their study. The Public Plan Database assumes no change in board composition over the years. However, in our study we found that this is not the case. Also, few of the prior studies use longitudinal panel data. In this study, we use data collected directly from plan documents and adopt more specific variables to represent

pension board composition. Given the variety of theories that have been used to discuss possible effects of board composition, we do not have pre-determined expectations; our results will aid in sorting out the validity of the various arguments. The next section details the methodology used in our study.

## METHODS AND RESULTS

### Data Source and Sample

The sample used in this paper is primarily based on the “public plan database” (PPD), which was created by The Center for State and Local Government Excellence and the Center for Retirement Research at Boston College. This dataset consists of observations from 107 state pension plans and 19 large local plans for the nine years 2001 through 2009. We have spot-checked the plans’ financial reports and made adjustments where appropriate. For board composition data, PPD board data has two shortcomings. First, it assumes that board composition does not change over the nine-year period. Second, it does not contain the composition of ex-officio, political appointees, employees, and public representatives. We collected 2001-2009 pension board data from documents obtained from pension systems, such as financial reports, newsletters, and board minutes. State legislation and board governance charters or bylaws also contain details about the composition and election of trustees. Most documents are available online. We have also directly contacted eleven systems to request information and to clarify some confusion in their public documents. We compared data we collected with the PPD data. For data that are consistent for most of the years, we assume that the PPD data are reliable. We have left out nine pension systems from the PPD sample because of data collection problems or their special governance structure.<sup>1</sup> In the end, we have 98 state pension systems and 18 local pension plans, representing about 93.7% and 31.4% of state and local pension asset value in the U.S.

Among the 116 pension systems in our sample, the average size of a governing board is 10 members, ranging from a single trustee in the New York State and Local Retirement System (NYSLRS) to 20 trustees in the Tennessee Consolidated Retirement System (TCRS). We generally classify board members in six categories based on the method of selection and their background. The six categories are: ex-



officio or their designees, political appointees, employee members, general public citizens, financial experts, and members elected by the other board members. The average percentage of each category over the nine years in the sample is shown in Table 1. Employee members are the largest group (50%). Political appointees are the next largest group (23%), followed by ex-officio appointees (17%). The other groups have relatively minor representation on these boards.

**TABLE 1**  
**Nine-Year Average of Board Composition**

<b>Category of trustees</b>	<b>Percentage</b>
Ex-officio or their designees	17.64%
Political appointees	23.42%
Employee members	49.67%
General public citizens	5.58%
Financial experts	3.28%
Elected by other board members	0.42%
Total	100%

During the years from 2001 to 2009, there are 28 out of 116 pension systems (24%) that have changed their board size and/or board composition, with 17 increasing their size, four decreasing their size, and seven keeping the same size but changing the method of choosing board members. While a GAO (2010) report contends that “changes to plan governance structures and board composition appear to be infrequent,” this is not the case according to the plans in our sample. As shown in Table 2, the average board composition changes frequently over the nine-year period. The most noticeable changes can be observed in political appointees and employee members. For example, from 2005 to 2006, employee members changed from 49.29% to 50.13% and political appointees changed from 24.07% to 22.31% as a percentage of the whole board. The changes in each category are shown in Table 3 (a system may make changes in more than one category).

**TABLE 2**  
**Changes of Average Board Composition (As a Percentage of the Board)**

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009
Ex-officio or their designees	17.99	17.98	17.99	17.69	17.20	17.74	17.43	17.40	17.33
Political appointees	24.38	24.18	24.07	23.90	24.07	22.31	22.49	22.52	22.85
Employee members	49.39	49.40	49.42	49.36	49.29	50.13	50.12	50.08	49.85
General public citizens	5.42	5.42	5.42	5.42	5.29	5.67	5.89	5.86	5.83
Financial experts	2.40	2.60	2.69	3.21	3.73	3.73	3.65	3.73	3.73

**TABLE 3**  
**Changes of Trustees in each Category**

Category of trustees	Number of systems that increased trustees in this category	Number of systems that decreased trustees in this category
Ex-officio or their designees	3	7
Political appointees	7	7
Employee members	17	7
General public citizens	4	1
Financial experts	4	0

The largest changes occurred in the employee members category of the governing board. For example, in 2008, the Missouri DOT and Highway Patrol Retirement System added one retiree to its governing board; and Ohio Senate Bill 133 in September 2004 reorganized the Ohio PERS retirement board by removing the Attorney General and the State Auditor and adding one retiree and three individuals with investment expertise. As stated in the Ohio PERS CAFR (2004), reorganizing the board composition is the way to “ensure representation of all stakeholders” (p. 4). Through House Bill 2005,

Oregon PERS reduced its number of trustees from twelve to five. The new board consists of one public employer manager or a local elected official, one public employee member representing the union, and three experts with experience in business management, pension management, or investing. As a result, the proportion of employees on the governing board has decreased in the Oregon PERS.

Most of the changes in board composition occurred in state-administered systems. In our sample, only two local pension systems, both in California, changed their board composition during 2001-2009. The Contra Costa County Employees' Retirement Association (CCCERA) added one retiree-elected member onto the board in 2004, and in 2006, they added another board member who is appointed by the county board of supervisors. The Los Angeles County Employees Retirement Association (LACERA) added one retiree-elected member in 2005 onto its Board of Retirement. However, the few cases of board composition changes in local pension plans cannot be used to draw a general inference, because there are only eighteen local plans in our sample, which is not a good representation of a large number of local pension plans in this country.

In the next section, we use an empirical model to test whether the change of the board composition is related to the funding performance of the pension systems.

### **Empirical Model**

We use a traditional panel data econometric analysis to examine the relationship between board composition and pension funding level. The dependent variable is the funded ratio,<sup>2</sup> calculated as the ratio of a plan's actuarial assets over its actuarial liabilities. We include three board composition independent variables, which are the percentage of political appointees, employee members, and public citizens on the board. We include political appointees and employee members, because these two categories have the most change during the study period (see Table 3). We also include the public citizens in the model, because independent citizens represent different interests on the board. Ex-officio members are not included in the model to avoid multicollinearity. Experts and members elected by the board are not included because the changes are too small to show an effect; results of models with these variables are similar to the results reported here.

We control for union coverage, employee type, and asset size. Union coverage is included because it is possible that stronger unions push for more employee trustees on the board and also exert greater influence on pension management. We also control for the employee types (teachers, and police and fire employees) because of the concern that police and fire employees and teachers have different benefit levels, governance structures and union influence than other plans. Eaton and Nofsinger (2008) find a significantly lower funding level in pension plans that cover teachers. Munnell, Aubry and Quinby (2011) also suggest that teachers have longer tenures and higher earnings, which generate higher benefits and lower funding. Size of the plan is controlled for the possible scale effect. We use the natural logarithm of the market value of a plan's total assets to control for plan size, as suggested by Hess (2005), Useem and Mitchell (2000), and Albrecht and Hingorani (2004). A prior study argues that larger plans may have more sophisticated asset management, better discipline, or receive greater public scrutiny than smaller plans, which may lead to better funding performance (Munnell, Haverstick & Aubry, 2008).

Pension systems have different investment performance, contribution policies, discount rates and benefit levels. In some states, certain decisions in these four areas may be outside the board's authority. Therefore, we also control for a pension system's investment returns, contribution payment, discount rate and benefit level. Investment performance is measured by the current year's investment return. Contribution payment is measured by the percentage of ARC that is paid in that year. We use the normal cost as a percentage of payroll to measure the benefit level. We expected that the investment returns, contribution payment, and the discount rate would be positively related to the funded ratio, while benefit levels would be negatively related to the funded ratio.

Descriptive statistics of the variables are listed in Table 4, which provides an informative picture of the public defined benefit plans in the U.S. Pension plans have an average 85.39% funded ratio over 2001 to 2009. In this sample, the funding levels have been generally decreasing since 2001 and reached the lowest point of 77.54% in 2009, a similar trend observed by prior studies (Bonafede et al., 2010; The Pew Center on the States, 2010). The average percentage of political appointees on the board is 23%. The percentages for

employees and public representatives as board trustees are 50% and 6%, respectively (also see Table 1). A board of trustees consisting of only employees or political appointees seems to be very rare. Only one local plan (Texas County & District<sup>3</sup>) has a governing board that is only comprised of system members and retirees. Two systems (Arizona Public Safety<sup>4</sup> and Denver Employees<sup>5</sup>) have a governing board that is comprised of only political appointees for the whole time period of the study. The annual investment return is 3.26% with a large variation of 12.32%. On average, pension systems pay 96.25% of their annual required contribution. The discount rate is around 8%. On average, pension normal cost is 13.23% of the payroll. The average percentage of union coverage is around 38.84%. About 45% of the observations have police and fire workers in their plan and 50% of the plans have teachers in their plan.

TABLE 4  
Descriptive statistics

Variable	Observations	Mean	Standard deviation	Min.	Max.
Funding ratio (%)	1,022	85.39	16.03	19.1	141
Political appointees	1,044	0.23	0.25	0	1
Employee members	1,044	0.50	0.22	0	1
Public members	1,044	0.06	0.12	0	0.6
Investment return (%)	1,043	3.26	12.32	0	0.6
ARC payment (%)	1,044	96.25	66.16	0	1727.7 <sup>6</sup>
Discount rate	1,022	0.08	0.004	0.045	0.09
Benefit (% of payroll)	770	13.23	5.48	0	44.8
Union coverage (%)	1,053	38.84	17.97	10.4	74.8
Covering police/fire	1,043	0.45	0.50	0	1
Covering teachers	1,043	0.50	0.50	0	1
Assets (log)	1,042	15.96	1.28	12.100	19.341

For estimations of the model, we use the panel generalized least squares method (with autocorrelation and heteroskedasticity corrections).<sup>7</sup> Regression results are presented in Table 5.<sup>8</sup>

**TABLE 5**  
**Estimation Results**

VARIABLES	Dependent Variable: Funding Ratio
Political appointees	13.25*** (3.369)
Employee members	9.673*** (3.433)
Public citizens	11.77 (6.213)
Investment return	0.0364** (0.0157)
ARC payment	0.0102*** (0.00335)
Discount rate	-29.67 (78.03)
Benefit	-0.574*** (0.114)
Union coverage	-0.0592 (0.0319)
Covering police/fire	6.019*** (1.267)
Covering teachers	-5.131*** (1.305)
Log (asset)	2.697*** (0.487)
Constant	46.81*** (10.88)
Observations	761

Notes: standard errors in parentheses \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ .

### Results

There are many interesting results with respect to the variables of interest. The percentage of political appointees has a significant influence on the pension funding performance. According to this result, political appointees are more likely to operate a better funded pension system. This finding supports the argument that political appointees are more concerned about the financial condition of the

pension system. Appointed members prefer higher funding performance, because they represent the interests of the political officials, who want a better funded pension system to show a responsible government, or to reduce the financial burden for the people they represent. A well-funded pension system is in the best interest of the politicians and their appointees on the pension governing board.

The percentage of employee members is also significantly and positively related to the pension funding ratio. Employee members prefer higher funding performance, because a better funded pension system gives them security for their retirement and leads to potential for future benefit increases. According to our findings, political appointees and employee members share common interests when it comes to pension funding. Our regression model suggests that, when the system increases representatives from one of these categories, the reform is going to lead to better funding performance. This tells a different story than suggested by previous literature.

Public members on the governing board, however, do not have significant influence over the pension funding performance according to our model. The other control variables show significant results as we expected. Benefit level is negatively related, and contribution and investment variables are positively related to pension funding. Employee types are also influential in deciding pension funding. We find that plans covering police and fire employees are likely to have higher funding and plans covering teachers are likely to have lower funding. The lower funding associated with teachers' plans is also found by previous studies (Eaton & Nofsinger, 2008; Munnell, Aubry & Quinby, 2011). Plan size is positively related to pension funding, which has also been tested by Munnell, Haverstick and Aubry (2008).

### CONCLUSION

Public pension plan governance and its effect on plan funding ratios is an important and topical issue. Using a national level data sample, we examined the relationship between board composition and funding ratio. Based on our model, we find that increasing the proportion of board members who are political appointees and employee members are more likely to lead to better funding performance. This finding suggests that political appointees and employees on the pension board actually share common interests on

pension funding ratios, when investment returns, contribution, discount rate and benefit are controlled for appropriately.

Because of the underfunding problem, state and local governments have taken steps to reform their pension systems. An increasing number of systems have also changed the governance structure, including making changes in board composition, with the expectation that structural reforms will make a difference in pension performance. This study shows that from 2001 to 2009, employee members and political appointees are the two largest groups on public pension governor boards. Over this period, most changes in board composition occurred in these two categories. Reforms in board composition have continued since this time. For example, in 2011, the New Hampshire Retirement System reduced the number of employee trustees and added two trustees appointed by the governor and the council. Louisiana also added two political appointees and two ex-officio members to the boards of trustees for the Firefighters' Retirement System and the Municipal Police Employees' Retirement System in 2011.

The debate, though, still remains on whether a pension system governing board should have more representation from a certain category of board trustees. Some states, such as Idaho and Utah, restrict their employee trustees to a minor portion on the board, while other states, such as New Mexico and Oregon, require employee trustees to constitute a majority of the board. Public administration theories provide different expectations and previous studies offer mixed findings regarding this debate. Depending on the theoretical framework, the logical conclusion in some cases would be that it would be better to have more political appointees than employees, or vice versa.

Our study supports theories that expect political appointees to have a positive influence on funding ratios, as well as theories that expect employee members to have a positive effect, rather than suggesting that one group is "better" than the other. This is contrary to arguments that favor one group over the other for board membership. We did not intend to find the optimal composition of a pension governing board. Instead, our focus is on the effect of the changes in three categories (political appointees, employee members, and public citizens). The results suggest that for a pension system, there is no need to follow some general recommendation to put more



emphasis on either political appointees or employee members as pension board trustees. Increasing both categories could have a positive effect on the funding performance. The study results have implications for public pension systems that consider reforming their board composition.

This study has limitations. We use the proportion of political appointees, employees and public representatives on the board to measure the board composition. However, board composition is more complex than these ratios. Participant trustees can be retirees or active members; non-participant trustees can be ex-officio, appointed members, financial experts, or citizens. In addition, trustees from the same group may markedly vary in their knowledge, willingness and ability to serve on the board. Using ratios has simplified the complexity of board structures. Other aspects of the plan governance may also make a difference, such as the board's authority, decision process, and regulatory environment. Taking these variables into consideration could render a better understanding of the board's influence on pension performance.

For future research, there are more issues to consider regarding pension governance reform. First, the information that the board members receive, as well as the qualifications of the board members, will affect the quality of decision making. Some effective ways to improve the quality of decisions could include providing board education programs, setting minimum expertise requirements for board members, or hiring financial consultants for the board. Second, conflicts among trustees may be an important issue. In this aspect, GFOA (2010) suggests that a code of ethics should be established to clarify board members' roles and responsibilities, and limit the potential conflicts of interests on the pension board. National Association of State Retirement Administrators (NASRA) suggests that a board should establish a comprehensive policy framework, a reporting and monitoring system, and an external control system to ensure that its decisions reflect the best interests of the beneficiaries.

#### NOTES

1. The Minneapolis Employees Retirement Fund (MERF) was left out because it has been merged into the Public Employees Retirement Administration of Minnesota and its previous documents are now not available online. We also excluded two

retirement systems of state universities (University of California, Illinois Universities), because universities' systems are usually administered by a board of regents, which has different composition than other public retirement boards. Six pension systems in Washington State have been excluded; they are administered by the Department of Retirement Systems, while there are several committees/councils with different responsibilities. Economic assumptions and employer pension contribution rates are adopted by the Pension Funding Council, while the Washington State Investment Board makes investment decisions, and an Employee Retirement Benefits Board makes recommendations to the Washington State Investment Board. These boards and councils have different compositions in members.

2. Pension plans that use the aggregated cost method do not report an unfunded liability and always have a full funded plan. In the database, their funded ratios have been recalculated using the entry age normal cost method.
3. In Article XVI, Section 67, Texas Constitution, Subtitle F, Chapter 845, "To be eligible to serve as a trustee a person must be (1) a member of the retirement system and an employee of a participating subdivision; or (2) a retiree of the retirement system."
4. The Arizona Public Safety Retirement System changed its board composition in 2010, which is beyond our study period from 2001 to 2009. The 2011 Comprehensive Annual Financial Report states, "Effective August 6, 1999, it became the Governor's responsibility to appoint all members of the Board of Trustees. Effective April 28, 2010, SB 1006 was passed that changed the name of the Fund Manager to Board of Trustees and expanded the size of the Board from five to seven members." (p. 26)
5. The Denver Employees Retirement Plan is governed by a five member board appointed by the Mayor. There is also a nonvoting advisory committee, which consists of four members, three of whom are elected by plan members.
6. The large value in annual contribution is because some pension plans dramatically increase their contributions in one year to close the underfunded gap. For example, during fiscal year 2002, the Maine Local plan contributed approximately \$163 million to

reduce their unfunded actuarial liability, bringing that year's contribution to 1727.7% of the ARC.

7. The model has also been estimated with panel-corrected standard errors (PCSE). With PCSE estimation, the board composition variables remain significant with the same signs.
8. An argument could be made that there is an endogeneity issue, and that funded ratios have led to decisions about board composition. Given the low proportion of changes in board composition over time relative to changes in funded ratio, we do not believe that this is a concern. Previous studies have also used our approach.

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