

# **Holders of the Purse Strings: Governance and Performance of Public Retirement Systems\***

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## ABSTRACT

Public sector pension plans are managed in diverse ways, with governance policies distinguished according to their board composition and size, how the trustees structure their investment decisions, what restrictions are placed on their investments, and whether they have independent performance evaluations. We examine how these governance policies affect pension investment strategies, and how those strategies in turn affect the funds' financial performance. *Methods.* Drawing on two national surveys of state and local public retirement systems in 1992 and 1993, we ask if pension governance policies affect whether they (1) invest tactically in response to changing conditions; (2) allocate assets between equities and fixed-income holdings; (3) contract for external asset management; and (4) invest outside the U.S. *Results.* Empirical analysis reveals that governance policies – especially independent performance evaluations – predict investment decisions in all four areas. These investment strategies are found in turn to affect subsequent fund performance: preferential investing in equities and abroad increased annual returns on their assets by as much as one to two percentage points. *Conclusions.* The ways that public pensions are governed have a direct bearing on how they invest their assets, and the investment strategies in turn directly affect the financial performance of their holdings.

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Holders of the Purse Strings:  
 Governance and Performance of Public Retirement Systems

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Institutional investors, of whom pension plans are among the most important players, exert a dominant role in global financial markets. A decade ago, institutions held 43 percent of the value of the shares of the 1,000 largest publicly-traded companies in the U.S.; now their share is 57 percent. Two decades ago, institutions held two-fifths of value of British equities; now they control four-fifths. As institutional investors have grown in size and their share of company ownership has risen, so too has their influence. Pension funds' activist pressure for improved corporate governance and performance is now shaping corporate investment policy around the globe (*Investor Relations*, 1995; Useem, 1996, 1998).

Against this backdrop, it is important to recognize that not all institutional investors are created alike – rather, they differ markedly in their governance structures and investment strategies. As a case in point, we consider state and local pension plans in the U.S., a group that controls a portfolio of over \$4 trillion in assets (Barr 1998). To illustrate the diversity of governance structures, some pension plans are overseen by elected officials, while others are managed by self-perpetuating boards. Some have elaborate rules governing investments and evaluating performance, while others have few fixed policies. Some prefer equities over fixed-income, others favor indexing, and still others are drawn to the global marketplace. Some emphasize patient holdings, but others opt for tactical shifting.

In this article we use information drawn from two surveys of U.S. state and local pension systems to explore the links between governance policies, investment strategies, and investment performance. By investor governance, we mean the structure of a pension plan board, along with the complex of rules and practices that guide its oversight of fund assets. We expect investor governance policies to have a direct effect on investment strategies; these include investment decisions regarding whether to take a long-term versus a short-term investment perspective, whether to manage the money in-house or not, and issues regarding portfolio mix. In turn, these are anticipated to have an important bearing on pension fund financial performance.

This topic should be of importance to several audiences. Pension plan participants clearly have a keen interest in how their pension funds are managed. Taxpayers and their representatives should be concerned with how pension plan governance affects investment performance, in order to stretch tax dollars farther. Academics seek to understand how investor governance shapes investment strategies for building theories of institutional investing and its impact on the economy. Reformers of the nation's Social

Security system frequently refer to state and local pension systems as a model for how a national retirement program might work if its assets are invested in the market. If we find that particular governance policies and investment strategies produce superior pension outcomes, these can serve as a blueprint for restructuring the nation's old-age income system.

Our examination of these issues draws on surveys containing extensive information on U.S. public pension plan operations. To anticipate the terrain ahead, we show that pension investment strategies are influenced by specific governance structures including investment restrictions, independent performance evaluations, board purview, and board size and composition. In turn, specific investment strategies including equity and tactical investing, as well as international investing, can influence pension financial performance. Put in practical terms, if just half the pension systems examined here adopted or expanded their use of such investment strategies, the evidence suggests that taxpayers could save close to \$12.7 billion annually while still meeting pension obligations (though achieving those higher returns would probably also require accepting higher risks). Alternatively, benefits could be enhanced by the same amount without raising taxes.

## **GOVERNANCE, STRATEGIES, AND PERFORMANCE**

In a public pension system, a well-functioning governance structure should ensure oversight of operations and accountability of managers, just as in for-profit and non-profit organizations. Pension boards of trustees serve as the appointed or elected agents for state and local governments and pension system participants. As the fiduciaries responsible for the plan's asset management task, trustees are the designated holders of the purse strings.

No public pension governing board would be expected to deliberately drive its assets down, nor its costs up. That is, most pension trustees would be expected to share the same objective of enlarging the plan assets within the limits of prudent investment risk and reasonable administrative cost. But putting this theory into practice takes different forms in different states, and pension board structures and policies vary widely from one system to another. Some boards include retirement beneficiaries, others do not; some set investment allocations, others demur; some have large boards, others small. Retirement systems also engage in widely varying investment strategies.

Whether this diversity of arrangements translates into equally effective financial performance is a question that should interest both taxpayers and politicians, since in practice investment performance varies markedly across plans. On the one hand, some success can be attributed to good fortune, as can some failure. On the other hand, it would be useful to know whether financial shortfalls stem from

systematic and measurable shortcomings in plan governance policies, and, if so, this would indicate that not all policies are equally effective.

If governance policies are found to directly or indirectly affect public pension financial performance, as we expect, it would reconfirm one-side of a long-standing debate on whether governance matters for the operational performance of an organization. This side of the debate posits that the structure, organization, and policies of a board have a significant bearing on what the organization does. On the other side of the debate, however, is the contention that boards are little more than window-dressing, intended to impress or calm outside constituencies, whether owners, donors, or politicians, but of little real consequence for the organization since they are nearly powerless compared with top management (Lorsch, 1989; Roe, 1994).

We recognize, of course, that the relationship between governance, strategy, and performance is a dynamic one. That is, if a pension system performs poorly one year, its managers might change investment strategies (i.e. move assets from bonds to stocks), and its trustees may even consider changing its governance as well (i.e. request an independent evaluation of investment performance). Nevertheless in the present article we focus on how governance affects investment, and how in turn both impact near-term financial performance. We leave to future research an analysis of the actions of other potential interest groups in the public pension arena, including state legislatures, city councils, employee unions, and voters as they shape the legal and policy framework within which trustees decide and managers invest. We leave analysis of long-term financial performance to future research as well.

## **RETIREMENT SYSTEM INVESTMENT STRATEGIES**

To examine public pension plan investment strategies, we explore four quantifiable measures: (1) tactical investment; (2) equity investment (the fraction of pension assets placed in stocks); (3) outside investment management (whether asset management is contracted to outside investment firms); and (4) international investment (whether the plan invests outside the U.S.). We concentrate on these four because they are among the key investment decisions that pension managers make and because our data-set contains good information about each.

The primary data-set used is an extensive survey of 291 state and local retirement plans conducted in 1993 for the Public Pension Coordinating Council (Zorn, 1994). The survey acquired information on the plans for 1992, and the plans encompass most of the major state and local systems in the U.S. The responding pension funds together held more than four-fifths of the assets and accounted for more than four-fifths of the beneficiaries of all U.S. public pensions in that year (England, 1996; General Accounting Office, 1996; Mitchell and Carr, 1996). For financial performance data, we draw

upon a follow-up survey of the same pension plans that acquired information on their investment performance for the following year, 1993 (Zorn, 1996). The survey data are publicly available, a release that serves as an incentive for the responding systems to report accurate and complete information. In sum, the data on the public pension funds' governance policies and investment strategies are from a national cross-sectional survey of 291 funds for 1992, and their 1993 financial performance data are from a subsequent survey of the same funds.

The median asset value for this group of state and local retirement systems was \$219 million in 1993; since some of the plans are very large, the mean asset value for the group stood at \$2.75 billion. Most of the plans – over nine-tenths – use defined-benefit rather than defined-contribution plans. Turning to the four investment strategies of most interest, we offer in Table 1 a set of descriptive statistics for these public pensions.

[Table 1 about here]

**Tactical Investment.** The extent of pension plan tactical investing is captured with two survey questions that ask whether asset allocation is “tactically set (i.e., changed often with varying economic conditions)” or “long-term (i.e., not changed often with varying economic conditions).” Among these plans, 28 percent either use a tactical approach or eschew a long-term approach. A related indicator of investor time horizons is the percentage of the systems' assets held in cash and short-term instruments. Tactically-oriented funds would be expected to place more of their investments in such holdings than would long-term funds, and in this data-set, non-tactical investors held almost five percent of system assets in cash and short-term instruments, while tactical investors held nearly 10 percent ( $p < .001$ ). Our measure is simply whether the public pension set its asset allocations tactically or eschewed long-term considerations.

**Equity Investment.** The second investment strategy variable captures the extent to which a public pension plan's portfolio is devoted to stocks, real-estate equities, and other forms of equity. Research on *private* pension plans indicates that asset allocation is a key driver of fund financial performance. In particular, the asset allocation decision between equity and fixed-income investments may play a greater role than the tactical movements of holdings within asset classes in shaping system performance (Brinson, Hood, and Beebower, 1986; Brinson, Singer, and Beebower, 1991). Table 1 shows that state and local pension systems held 42 percent of their investment assets in equities and 50 percent in fixed-income assets; the remainder was primarily cash. These asset allocations are similar to those reported in other surveys. Salisbury and Jones (1994), for example, found public pensions allocating 47 percent to equity and 47 percent to bonds in 1992. This allocation stands in sharp contrast to the prevalent pattern just a decade earlier. In 1980, state and local funds placed just 22 percent of their assets in equities, with

70 percent going to bonds (Silverman et al., 1995; Brancato and Crum, 1995). As our measure of equity investment, we use the plan's equity holding as a percentage of its total assets.

**Outside Investment Management.** The third indicator of investment strategy is whether the pension fund managers outsourced management of their assets to external investment firms. A separate 1993 survey showed that over 60 percent of state and local systems' assets were managed externally, with \$24 billion consigned to insurance companies, \$201 billion contracted to external investment advisors, and \$412 billion assigned to bank trust departments (Brancato and Crum, 1995). In our data-set too, a majority of the public pension plans – 77 percent – placed all of their funds under external management. Our measure here is whether a pension plan has contracted all of its assets for outside investment management.

**International Investment.** The fourth indicator of retirement plan investment strategy is whether the fund had placed some of its assets in international investments. Most public pension systems in the U.S. hold relatively little money in non-US stocks and bonds. In our data-set, only 35 percent held any international stock, and none placed more than a fifth of its assets in such holdings. Only 22 percent held any international bonds, and none allocated more than a tenth of its assets to such instruments. These international investments are relatively modest, and to streamline the analysis we focus on the plan's decision to invest abroad at all. The measure we use, international investment of at least some assets, is highly correlated with levels of non-U.S. equity (0.69) and non-U.S. bonds (0.50). (The results presented below are similar if levels are used instead of our binary indicator.)

### **Expected Effects of Investment Strategies**

All four investment strategies are anticipated to influence the pension plans' financial performance. Specifically, tactical investing may raise returns on assets during the year ahead. This is because adapting portfolio holdings to changing economic circumstances is the essence of active investment management, and if it is effective, it should produce better returns during the year ahead. On the other hand, active management is more costly than a passive indexing strategy, and there is a suggestion that active management may not generate higher net returns after management fees (Hsin and Mitchell, 1997a, b).

Outsourcing of asset management should also improve investment returns since outside investment managers are likely to bring superior professional experience and skills to the pension plan investment decisions. Moreover, contracting-out allows a retirement system to change its investment managers more readily in response to poor performance. As a public agency, the pension fund is likely to find it more difficult to oust inside managers for weak results than to dismiss an outside firm for comparable shortcomings. Finally, outside managers are likely to be better shielded against political

pressures to pick state and local companies for investment. A comparison of internally-managed pension funds with mutual funds during the late 1970s and early 1980s revealed lower risk-adjusted returns among the former, suggesting that external management has yielded superior results in the past (Berkowitz, Finney, and Logue, 1988).

The other two investment strategy variables we use – pension preferences for equities over bonds, and international over domestic holdings – are also expected to affect pension investment performance. This is because recent analysis indicates that asset allocation decisions are more significant drivers of performance than market timing or the selection of specific securities (Brinson, Hood, and Beebower, 1986; Brinson, Singer, and Beebower, 1991; Ambachtsheer, 1994). Other research shows that over the last several decades U.S. equities have outperformed government bonds, and foreign stocks have outperformed domestic equities (Siegel 1994; Ibbotson Associates, 1996; Engebretson, 1995). As a result, retirement systems that placed more assets in U.S. equities, and more in international holdings, should be expected to have achieved higher returns on assets, though in doing so they are also likely to have shouldered higher risks as well.

## **RETIREMENT SYSTEM GOVERNANCE STRATEGIES**

While state and local pension plans all have similar goals – that is, they seek to pay promised retiree benefits with a low tax burden on the public – there is nevertheless considerable variation across their organizational structures. That is, some retirement systems have instituted elaborate rules and policies, while others have relatively few; some boards are actively involved in setting investment strategies, while others leave it to system administrators; some boards include present and former public employees, and others do not.

In thinking about how these management structures in the public sector might influence pension plan performance, it is useful to reflect on lessons to be drawn from the corporate governance arena (c.f. Blair, 1995; Bowman and Useem, 1995; Charkham, 1994). Specifically, one line of research on corporate governance shows that the independence of directors from top management powerfully affects both company strategy and corporate performance. Boards with more independent directors are more likely to take an active part in the company's strategic decision-making; they are less likely to be sued for breach of fiduciary obligations by shareholders; and they are more likely to resist "greenmail" payments (the purchase of a block of shares at above market price from a large stockholder threatening to take control or unseat management). As with any organizational record, however, the tally is mixed. Boards with more independent directors more often do not have poison pills and resist tender offers. They are more likely to adopt golden parachutes for top management. And under some conditions, independent boards

are more likely to dismiss chief executives of poorly performing companies, though under other conditions are less likely to do so (Singh and Harianto, 1989; Kosnik, 1987; Judge and Zeithaml, 1992; Cochran, Wood, and Jones, 1985; Mallette and Fowler, 1992; Kesner and Johnson, 1990; Weisbach, 1988; Ocasio, 1994).

Drawing on this literature but recognizing key differences pertinent to the public sector, we focus on six areas of pension plan governance where we believe the impact on investment strategies may be greatest and where we have survey information. These areas include: (1) investment restrictions; (2) independent performance evaluations; (3) board responsibility for asset allocations; (4) board direct responsibility for investment decisions; (5) board size; and (6) board composition. The proportion of the retirement systems using each of these governance practices appears in Table 2.

[Table 2 about here]

**Investment Restrictions.** Some state constitutions set restrictions on investment allocations, but nearly three-quarters do not. The Kansas Constitution, for instance, still outlaws ownership of bank stocks (Rehfeld, 1996). Such restrictions have usually been adopted to limit investment risk, so one would anticipate that systems with such restrictions would be more likely to skew their investments toward low-risk fixed-income holdings. Our measure for this analysis is whether the pension plan is subject to formal restrictions on its investments.

**Independent Performance Evaluations.** Many retirement systems hire independent organizations to offer an annual evaluation of their performance, but some go without such external appraisals. An independent evaluator brings the knowledge of other funds to bear in rendering a judgment and can furnish detailed professional guidance on how to improve pension fund performance in light of the evaluation. For example, since equities have outperformed fixed-income instruments in recent years, external evaluators would be expected to push retirement systems to move more assets into equities despite the additional risk this entails (Siegel, 1994). Our indicator here is whether the pension fund conducts an independent annual evaluation of its performance.

**Board Responsible for Assets Allocations and Investment Decisions.** Retirement system trustees are usually not professional money managers, and hence they may be unfamiliar with the issues and considerations that go into making day-to-day investment decisions. Still, some pension boards fix the allocation of assets among classes of investments, and some even take a direct hand in picking the investments. The data set provides measures for both aspects of trustee engagement in investment strategies – whether a board sets asset allocations and whether the board is directly responsible for investments – and we anticipate that plans with trustees more engaged in either area will pursue less tactical investing strategies.

**Size and Composition of the Board.** The size of corporate boards has previously been shown to affect company performance. For example, a study of large industrial firms reveals that companies with fewer directors have stronger incentive compensation plans for their chief executives, are more likely to dismiss under-performing CEOs, and display better financial results (Yermack, 1996). Pension funds with smaller boards might similarly be expected to stress tactical investing and to outsource asset management. The composition of a pension governing board would also be expected to affect investment strategies. Here we focus on the fraction of trustees who are themselves active or retired members of the retirement system. Having member-trustees has been found in previous research to affect the actuarial assumptions followed by the pension fund (Hsin and Mitchell, 1994; Mitchell and Hsin, 1997). Perhaps less confident about their own abilities to make investment decisions, beneficiary-populated boards may press their systems to seek outside fund management. They may also be more immune to local pressure to steer investments toward politically popular but financially unwise targets within their state or region (Romano, 1993). Our measures are the number of trustees on a pension's board and the percentage of the trustees who are themselves participants in the plan.

#### **Illustration: The California and South Carolina Public Pension Systems**

Two pension funds – the California Public Employees' Retirement System (CALPERS) and the South Carolina Retirement System – illustrate some of the range in governance policies and investment strategies among state pension funds. At the time of survey for 1992, the governing board for South Carolina consisted of 5 trustees, all plan participants; the governing board for CALPERS had 13 members, 10 of whom were participants. While investment restrictions were not set by South Carolina's constitution, a century-old statute prohibited equity investments, and none of its almost \$11 billion in assets were held in equities. By contrast, CALPERS' managers of a much larger asset pool of \$75 billion faced neither constitutional nor legislative restrictions. As a result, its board allocated 52 percent to equity holdings. The South Carolina public plan invested entirely within the U.S., while CALPERS held a more globally-diversified portfolio.

Partly as a result of their different investment policies, the two pension funds experienced different investment returns in 1993. South Carolina's investment managers returned a 9.8 percent rate on assets, while California's pension managers produced a 14.8 percent return. Clearly the risk of the two portfolios differed, but if South Carolina had mimicked CALPERS' investment strategies, its higher rate of return would have saved the state's taxpayers \$53.5 million that year alone.

## **MULTIVARIATE ANALYSIS**

To further explore the relationship between public plan governance policies, investment strategies, and investment performance, we undertake a two-step multivariate empirical analysis. First we explore the effects of governance policies on investment strategies to determine whether there is any linkage between the two. Second, we regress investment performance, defined here as the return on assets a year later, on governance policy and investment strategy to assess the impact of the two sets of factors on the performance outcome.

The results in Table 3 show that governance has a potent effect on investment strategies. Focusing just on retirement plans with constitutional restrictions on investments, these funds place less money in equities and more in fixed income investments, are less likely to manage their assets tactically, and tend not to be globally diversified. Systems with annual independent performance evaluations put more money in equities and international holdings, but invest less tactically. Plans whose boards are charged with setting allocation policies are less likely to invest tactically; those with larger boards are more likely to tilt toward equity and international investments, and toward inside management of the investments. On the other hand, board composition, measured as the fraction of members who are plan participants, has little measurable bearing on these investment strategies.

[Table 3 about here]

The impact of investor governance on investment strategies is substantial: the vector of governance characteristics accounts for over 22 percent of the cross-plan variance in the fraction of funds held in equities. The retirement plans placed 42 percent of their investment funds in equities on average. Our results suggest that expanding the pension board size by three trustees (a nearly two-fifths increase from the mean of 8 trustees) would be associated with having 2 percentage points more in equities. Independent performance appraisals increase the equity fraction by 14 percentage points and constitutional investment restrictions reduce equity holdings by 7 percentage points. In other words, governance structures have a potent effect on investment patterns.

Next we turn to an examination of public pension system investment performance, measured as the annual rate of return on assets one year later. Some retirement systems produce much higher returns on assets than others: for instance, the mean return across the systems stood at 11.9 percent in 1993, but the standard deviation of 2.96 indicated that over a third of the funds reported returns below 9 percent or greater than 15 percent. For this analysis, we introduce two additional factors as controls: 1) a measure of system size, gauged as the natural log of the system's total assets, to capture any scale economies, and 2) investment risk, gauged as the lagged standard deviation of returns on assets over the prior five years (1988-92). We note in passing that data on all variables are available for only about half of the surveyed pension plans. Funds providing full information proved to have somewhat more assets

on average than the entire set of surveyed funds (\$3.7 billion versus \$2.8 billion), but their return on assets was about the same (12.0 versus 11.9 percent). They were less tactical in investing (22.1 v. 27.9 percent), more favorable toward equities (46.4 v. 41.7 percent), equally given to outside management (74.0 v. 75.0 percent), and more prone to invest abroad (51.0 v. 41.5 percent).

The multivariate regression analysis reported in the first column of Table 4 suggests three conclusions. First, investment strategies are powerfully linked to subsequent plan financial performance. Public pensions that followed tactical investing, emphasized equities, and invested abroad realized substantially higher returns in the next year. Second, governance policies have little independent effect on public pension plan financial performance: regression coefficients for all six measures of governance policy except one fall below statistical significance. Finally, all ten factors combined account for over one third (38 percent) of the variance in rates of returns across the systems, and just three – tactical investing, equity investing, and international investing – account for the bulk of the explained variance.

[Table 4 about here]

These conclusions hold even when portfolio size and risk are taken into account using the log of a plan's assets and the standard deviation of its annual rate of return over the five prior years (1988-92). When added to the regression as reported in the second column of Table 4, these two factors are seen to alter the results very little.

The magnitude of the statistically significant estimated effects on public plan investment performance can be assessed by noting that the state and local pension funds achieved an average rate of return of 11.9 percent in 1993. Using the results from the second column in Table 4 which hold other things constant, a retirement system that held more equities by a standard deviation above average (19 percentage points) – and assuming its specific equity holdings resembled that of pensions standing a standard deviation above average – added 1.1 percentage points to its investment return. And a plan that pursued international investment opportunities (again, assuming it created a typical international portfolio) could add 1.9 percentage points to its return, according to these estimates. In a domain where differences are calculated in basis points (hundredths of a percent), the magnitudes of these responses is substantial. (They may also reflect the willingness of boards to take on additional risk, though our controls mitigate this effect.)

It should be noted that equity selection and, especially, international investing may be more costly than buying domestic bonds. To examine this possibility, we calculate retirement system investment expense ratio by dividing annual investment expenses by assets. While the mean expense ratio is 0.32 percent, it declines with system size ( $r = 0.18$ ,  $p < .05$ ). There is no evidence that the ratio is correlated

with our four investment strategies (results not reported in detail here), which means that the net asset return patterns would be similar to those in Table 4.

Drawing on the results reported in Tables 3 and 4, we see that how pension plans are governed has real impact on how they invest their assets. In turn, their investment decisions have real impact on the returns from the investments. Contrary to a view that governance matters little since boards are more ceremonial than influential, the evidence indicates that governance has an important indirect bearing on financial performance through its shaping of investment strategies. Of immediate practical significance are the implications for federal policy making. From the behavior of state and local pensions observed here, we can suggest that the investment strategies and financial returns of a national retirement system that is given an opportunity to invest its assets will significantly depend on how its governance is configured in the ways that we have described.

## **CONCLUSION**

State and local retirement systems vary considerably in their investment strategies, governance policies, and investment performance. We show that good governance practices can do little to improve on that portion of performance that is a random walk, but governance policies do influence investment strategies, and investment strategies in turn shape financial performance. Our evidence implies that governance has little direct impact on performance apart from what is mediated through investment strategies, as summarized in Figure 1. Four governance policies – investment restrictions, performance evaluations, board purview, and board composition/size – have an important link with public plan investment strategies. Two of the investment strategy variables, notably equity and international investing, are associated with higher fund performance the following year, controlling for other factors. These results imply that asset allocation accounts for a large element of the difference in returns among retirement systems.

The magnitude of these effects is substantial. If the average retirement system with assets of \$2.75 billion placed 20 percent more of its holdings in equities and moved some of its holdings abroad, it could have earned 3.2 percentage points more return per year, other things equal. The difference could have been used by the typical system to reduce taxes, or increase benefits, by \$88 million annually. Another way to gauge the size of the estimated effects is to note that total assets under management across the retirement systems in our data-set stood at \$794 billion in 1992. If just half the funds had been able to add 3.2 points to their return on assets in 1993, by year's end they would have increased plan generosity or reduced their demand for state and local taxpayers' money by \$12.7 billion.

Of course, there remain differences in risk and return associated with different portfolio mixes in different periods. For instance, domestic equities lost value in the October 1987 stock market crash, and international equity fell in December of 1994 with the Mexican peso meltdown, and in many Asian markets following the July 1997 devaluation of the Thai currency. The specific parameter reported in Table 3 and 4 are thus likely to vary some from year to year. Moreover, taxpayers may differ across jurisdictions in their willingness to bear this risk. Nevertheless, our empirical findings are unlikely to change: the ways public pensions are governed have a direct bearing on how they invest their assets, and the investment strategies in turn directly affect the financial performance of their holdings.

Not all governance policies appear to have equal impacts on pension fund performance. While establishing best practice in the field of governance will require confirmation with other data sources, it appears that having regular independent evaluations of system investment strategies and few restrictions on those strategies is likely to be beneficial.

Forecasting which systems are likely to reconsider their own governance is beyond the scope of the present study but some suggestions can be offered. Several public pension plans have recently reevaluated how their boards function, and our findings are supportive of their reappraisal efforts (Ruyter, 1995; Koppes, 1996; California Public Employees' Retirement System, 1996). One factor that might predict the restructuring of a public pension's governance is poor financial performance. If confirmed, this would add an upward arrow connecting the two boxes on the left-hand side of Figure 1, completing the a full-circle linkage of public plan governance, investment strategy, and performance. As a case in point, the Texas Teachers' pension system returned only 2 percent on assets in 1994, whereupon the state legislature forced out its director and demanded an independent evaluation.

Our conclusions regarding public plan management parallel some of those drawn from the corporate governance literature. In a study of large, publicly-traded corporations, for instance, board structure was found to affect the CEO's total compensation, and in turn the CEO's pay predicted the firm's subsequent return on assets (net of economic factors; see Core, Holthausen, and Larcker, 1996). Hence it is not surprising that how the public pension strings are held affects how the purse is invested, and in turn this predicts how full the purse grows.

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**TABLE 1**

**Public Retirement System Investment Strategies**

<b>Investment strategies</b>	<b>Mean</b>	<b>St. Dev.</b>
Tactical investment*	27.9%	44.9
Equities as % of total assets	41.7	18.6
External asset management*	75.0	43.4
International investment of some assets* 41.5	49.4	

Note: \*Percent of retirement systems reporting using this investment strategy in 1992; the number of retirement systems ranges from 232 to 279. Source: Authors' calculations.

**TABLE 2**  
**Public Retirement System Governance Policies**

<b>Governance Policies</b>	<b>Mean</b>	<b>St. Dev.</b>
Investment restrictions*	26.9%	44.4
Independent performance evaluation*	70.6	45.7
Board purview:		
Board sets asset allocations*	72.7	44.6
Board directly responsible for investments*	48.6	50.1
Board composition/size:		
Number of plan trustees	7.90	3.49
Plan participants as % of trustees	63.1	25.9

Note: \*Percent of retirement systems reporting this governance policy in 1992; the number of retirement systems ranges from 279 to 286.  
Source: Authors' calculations.

**TABLE 3**

**Estimated Effects of Governance Policies on Public Pension Investment Strategies**  
(standard errors in parentheses)

<b>Explanatory Variables: Governance Policy</b>	<b>Tactical Investment</b>	<b>Equities as % of total</b>	<b>All External Management</b>	<b>Some Int'l. Management</b>
Investment restrictions	-1.44 (0.46)**	-7.59 (2.34)**	-0.41 (0.39)	-0.24 (0.33)
Independent performance evaluation	-1.60 (0.38)**	14.08 (2.34)**	0.55 (0.41)	1.48 (0.38)**
Board purview:				
Board sets asset allocations	-1.88 (0.40)**	3.97 (2.64)	0.75 (0.42)	-0.41 (0.37)
Board responsible for investments	-0.12 (0.37)	1.59 (2.15)	-0.11 (0.36)	0.05 (0.30)
Board composition/size:				
Number of trustees	-0.54 (0.57)	0.63 (0.31)*	-0.11 (0.05)*	0.09 (0.04)*
Plan participants as % of trustees	0.14 (0.66)	-4.28 (3.97)	-1.23 (0.70)	0.67 (0.58)
R <sup>2</sup> or log-likelihood/concordant pairs	209/82.2%**	0.226**	219/76.7%*	293/62.1**

Notes: \*\* p <.01; \*p<.05; regression are based on 254, 243, 215, and 235 retirement systems, respectively; linear regression for equities as % of total; logistic regression for other variables. Source: Authors' calculations.

**TABLE 4**

**Estimated Effects of Governance Policies and Investment Strategies  
on Return on Public Pension Assets**  
(standard errors in parentheses)

**Dependent Variable: Rate of Return on Assets**

<b>Explanatory Variables: Investment Policies and Governance Strategies</b>	<b>(1)</b>	<b>(2)</b>
<b>Governance Policies</b>		
Investment restrictions	-0.23 (0.59)	-0.16 (0.59)
Independent performance evaluation	0.81 (0.67)	0.43 (0.72)
Board purview		
Board sets asset allocations	-0.72 (0.71)	-0.48 (0.76)
Board responsible for investments	0.18 (0.51)	0.43 (0.55)
Board composition/size		
Number of trustees	-0.08 (0.06)	-0.15 (0.07)*
Plan participants as % of trustees	-1.16 (10.6)	-1.16 (1.07)
<b>Investment Strategies</b>		
Tactical investing of assets	1.69 (0.65)*	1.25 (0.69)
Equities as % of total assets	0.07(0.02)**	0.07 (0.02)**
External management of all assets	0.58 (0.58)	0.71 (0.58)
International investment of some assets	2.17 (0.52)**	1.87 (0.56)**
<b>Other Controls</b>		
Investment risk (s.d. of annual ROA for 1988-92)		0.05 (0.09)
System assets (ln)		0.41 (0.30)
<b>Multiple R<sup>2</sup></b>	<b>0.38**</b>	<b>0.41**</b>

Note: \*\* p <.01; \*p<.05; regression based on 104 retirement systems; linear regression for ROA.  
Source: Authors' calculations.

**Figure 1. Summary of Findings**

