Corruption, Governance, and Public Pension Funds

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Abstract

We examine the effects of state corruption as well as political and governance factors on U.S. public pension funds. We find that pension funds in states with more corruption have lower performance; a one standard deviation increase in corruption is associated with a decrease in annual returns of at least 17 basis points, and this relation is robust to state-level and pension-level fixed effects. Pensions located in more corrupt jurisdictions also invest a larger fraction of their assets in equities. We find that having a new treasurer decreases the negative effects of corruption, suggesting that frequent changes in administrations are beneficial in corrupt jurisdictions. Governance-related variables and political affiliation variables are by themselves not significantly related to pension returns, although these variables are associated with differences in asset allocation.

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I. Introduction

In the U.S., public pension fund assets amounted to over three trillion dollars in 2008, and more than 26 million Americans including 19 million contributors and 7.7 million beneficiaries participate in public pension plan.[1] There is some evidence that public funds underperform their private counterparts and some commentators suggest that inappropriate political influence is one cause of this poor performance (Coronado, Engen, and Knight, 2003; Bentley, 2009). One example of how corruption can affect pension funds occurred in New York State where investment firms were allowed to manage pension funds in return for fees paid to associates of the state treasurer (see, for instance, Hakim and Walsh, 2009). The New York case involved specific payments to administration officials, or people around them, charged with overseeing the pension fund, but corruption can more generally involve a number of different persons associated with pension management and oversight. Thus, rather than examining the role of a particular individual, we hypothesize that corruption can permeate the state organization as a whole, and that this implies inferior and biased investment decisions which lead to lower investment returns for the state's pension funds. This view of a general culture of corruption is consistent with the management literature (see, for instance, Ashforth and Anand, 2003).

In this paper, we consider the relation between corruption and public pension plan performance in the U.S. Studying this relation allows us to quantify the pension performance reduction associated with corruption. We also consider whether governance or other political factors mitigate these negative effects of corruption.

[1] See Novy-Marx and Rauh (2011) for an overview of US pension funds, and also http://www.census.gov/govs/retire/2008ret01.html and http://www.census.gov/govs/retire/2008ret05a.html.

We consider two measures of corruption commonly used in the literature. We use the number of per capita convictions of officials within a state for abuse of public office as one measure of corruption (see, for instance, Butler, Fauver, and Mortal, 2009), and a measure of corruption based on surveys of State House reporters (Boylan and Long, 2003) as our alternative measure. Our analysis considers whether the relationship between pension performance and corruption is driven by differences in asset allocation across classes, and we test whether differences in pension-level governance measures or state wide political differences mitigate the negative relation between corruption and pension returns.

We find that corruption is significantly negatively associated with pension returns; a one standard deviation increase in corruption is associated with a decrease in annual returns of at least 17 basis points in cross-sectional regressions. Moreover, this relation is robust to state-level fixed effects, thus greater corruption over time is associated with significant decreases in pension performance, and this is consistent with pensions in more corrupt jurisdictions choosing assets based on political connections rather than performance.[2]

We examine several political and governance factors to see if they are associated with pension fund performance, and if they decrease the impact of corruption on pension returns. In most states, the state treasurers are involved in the governance of public pension plans and provide oversight of public pensions (see Johnson, 2009, and many state treasurers' web pages discuss overseeing the state retirement system).[3] Thus, we examine the political affiliation of the state treasurer (or equivalent office holder), and whether a

[2] Alternatively, the negative relation between our measures of corruption and pension returns could be due to the discovery of corruption, and the clean-up associated with any problems stemming from it.

[3] A counterexample is Texas, where the duties of the treasurer are undertaken by the Comptroller of Public Accounts; however, this person does not oversee Texas public pension funds. Dropping Texas from the study does not change our results.

new treasurer has just taken office. Hutton, Jiang, and Kumar (2013) argue that firms with Republican managers use more conservative policies. We therefore test whether pension funds under Republican state treasurers take on less risky investment strategies. Additionally, we test whether a change in state treasurer is associated with differences in returns, as new treasurers may be more likely to reevaluate certain assets. We examine several governance measures based on the existing literature. Yermack (1996) finds that firms with smaller boards have higher valuations, and a number of studies examine the relation between board composition and firm performance with mixed results (see, for instance, Bhagat and Black, 1998). To control for governance, we include the size of the board, the board composition (measured as the fraction of board members who are plan participants), and whether there is a separate investment council in our analyses.

We find that a change in political administration in the state treasurer's office is associated with the temporary elimination of the negative effect of corruption on pension returns. The results suggest that a change in leadership in more corrupt jurisdictions can, at least temporarily, clean house. These results complement Olken (2007), who finds that a top-down approach, specifically increasing government audits, can decrease the effects of corruption. The results also agree with Abbink (2004) who shows that randomly rotating staff can reduce the effects of corruption.[4]

We find that other political and governance variables are by themselves unrelated to overall pension performance. Moreover, interactions between political party affiliation

[4] A separate literature considers the relation between voting and corruption. Ferraz and Finan (2008) show that media attention reduces the probability that incumbents in corrupt jurisdictions will be reelected, and Ferraz and Finan (2011) find that politicians with greater reelection incentives are more likely to reduce corruption. See also Rose-Ackerman (1999), particularly p. 130-132, for an overview of the relation between voting and corruption.

and corruption are largely insignificant; corruption affects Democratic and Republican controlled pensions roughly equivalently.

While our focus is on examining the degree to which funds in more corrupt states underperform, we also examine the relation between corruption and fund asset allocation decisions. Brinson, Hood, and Beebower (1986) and Brinson, Singer, and Beebower (1991) show that a pension fund's portfolio allocation policy across broad asset classes is a more important determinant of its total investment returns than market timing or the selection of specific securities. Useem and Mitchell (2000) also show that asset allocation explains a large proportion of the difference in returns among retirement systems.

Empirically, we find that corruption is significantly related to pension fund allocation decisions. Specifically, public pensions in states with greater corruption are more likely to hold risky assets such as stocks and alternative investments. However, holding these risky investments does not lead to higher returns in more corrupt states. This evidence is consistent with Hochberg and Rauh (2013) who show that pension funds overweight home-state private equity investments, that these investments underperform on average, and that this overweighting is more severe if corruption is greater.

Our empirical results are based on a panel of pension funds from the Public Plans Database (PPD) from the Center for Retirement Research at Boston College, and we also verify our results using the State and Local Public Retirement Systems Database from the Census Bureau. This is the first study of which we are aware to examine the impact of state corruption on overall pension performance, and our findings of a negative relation between corruption and pension returns, and of the mitigating influence of changes in treasurers, are consistent for both data sets.

The remainder of the paper is organized as follows. Section II provides a brief literature review. Section III discusses the data and methodologies that we use. Section IV presents the results of our empirical analysis. Section V concludes.

II. Prior Literature

The degree of corruption differs markedly across states in America. Meier and Holbrook (1992) find that state-level corruption is related to cultural factors as well as to the size of government. Glaeser and Saks (2006) show that states with higher levels of education and greater wealth have less corruption. Butler, Fauver, and Mortal (2009) demonstrate that state corruption and political connections strongly affect several aspects of municipal bond sales and underwriting. In particular, higher state corruption is related to greater credit risk, higher bond yields, greater use of external credit enhancements, and a greater likelihood of using lower quality underwriters.

Romano (1993) provides an overview of the governance of public pension funds and how it relates to their investment decisions. She provides several examples of how political pressure increased in-state investment. Brown, Pollet, and Weisbenner (2012) investigate how 20 state pension plans allocate their equity portfolios. They find that state pension plans significantly overweight the stocks of companies that are headquartered in the state where they manage their portfolio. Their evidence shows state pension plans in more corrupt states are more likely to hold stocks of firms domiciled in the home state, and they point out that political influence likely plays a role in the stock selection process.

Hochberg and Rauh (2013) examine the allocations and performance of institutional investor investments including those by public pensions in private equity funds. They also

find that institutional investors allocate more of their portfolio to funds in their home state and that this home bias is greater for public pension funds. In contrast to Brown et al. (2009), Hochberg and Rauh find that the performance of public pension funds' own-state investments is much worse than their out-of-state investments. In addition, Hochberg and Rauh find that pension funds in states with higher levels of corruption overweight own-state investments, suggesting that political pressures may be associated with the tendency to invest disproportionally in local funds.

A related literature explores the relationships between governance policies, investment strategies, and investment performance. Useem and Mitchell (2000) provide evidence that governance policies including investment restrictions, performance evaluations, board purview, board composition, and board size have little direct effect on the financial performance of public pension plans but have strong effects on investment strategies, implying that governance has an indirect impact on performance through investment strategies. Harper (2008) examines the influence of pension fund board structure on investment and funding policy decisions. He shows that the composition of the board of trustees is not associated with investment returns but is strongly associated with the funding status (i.e., the ratio of the assets to liabilities) and asset allocation.

Bauer, Cremers, and Frehen (2010) note that pension size plays an important role in US pension fund returns on US equities. They provide evidence that smaller funds outperform large funds. Dyck and Pomorski (2010) point out that Bauer et al. (2010) only look at US plan returns on US equities but ignore other possible impacts of fund scale on alternatives assets and at the overall plan level. Using a defined benefit pension plan database, they document that larger plans outperform smaller plans, suggesting substantial

positive scale economies in asset management. They attribute most of the larger plans' higher returns to an increased allocation to alternative investments and to the greater returns from this asset class.

III. Data and Method

Our primary measure of state corruption is the number of per capita corruption convictions of local, state, and federal officials within that state, a widely adopted measure of corruption (see Goel and Rich, 1989; Fisman and Gatti, 2002; Fredricksson et al., 2003; Depken and Lafountain, 2006; Butler et al., 2009; Brown et al., 2009). Meier and Holbrook (1992) and Glaeser and Saks (2006) show that this corruption measure is positively related to cultural and economic variables, including the degree of urbanization, the education level, the immigrant background, the size of government, and average wealth levels.

As these convictions come from Department of Justice actions, they reflect a uniform national enforcement policy. Liu and Mikesell (2014) show that this corruption measure is not significantly associated with the work-hours of U.S. attorneys, with the number of federal judges, with the district courts' caseloads per judge, or the amount of pending cases per judge. Liu and Mikesell (2014) argue that more convictions within a state imply greater corruption, rather than differences in long-term enforcement policies.

In contrast, Boylan and Long (2003) argue that corruption convictions also reflect differences in prosecutorial effort. They construct an alternative corruption index based on surveys of State House reporters; Boylan and Long received responses from reporters from

47 states for this corruption measure.[5] However, the Boylan and Long index, which we refer to as Corruption_BL in the tables, is not time-varying, and we therefore use it as a secondary measure of corruption.

We collect the number of state corruption convictions and the state population from 1993 through 2009. The state corruption convictions are available from the U.S. Department of Justice Public Integrity Section. The corresponding state population is gathered from the Census Bureau database. States such as Alaska, Kentucky, Louisiana, North Dakota and South Dakota have relatively high levels of corruption, whereas states like Oregon, New Hampshire, Kansas, and Minnesota have relatively low levels of corruption. Panel A of Table I presents details on the average corruption level by state. As an alternative measure of corruption, we consider the number of corruption convictions per 10,000 state employees. As the results are quite similar with either measure, this alternative analysis is not reported.

We obtain data on pension plans from two sources: the Public Plans Database (PPD) at the Center for Retirement Research at Boston College and the State and Local Public Retirement Systems Database compiled by the Census Bureau. The data on the PPD are collected from plans, annual reports, actuarial valuations, member handbooks, and contact with plan administrators. This database contains comprehensive financial, governance, and plan design data for 126 state and local defined benefit plans from 2001 through 2009. These include 107 state-level pension plans and 19 local pension plans, and these pensions

[5] Boylan and Long do not have data from Massachusetts, New Hampshire, or New Jersey.

represent more than 85 percent of all state and local government pension assets and members.[6,7]

We collect several variables from the PPD data set including time-weighted returns after investment and administrative expenses, a widely adopted return for public pension plans. This performance measure negates the effect of cash inflows and outflows (contributions and benefits) and thus provides a good measure of fund performance (see Feibel, 2003). We also collect administrative and investment expenses, benefit payments, funding ratios, market values of assets, the number of retirees, the number of board members, the total participants on the board, a dummy variable for whether the pension fund has a separate investment council, and the fraction of pension assets placed in various asset categories such as stocks, bonds, cash and other short term investments, alternative investments, and other investments. The advantage of this data set is that it includes variables related to pension governance (total board members, total participants on the board, and whether the fund has a separate investment council), and funding status (funding ratio) which do not appear in the Census Bureau data.

The total participants on the board equals the number of trustees who are themselves participants (active or retired members) in the plan. These board members may act more directly in the interest of the pension members. The separate investment council dummy indicates whether there is a separate investment board, usually appointed from members of the overall pension board (see Harper, 2008). The funding ratio is defined as actuarial assets divided by actuarial accrued liabilities. Since annual reports of pension funds vary

[6] According to the Center for Retirement Research at Boston College, the 107 state plans represent more than 90 percent of all state government pension assets and members, and the 19 local plans represent more than 20 percent of all local government pension assets and members.

[7] The office of the state treasurer can provide oversight over locally administered plans as well as state-level plans.

in format, presentation, and content, alternatives or other investments do not represent the same assets for each pension plan. For example, private equity is sometimes classified as an alternative investment and sometimes as other investments. According to several annual reports that we examine, alternative investments are risky assets such as private equity or venture capital investments.

The Census Bureau pension data set has information on revenues, benefit payments, assets, holdings, and membership of public employee retirement systems from 1993 to 2008. These data encompass more than 2,000 administered public pension plans, the most complete list of plans sponsored by a public entity. However, the Census Bureau data may be less accurate since the data relies upon voluntary participation in surveys. Additionally, many observations are missing in this data set, and this data does not include variables on pension funding status or on pension governance. We also collect the total state payroll and number of public employees from 1993 through 2009 from the US Census Bureau website.

We collect data on state treasurers between 2001 and 2009 from Wikipedia, state treasurers' offices, and using Google search. There are 41 states plus the District of Columbia which have the title treasurer, and 10 states that have other titles. For example, the treasurer's duties are undertaken by the Commissioner of the Department of Revenue in Alaska and by the Chief Financial Officer in Florida.[8] Data on changes in state treasurer (or the person with similar responsibilities) and on the political party affiliation of the

[8] http://en.wikipedia.org/wiki/State_treasurer

treasurer are also collected from these sources. For state treasurers, we use whoever is in place at the end of the state fiscal year as the state treasurer for that year.[9]

Our primary regressions are:

$$Depvar_{i,t} = \alpha + \beta_1 * Corruption\ Measure_{i,t} + \beta_2 * \text{Log}\ Retirees_{\text{i,t}}$$

$$+ \sum_{k=1}^{n} \emptyset_k * Control_{i,t} + \varepsilon_{i,t}$$

where $\text{Depvar}_{\text{i,t}}$ is our dependent variable for pension i at time t: total investment return, asset class holding, and the benefit payment per retiree. Control includes our control variables: funding ratio (actuarial assets divided by actuarial liabilities), size (the log of the market value of total assets), board size, board composition (pension participants on the board/board size), and dummy variables such as investment council, political party of state treasurers, and change in state treasurer. All regressions include year dummies and, to control for fund size effects and, because the number of retirees is highly skewed, the log of the number of retirees. In additional fixed effect regressions, we control for unobserved state effects with state-level dummy variables and pension effects with pension-level dummy variables. We conduct ordinary least squares regressions for all dependent variables other than the asset class holding regressions. The asset holding regressions use a tobit analysis because these variables are censored at zero. In all cases, we calculate robust standard errors adjusted for clustering by pension fund.

IV. Empirical Results

[9] Comprehensive Annual Financial Report (CAFR) of the state pension systems are reported at the end of each state's fiscal year, usually on September 30 or June 30.

IV.A Descriptive Statistics and Correlations

Panel B of Table I provides descriptive statistics for the 126 state and local defined benefit plans (data from PPD) for our variables from 2001 through 2009. Observations with any missing data are excluded from the analysis. Most pensions in this sample are large, with a median asset size of 8.8 billion dollars and a mean asset size of 17.8 billion dollars. The asset holdings of public pension plans are dominated by equities, with a median equity share of 57.9% and a mean share of 56.3%.

The descriptive statistics for the variables from the Public Employee Retirement Systems from 1993 through 2008 (the Census Bureau data) are shown in panel C of Table I. Because of the large number of outliers in the Census Bureau data, we winsorize all variables in this data set at 0.5 percent of each tail. The sample consists of more than 2,000 comprehensive pension systems including many small plans. The median and mean market value of total assets is 59 million and 2.04 billion dollars, respectively, much smaller than the assets sizes of the plans covered by the PPD data.

Panel D of Table I provides correlations between our primary measures for the PPD data. Returns exhibit a negative correlation with corruption, expenses, benefit payments, and all asset investment categories except equities. Returns exhibit a positive correlation with equity investments, pension size, and board size. Interestingly, although asset size and number of retirees are highly correlated (coefficient of 0.89), returns are positively correlated with pension size but negatively correlated with the number of retirees.

Both investment and administrative expenses exhibit a positive correlation with alternative investments and a negative correlation with cash and stock investments. Also, probably because of economies of scale, administrative costs exhibit markedly negative

correlations with size and retirees.

Our primary corruption measure has a positive correlation with administrative expenses, equities and alternatives, and a negative correlation with bonds. This suggests that pension funds in more corrupt states tend to incur higher administrative costs and invest more in more risky securities such as stocks and alternative investments. Over the period that we examine, alternative investments have relatively weak performance (the correlation between returns and alternatives is -0.095). Also, our primary corruption measure is significantly related to the alternative corruption measure developed by Boylan and Long (2003), although the correlation between the two measures is only 0.17. We next examine these relations in a multivariate setting.

IV.B Corruption and Investment Performance

Panel A of Table II presents regressions with returns as the dependent variable using the PPD data.[10] We employ ordinary least squares regressions on the entire pooled cross section (9*126=1,134 plan-year observations) for columns 1 through 4. To adjust for autocorrelated errors, we report a White heteroskedastic consistent estimator with clustering at the pension plan level. We present a state level fixed-effects regression in column 5 to examine whether unobserved state effects affect our results. In columns 6 and 7, we examine the robustness of our results by using pension plan level fixed-effects regressions; thus for these regressions the coefficients are determined only by changes in the variables over time for a given pension system.

[10] As our data is annual, we do not have sufficient observations to calculate a Sharpe ratio or other risk-adjusted annual measure of returns. In unreported regressions, we examine the relation between corruption and the standard deviation of returns over the entire time period. We find no statistically or economically significant relation between this risk measure and corruption. Additionally, as we show below, greater corruption is positively related to holdings of some riskier types of investment.

The regression in Column 1 includes the corruption measure as well as the log of the number of retirees as independent variables. The specification in column 2 adds the funding status of the pension plan, governance variables such as the board size, board composition (measured as the fraction of members who are plan participants), and the existence of a separate investment council, and our political variables, whether there is a change in treasurer and the treasurer's political party. Column 3 replaces the log of the number of retirees to size with the log of the fund's total assets to examine the impact of size effects on pension performance (See Bauer et al., 2010; Dyck and Pomorski, 2010). The regression in Column 4 includes interactions between the governance variables and corruption, and between the political variables and corruption.

Corruption is negatively related to public pensions' investment returns at the 5% significance level for the regressions in column 1, 2, and 4; and at the 10% significance level for the regression in column 3. The magnitude of the estimated coefficients on corruption is similar in all these specifications. Using the estimate from column 1, a one standard deviation increase in corruption implies a decline in average returns of roughly 17 basis point (-0.0221*.0782), and this estimate is higher for our other specifications. The number of retirees is negatively related to investment performance (significant at the 10% level). The funding ratio, the governance variables (board size, board composition, and investment council dummy) and the state treasurer variables (whether there is a change in state treasurer and which political party the state treasurer belongs to) have no statistically significant relation with investment performance. These findings are consistent with the other existing empirical papers which show no relationship between board composition and investment returns (Munnell and Sunden, 2001; Coronado et al., 2003; Harper, 2008).

However, we do find a positive significant coefficient on the interaction between corruption and treasurer changes and a negative coefficient on the treasurer change variable. Thus, having a new treasurer is associated with significantly higher returns in more corrupt jurisdictions.

We test whether our results are robust to a state-level fixed effects specification in column 5 of Table II. Adding state-level fixed effects increases both the significance level and magnitude of the estimated coefficient on corruption. Columns 6 and 7 consider several specifications with pension-level fixed effects. We exclude the governance variables from these specifications as these variables have negligible within-plan variation. Corruption continues to be significant at the 10% level in the simplest specification in column 6. In column 7, we add additional controls such as funding ratio, treasurer changes, the treasurer's political party, asset allocations, investment and administrative expenses, and interactions between a change in treasurer and corruption, and between political party and corruption. In this specification, the overall effect of corruption is again significantly negative, and the interaction between corruption and a change in treasurer is significantly positive. Thus pensions in more corrupt states do significantly worse, but having a new treasurer helps to ameliorate this negative performance.

For our control variables, we find that the estimated coefficient on asset size is not significantly different from zero. Thus we do not find support for the notion that "bigger is better" (see Dyck and Pomorski, 2011) or "small is beautiful" (see Bauer et al., 2010). However, the PPD data set only considers the largest U.S. pension funds, and these results change when we consider the Census Bureau sample which includes smaller pension funds.

As a robustness check, we verify the effect of state corruption on investment performance using the Census Bureau data. Note that this data set has no governance variables, and the asset allocation variables are much more limited in terms of scope and coverage. Also, time-weighted returns are not available in the Census Bureau data, thus we define returns as earnings on investments divided by the average value of assets at the end of year and the end of the prior year for this data. In all cases, total assets is defined using market rather than book values.[11] Controlling for year dummies and either the number of retirees or the pension size in regressions 1 and 2 of Table II, Panel B, we again find that pension funds in more corrupt states underperform those in less corrupt states. This finding holds either for the whole sample comprised of over 2,000 pension systems or, in unreported regressions, for the state sample comprised of 222 state pension plans. Using the estimate in column 1 of Panel B, a one standard deviation increase in corruption is associated with a 36 basis point decline in returns (-0.1541*0.0233), which is somewhat larger than that implied by the estimations for the PPD sample. The effect of corruption is similar or somewhat larger in the other specifications.

We examine the relation between political variables and corruption in regressions 3 and 4 of Table II, Panel B. As in the smaller PPD sample, a change in treasurer is associated with more negative returns, but more positive returns in more corrupt jurisdictions. Unlike in our PPD sample, we find some evidence that Republican treasurers have significantly better rates of return when the smallest funds are included, and also evidence that Republican treasurers have been less affected by corruption.

In contrast to the findings on size in Panel A, both the number of retirees and pension

[11] Starting in 2002 the Census data reports total assets in market values, whereas before that they report total assets in book values. For the pre-2002 data, we adjust the Census Bureau total assets definition with the individual market value components which are also available in the data.

size are positively and significantly related to pension returns, suggesting that "bigger is better" as in Dyck and Pomorski (2011). This change in results appears to be driven by the difference in the composition of the two data sets. The Census Bureau database represents a wide variety of fund sizes while the PPD only includes the largest funds. Limiting the sample to just the larger state funds in the Census data reduces the coefficient on asset size, and this coefficient becomes significant at only the 10% level. Thus bigger funds do better, but only if really small funds are included in the sample.

Panels C and D of Table II present the regression results using the Boylan and Long (2003) corruption measure. The regression results confirm our main conclusions: higher state corruption is significantly related to lower public pension performance in that state; and a change in state treasurer is associated with better returns in more corrupt states. A one standard deviation increase in the Boylan and Long corruption index is associated with 27 basis point lower returns for the regression in column 2 of Panel C.

Overall, our empirical findings demonstrate that state corruption has a significant association with returns that is robust to a variety of controls. In unreported regressions, we include controls for asset classes and investment and administrative expenses in our performance regressions. These additional controls do not change our findings about corruption and fund performance, and this suggests that corruption affects returns not only through expenses or through asset choice but by inferior asset choice within a class. That is, returns in corrupt jurisdictions are not only worse because of a greater investment in a particularly unfavorable class of assets, but because of poor choice within that asset class. This finding complements Hochberg and Rauh (2011), who find inferior performance for in-state investments, and greater in-state investment by public pension funds in more

corrupt jurisdictions.

In unreported regressions, we also consider the relation between corruption and administrative expenses. We find some evidence that fund administrative expenses are higher in more corrupt jurisdictions; however, the magnitude of these results is small relative to the loss of returns. Moreover, the negative relation between corruption and returns is maintained even if we control for differences in expenses directly.

In additional robustness tests, we include dummy variables for whether the plan is locally administered (note that the office of the state treasurer sometimes oversees local plans as well as state-level plans), as well as dummy variables to correct for different pension plan fiscal year ends. Neither of these additional variables change our results. We next investigate how our corruption and governance variables are associated with investment strategy choice.

IV.C Corruption and Investment Strategy

Table III examines how state corruption is associated with the investment decisions of pension plans. These regressions include several control variables, namely, the log of the number of retirees, the funding ratio, board size, the number of board members who are participants as a fraction of total board members, an investment council dummy, a treasurer changes dummy, whether the treasurer is Republican, whether the treasurer belongs to a third party, and year dummies. The dependent variables are listed in the column headers. Because there are a significant number of zero-valued observations for our dependent variables, the fraction of pension assets in the various asset classes, we employ tobit

regressions.[12]

The tobit regressions suggest that state corruption is associated with investment behavior; pension funds in more corrupt states tend to hold more risky assets such as stocks and alternative investments. However, as we show above, the additional investment in these risky assets does not improve performance for funds in corrupt jurisdictions. This finding is also consistent with some recent discussion in the popular press. For instance, Siedle (2014) points out that $660 billion in state workers' retirement savings has been placed into alternative investments such as hedge, private equity, venture and real estate funds. Siedle claims that corruption associated with secret alternative investments is likely to cost public pension participants billions over the next few years.

Public pension funds with a greater number of retirees also allocate more of their assets to stocks and alternatives and less to bonds. We obtain similar results after replacing the log of the number of retirees with size (not reported), suggesting that larger pension funds are more likely to take on risky investments. The regressions also suggest that funding ratios have no impact on asset allocation.

While our governance variables, including board size, board composition, and the investment council dummy, have little direct impact on investment performance, Table III provides evidence that governance variables are associated with differences in investment strategies. Plans with a large proportion of plan participants on the board have lower holdings of alternative assets. The other two governance variables, board size and the investment council dummy, are not associated with asset allocation strategies.

Our evidence shows that a new treasurer tends to take on more risky investment

[12] Some plans may have minimum and maximum investment allocations determined by statute. We do not correct for such restrictions, and therefore our estimated coefficients may be biased toward zero.

strategies such as increasing the allocation to stocks and alternatives and decreasing the fund's investment in bonds. However, according to Table II, changes in treasurer are not by themselves significantly associated with pension returns; instead they affect returns only when interacted with corruption. Thus these changes in investment allocations are not necessarily beneficial. We also find that political ideology has a limited effect on investment decisions. The evidence in the Table III shows that cash investments are greater when a Republican treasurer is in power, consistent with the finding that Republican managers have more conservative policies and undertake less risky investments (see, Hutton et al., 2010). However, funds overseen by Republican treasurers also hold more risky alternative investments.

In unreported regressions we consider investment strategy for the state public pension funds from the Census Bureau data where investment category variables are available. State corruption is positively related to risky investments such as stocks and alternatives or other investments (which includes venture capital, partnerships, real estate investment trusts, and leveraged buyouts). The Census Bureau data also classifies bond holdings into corporate bonds and federal government securities. Funds in states with higher corruption hold more corporate bonds and fewer government bonds, again suggesting an investment preference toward more risky assets as well as potentially increasing investments in local companies.

In unreported regressions, we replace our corruption measure with the alternative corruption measure developed by Boylan and Long (2003). The regression results suggest that the Boylan and Long corruption index is not significantly related to investment strategy for the PPD data. However, for the larger Census Bureau data set, our main results

largely hold using the Boylan and Long corruption measure.

IV.D Corruption and Benefit Payments

In unreported regressions, we consider the relation between corruption and benefit payments. While benefit payments are typically defined by statute, there are numerous examples of states changing benefits as they incur shortfalls.[13] Thus, we do not expect quick changes to benefits from decreases in pension returns. In this analysis, we consider the number of retirees, the log of total payroll, and the log of average payroll as control variables.

In cross-sectional analysis we find that state corruption significantly is associated with significantly lower benefit payments per retiree. However, the relation between benefit payments and corruption is not significant if state or pension dummies are included. Moreover, using the Boylan and Long (2003) corruption measure, we find no significant relation between benefit payments and corruption.

V. Conclusion

Corruption is associated with underperformance for public pension funds, and pension funds in more corrupt jurisdictions are more likely to have more equity and alternative investments. These findings are consistent with funds in more corrupt states taking on more risky, poorly performing, investments. As such, these results complement the prior literature (see, for example, Romano, 1993; and Hochberg and Rauh, 2011) that finds political pressure can increase public pension funds' inferior in-state investments. These

[13] See, for instance, http://www.statebudgetsolutions.org/the_williams_report/detail/pension-update-february-18-2014.

results suggest that in order to maintain high-quality pension performance and benefits, policy makers need to better control the effects of state corruption on pension plans.

The governance variables we consider (board size, board composition and the investment council dummy) and the state treasurer dummy variables (whether there is a change of state treasurer or which political party a state treasurer belongs to) have little impact by themselves on investment performance. However, having a new treasurer is associated with superior performance in more corrupt jurisdictions. This result suggests that more frequent changes in who oversees the pension fund can curb some of the negative effects of corruption.

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Table I. Summary Statistics

Panel A: Corruption by State

State	Mean	Std. Deviation	State	Mean	Std. Deviation
Alabama	0.0627	0.0295	Montana	0.0581	0.0441
Alaska	0.0648	0.0701	Nebraska	0.0139	0.0138
Arizona	0.0288	0.0231	Nevada	0.0147	0.0119
Arkansas	0.0281	0.0240	New Hampshire	0.0129	0.0151
California	0.0197	0.0023	New Jersey	0.0492	0.0115
Colorado	0.0214	0.0138	New Mexico	0.0218	0.0116
Connecticnt	0.0307	0.0199	New York	0.0318	0.0084
Delaware	0.0601	0.0307	North Carolina	0.0212	0.0067
District of Columbia	0.5623	0.2612	North Dakota	0.0857	0.0728
Florida	0.0395	0.0109	Ohio	0.0417	0.0062
Georgia	0.0232	0.0102	Oklahoma	0.0370	0.0203
Hawaii	0.0382	0.0357	Oregon	0.0109	0.0085
Idaho	0.0186	0.0162	Pennsylvania	0.0438	0.0120
Ilinois	0.0375	0.0111	Rhode Island	0.0209	0.0163
Indiana	0.0227	0.0096	South Carolina	0.0133	0.0066
Iowa	0.0157	0.0116	South Dakota	0.0703	0.0510
Kansas	0.0121	0.0082	Tennessee	0.0439	0.0161
Kentucky	0.0655	0.0191	Texas	0.0301	0.0079
Louisiana	0.0827	0.0183	Utah	0.0164	0.0113
Maine	0.0280	0.0169	Vermont	0.0234	0.0272
Maryland	0.0395	0.0209	Virginia	0.0513	0.0242
Massachusetts	0.0311	0.0107	Washington	0.0135	0.0083
Michigan	0.0238	0.0060	West Virginia	0.0388	0.0251
Minnesota	0.0130	0.0061	Wisconsin	0.0221	0.0074
Mississippi	0.0592	0.0270	Wyoming	0.0325	0.0494
Missouri	0.0303	0.0116			

Panel B: PPD Data from the Center for Retirement Research at Boston College

Variables	Obs.	Mean	Median	SD	Min.	Max.
Return	1,133	0.0327	0.0530	0.1238	-0.2963	0.2883
Investment expenses	1,091	0.3122	0.2456	0.2720	0.0010	1.9844
Administrative expenses	1, 106	0.0997	0.0766	0.1242	0.0038	2.1561
Benefit Payment	985	0.1914	0.1747	0.0869	0.0037	0.6682
Stocks	1,133	0.5634	0.5790	0.1041	0.0000	0.8200
Bonds	1,133	0.2884	0.2700	0.1014	0.1000	1.0000
Cash & Short Term	1,133	0.0225	0.0130	0.0278	0.0000	0.2250
Alternatives	1,133	0.0285	0.0000	0.0506	0.0000	0.4200
Other Investment	1,133	0.0435	0.0136	0.0566	0.0000	0.2910
Real Estate	1,133	0.0534	0.0500	0.0482	0.0000	0.2840
Total assets	1,132	17.8000	8.8014	27.4000	0.1799	251.0000
Size	1,132	15.9353	15.9904	1.2618	12.1003	19.3415
Ln(Retirees)	1,119	10.1185	10.2601	1.2641	5.2149	13.0918
Board Size	1,129	9.8840	9.0000	3.4505	1.0000	20.0000
Board Composition	1,129	0.5655	0.5556	0.2308	0.0000	1.0000
Funding Ratio	1,111	0.8601	0.8720	0.1629	0.1910	1.4770
Democratic Treasurer	1,134	0.5653	1.0000	0.4959	0.0000	1.0000
Republican Treasurer	1,134	0.3536	0.0000	0.4783	0.0000	1.0000
Third Party Treasurer	1,134	0.0811	0.0000	0.2732	0.0000	1.0000
Treasurer Changes	1,134	0.1878	0.0000	0.3907	0.0000	1.0000
Ln(total payroll)	1,133	19.5338	19.5224	0.9064	17.2411	21.5341
Ln(average payroll)	1,133	6.6850	6.6698	0.5550	4.3681	9.1313
Corruption	1,134	0.0408	0.0266	0.0782	0.0000	1.1152
Corruption_BL	1,062	3.4729	3.4855	1.0901	1.5000	5.5000

Panel C: U.S. Census Bureau Data

Variables	Obs.	Mean	Median	SD	Min.	Max.
Return	10,610	0.1063	0.1070	0.1277	-0.2970	0.4819
Ln(Retirees)	20,193	4.8449	4.5326	2.5962	0.6931	11.8110
Total assets	13,657	2.0407	0.0593	7.8999	0.0001	71.8000
Size	13,613	11.2514	10.9995	2.6096	5.4293	18.0896
Benefit Payment	20,102	0.1649	0.1414	0.1161	0.0052	0.8685
Democrats Treasurers	7,907	0.5322	1.0000	0.4990	0.0000	1.0000
Republican Treasurers	7,907	0.3553	0.0000	0.47876	0.0000	1.0000
Third Party Treasurers	7,907	0.11226	0.0000	0.3161	0.0000	1.0000
Treasurer Changes	7,907	0.2263	0.0000	0.4184	0.0000	1.0000
Ln (total payroll)	18,259	19.5809	19.7425	0.7489	16.9075	21.5279
Ln (average payroll)	18,259	6.4477	6.4659	0.4324	4.3681	9.3787
Corruption	20,193	0.0356	0.0322	0.0233	0.0000	0.1417
Corruption_BL	18,829	3.8192	4.0000	0.9421	1.5000	5.5000

Panel D. Selected Correlations for PPD Data

Panel D provides correlations on our key variables for the data from the Center for Retirement Research. P-values are reported in the parentheses.

	Returns	Corrupt. measure	Corrupt. _BL	Inv Expense	Admin Expense	Benefit Payment	Stocks	Bonds	Cash	Alter.	Other Inv,	Size	Ln (Retirees)
Corruption	-0.0343	1.0000											
	(0.249)												
Corruption_BL	-0.0278	0.1696	1.000										
	(0.366)	(0.000)											
Invest. Expenses	-0.1178	-0.0259	-0.0425	1.0000									
	(0.000)	(0.393)	(0.174)										
Admin. Expenses	-0.0146	0.0501	-0.1096	0.1625	1.0000								
	(0.627)	(0.096)	(0.000)	(0.000)									
Benefit Payment	-0.0390	-0.2382	0.0415	0.0084	-0.1481	1.0000							
	(0.221)	(0.000)	(0.206)	(0.797)	(0.000)								
Stocks	0.2301	0.0671	0.1050	-0.0482	-0.0324	0.0183	1.0000						
	(0.000)	(0.024)	(0.001)	(0.112)	(0.282)	(0.566)							
Bonds	-0.0900	-0.0360	-0.0345	-0.0994	0.0001	-0.1901	-0.5792	1.0000					
	(0.002)	(0.226)	(0.262)	(0.001)	(0.998)	(0.000)	(0.000)						
Cash	-0.0270	-0.0138	0.0964	-0.1435	-0.0694	0.0343	-0.3392	0.0877	1.0000				
	(0.364)	(0.643)	(0.002)	(0.000)	(0.021)	(0.283)	(0.000)	(0.003)					
Alternatives	-0.0953	0.0421	-0.0161	0.1927	0.0255	0.1072	-0.1827	-0.2450	0.0899	1.0000			
	(0.001)	(0.157)	(0.600)	(0.000)	(0.397)	(0.001)	(0.000)	(0.000)	(0.002)				
Other Inv.	-0.0941	-0.0459	-0.0424	0.0278	-0.0000	0.0478	-0.3370	-0.2180	-0.0187	-0.1592	1.0000		
	(0.002)	(0.122)	(0.167)	(0.359)	(1.000)	(0.134)	(0.000)	(0.000)	(0.529)	(0.000)			
Size	0.0337	-0.1578	0.2189	0.0104	-0.2630	0.2813	0.0850	-0.1780	0.0000	0.1397	-0.0257	1.0000	
	(0.257)	(0.000)	(0.000)	(0.731)	(0.000)	(0.000)	(0.004)	(0.000)	(0.999)	(0.000)	(0.387)		
Ln(Retirees)	-0.0171	-0.0843	0.2731	0.0295	-0.2093	0.0345	0.1173	-0.1292	0.0200	0.1571	-0.1080	0.8932	1.0000
	(0.567)	(0.005)	(0.000)	(0.334)	(0.000)	(0.280)	(0.000)	(0.000)	(0.504)	(0.000)	(0.000)	(0.000)	
Board	0.0086	0.0832	0.0934	0.0954	-0.1098	-0.0047	0.0245	-0.0719	-0.0751	-0.0259	0.0471	-0.0064	-0.0050
	(0.774)	(0.005)	(0.002)	(0.002)	(0.000)	(0.884)	(0.411)	(0.016)	(0.012)	(0.385)	(0.114)	(0.830)	(0.867)

Corruption is equal to the number of federal corruption convictions divided by state population (in millions) in the same period and then divided by 100. Corruption_BL is the corruption index created by Boylan and Long (2003). Panel B provides summary statistics for 126 state and local defined benefit plans on our variables. The sample is drawn from the Center for Retirement Research at Boston College from 2001 through 2009. Return is the time-weighted annual fund return. Investment and administrative expenses are the amount of these expenses divided by market value of total assets and then multiplied by 100. Benefit payments equal the ratio of total payments (in thousands of dollars) to the number of retirees divided by 100. All asset categories including stocks, bonds, cash & short term, alternatives, other securities and real estate are measured as the market value of these holdings as a percentage of the market value of total assets. Alternatives typically represent more risky investments such as private equity or venture capital. Other investments may include relatively less risky assets such as absolute return or inflation protection investments. The market value of total assets is in billions of dollars. Size is the log of the market value of total assets (in thousands dollars). Board size equals the number of board members. Board composition is the number of participants on the board divided by the total number of board members. Funding ratio is defined as actuarial assets divided by actuarial accrued liabilities. Total payroll equals the total state public employee payroll. The average payroll is the total payroll divided by the number of state public employees. Panel C provides summary statistics for the Census Bureau's Public Employee Retirement Systems from 1993 through 2008. This data is winsorized at 0.5% in each tail. Returns are defined as earnings on investments divided by average value assets at the end of year and the end of the prior year for this data set. Other variables are defined as in panel B.

Table II. Return Regressions

Panel A: PPD Data from the Center for Retirement Research at Boston College

	Pooled Regressions				Fixed-Effects		
					State Dummies	Pension Dummies	
	1	2	3	4	5	6	7
Corruption	-0.0221[b]	-0.0234[b]	-0.0223[a]	-0.0263[b]	-0.1362[c]	-0.0903[a]	-0.1328[c]
	(-2.04)	(-2.08)	(-1.84)	(-2.43)	(-4.47)	(-1.84)	(-4.29)
Ln (Retirees)	-0.0023[a]	-0.0020[a]		-0.0021[a]	-0.0011	0.0120[a]	0.0122[b]
	(-1.95)	(-1.70)		(-1.81)	(-0.75)	(2.22)	(2.21)
Funding ratio		0.0011	0.0027	0.0025	-0.0044		-0.0009
		(0.14)	(0.33)	(0.32)	(-0.34)		(-0.03)
Size			-0.0007				
			(-0.56)				
Board size		0.0004	0.0004	0.0005	0.0002		
		(1.13)	(1.08)	(1.13)	(0.26)		
Board Composition		-0.043	-0.0030	-0.0042	0.0044		
		(-0.71)	(-0.50)	(-0.68)	(0.37)		
Investment Council		0.0014	0.0019	0.0052	0.0038		
		(0.46)	(0.62)	(1.25)	(0.59)		
Treasurer Changes		-0.0061	-0.0062	-0.0168[b]	-0.0181[b]		-0.0188[b]
		(-1.14)	(-1.15)	(-2.30)	(-2.18)		(-2.28)
Republican Treasurer		0.0029	0.0028	0.0026	-0.0113		-0.0117
		(0.77)	(0.75)	(0.48)	(-1.24)		(-1.52)
Third Party Treasurer		0.0021	0.0018	0.0028	-0.0196[b]		0.0111
		(0.64)	(0.55)	(0.44)	(-2.45)		(1.29)
Corruption × Investment Council				-0.1261[a]	0.0105		
				(-1.72)	(0.09)		
Corruption × Treasurer Changes				0.3289[b]	0.3550[b]		0.3605[b]
				(2.24)	(2.11)		(2.14)
Corruption × Republican Treasurer				0.0074	0.1489		0.1670
				(0.08)	(1.05)		(1.20)
Corruption × Third Party Treasurer				-0.0462	0.0531		0.0602
				(-0.29)	(0.28)		(0.33)
State dummies	No	No	No	No	Yes	No	No
Observations	1, 118	1,103	1,105	1,103	1,103	1, 118	1,108
R^2	0.7118	0.7150	0.7149	0.7162	0.7239	0.7213	0.7238

Panel B: Census Bureau Data

	Pooled Regressions				Fixed- Effects		
					State Dummies	Pension Dummies	
	1	2	3	4	5	6	7
Corruption	-0.1541[c]	-0.1422[c]	-0.1358[b]	-0.2258[b]	-0.3424[c]	-0.1901[c]	-0.3480[c]
	(-3.32)	(-3.10)	(-2.29)	(-2.40)	(-2.92)	(-3.25)	(-2.89)
Ln (Retirees)	0.0057[c]		0.0046[c]	0.0046[c]	0.0046[c]	0.0094[b]	0.0054
	(13.06)		(9.47)	(9.35)	(8.55)	(2.17)	(0.69)
Size		0.0060[c]					
		(14.19)					
Treasurer Changes			-0.0124[c]	-0.0228[c]	-0.0210[c]		-0.0167[c]
			(-3.86)	(-3.88)	(-3.30)		(-2.63)
Republican Treasurer			0.0138[c]	0.0053	0.0111		0.0002
			(4.54)	(0.98)	(1.44)		(0.02)
Third Party Treasurer			-0.0034	0.0178[c]	0.0447[c]		0.0382[c]
			(-0.91)	(2.56)	(3.11)		(2.64)
Corruption ×				0.3618[c]	0.3117[b]		0.2778[a]
Treasurer Changes				(2.64)	(2.18)		(1.94)
Corruption ×				0.2231[a]	0.3303[b]		0.4112[c]
Republican Treasurer				(1.81)	(2.31)		(2.82)
Corruption ×				-0.8539[c]	-0.9331[c]		-0.8248[c]
Third Party Treasurer				(-3.91)	(-4.00)		(-3.53)
State dummies	No	No	No	No	Yes	No	No
Observations	10,610	10,601	6,643	6,643	6,643	10,610	6,643
R^2	0.3901	0.3929	0.4481	0.4499	0.4636	0.4165	0.4840

Panel C: PPD Data from the Center for Retirement Research at Boston College with the Boylan and Long Corruption Measure

	Pooled Regressions			
	1	2	3	4
Corruption_BL	-0.0027[b]	-0.0025[a]	-0.0029[b]	-0.0027[b]
	(-2.34)	(-1.91)	(-2.31)	(-2.00)
Ln (Retirees)	-0.0014	-0.0012[a]		-0.0013
	(-1.24)	(-1.03)		(-1.12)
Funding ratio		-0.0044	-0.0054	-0.0033
		(-0.51)	(0.61)	(-0.37)
Size			0.0005	
			(0.39)	
Board size		0.0005	0.0005	0.0005
		(1.27)	(1.20)	(1.26)
Board Composition		-0.0051	-0.0045	-0.0051
		(-0.87)	(-0.76)	(-0.85)
Investment Council		0.0022	0.0028	0.0063
		(0.71)	(0.88)	(1.63)
Treasurer Changes		-0.0052	-0.0052	-0.0153[a]
		(-0.88)	(-0.88)	(-1.96)
Republican Treasurer		0.0030	0.0030	0.0026
		(0.77)	(0.77)	(0.48)
Third Party Treasurer		-0.0010	-0.0014	0.0023
		(-0.30)	(-0.42)	(0.35)
Corruption_BL × Investment Council				-0.1404[a]
				(-1.93)
Corruption_BL × Treasurer Changes				0.3226[b]
				(2.05)
Corruption_BL × Republican Treasurer				0.0107
				(0.11)
Corruption_BL × Third Party Treasurer				-0.1424
				(-0.82)
State dummies	No	No	No	No
Observations	1, 046	1,031	1,033	1,031
R^2	0.7029	0.7060	0.7061	0.7072

Panel D: Census Bureau Data with the Boylan and Long Corruption Measure

	Pooled Regressions			
	1	2	3	4
Corruption_BL	-0.0036[c]	-0.0033[c]	-0.0040[c]	-0.0045[c]
	(-2.91)	(-2.64)	(-2.56)	(-2.73)
Ln (Retirees)	0.0056[c]		0.0044[c]	0.0044[c]
	(12.62)		(8.65)	(8.54)
Size		0.0059[c]		
		(13.52)		
Treasurer Changes			-0.0074[b]	-0.0148[b]
			(-2.21)	(-2.52)
Republican Treasurer			0.0160[c]	0.0125[b]
			(5.32)	(2.55)
Third Party Treasurer			-0.0026	0.0246[c]
			(-0.65)	(3.86)
Corruption_BL ×				0.2911[b]
Treasurer Changes				(2.15)
Corruption_BL ×				0.0847
Republican Treasurer				(0.92)
Corruption_BL ×				-1.0877[c]
Third Party Treasurer				(-5.37)
State dummies	No	No	No	No
Observations	9,744	9,735	6,124	6,124
R^2	0.3937	0.3960	0.4486	0.4507

The dependent variable, Return, is the time-weighted rate of return for Panel A, and earnings on investments divided by total assets in Panel B. Corruption is equal to the number of federal corruption convictions divided by state population(in millions) in the same period and then divided by 100. Corruption_BL is the corruption index created by Boylan and Long (2003). The funding ratio is defined as actuarial assets divided by actuarial accrued liabilities. Size is the log of the market value of total assets (in thousands of dollars). Board size equals the number of board members. Board Composition is the number of participants on the board divided by the number of board members. Investment Council and Treasurer Changes are dummy variables equal to one if the pension fund has a separate investment council, and whether there are changes in state treasurer, respectively. Republican Treasurer and Third Party Treasurer are dummy variables equal to one if the treasurer belongs to the Republican or third party; these variables equal zero for Democratic Treasurers. Stocks, bonds, alternatives, other investments and cash are a fraction of total fund market values. For most pension plans alternatives represent more risky investments such as private equity and venture capital. Other investments typically include relatively less risky assets which target absolute return or inflation protection. Year dummies are included in all regressions. Investment and administrative expenses are the amount of these expenses divided by market value of total assets and then multiplied by 100. The data in Panel B is

winsorized at 0.5% in each tail. t-statistics are reported in parentheses. The notation a, b, c denotes significance at the 10% level, 5%, 1% level, respectively. Column 5 of panel A employs state level fixed-effects regressions, and Columns 6 through 8 of panel A employ pension level fixed-effects regressions with robust standard errors clustered by pension systems. The other models use OLS regressions with standard errors robust to heteroskedasticity and clustering by pension system.

Table III. Asset Class Holding Regressions

	Stocks	Bonds	Alternatives	Other Investments	Cash
Corruption	0.1133[c]	-0.0574	0.0655[a]	-0.0534	-0.0007
	(2.97)	(-1.60)	(1.65)	(-1.34)	(-0.04)
Ln (Retirees)	0.0111[a]	-0.0113[b]	0.0159[b]	-0.0050	0.0007
	(1.82)	(-2.09)	(2.44)	(-0.93)	(0.32)
Funding ratio	-0.0015	-0.0348	-0.0085	0.0442	0.0037
	(-0.03)	(-0.73)	(-0.21)	(1.06)	(0.23)
Board size	0.0000	-0.0027	0.0020	-0.0006	-0.0003
	(0.02)	(-0.91)	(0.82)	(-0.27)	(-0.42)
Board Composition	0.0476	-0.0410	-0.0734[a]	0.0538[a]	-0.0149
	(1.24)	(-1.39)	(-2.12)	(1.78)	(-1.00)
Investment Council	-0.0184	-0.0060	0.0084	0.0151	0.0047
	(-0.79)	(-0.25)	(0.52)	(1.09)	(0.75)
Treasurer Changes	0.0110[a]	-0.0204[c]	0.0191[b]	0.0005	-0.0008
	(1.72)	(-3.31)	(2.46)	(0.08)	(-0.26)
Republican Treasurer	-0.0007	0.0040	0.0306[b]	-0.0328[c]	0.0069[a]
	(-0.04)	(0.22)	(2.09)	(-2.52)	(1.80)
Third Party Treasurer	0.0057	0.0000	0.0542[b]	-0.0684[c]	0.0075
	(0.36)	(0.00)	(2.00)	(-2.89)	(1.02)
Observations	1,103	1,103	1,103	1,103	1,103
R^2	0.1305	0.0976	0.1620	0.1518	0.0500

The dependent variables are the market values of stocks, bonds, alternatives, other investments and cash, as a fraction of total fund market values. For most pension plans alternatives represent more risky investments such as private equity and venture capital. Other investments typically include relatively less risky assets which target absolute return or inflation protection. Corruption is equal to the number of federal corruption convictions divided by state population (in millions) in the same period and then divided by 100. The funding ratio is defined as actuarial assets divided by actuarial accrued liabilities. Board size equals the number of board members. Board Composition is the number of participants on the board divided by the number of board members. Investment Council and Treasurer Changes represent dummy variables for whether the pension fund has a separate investment council, and whether there are changes in treasurer, respectively. Democratic Treasurer and third party Treasurer are dummy variables equal to one for republican and third party treasurers. Year dummies are included in all regressions. t-statistics are reported in parentheses. The notation a, b, c denotes significance at the 10% level, 5%, 1% level, respectively. These regressions use a Tobit model where the standard errors are clustered by pension system. The reported R^2 are obtained from an OLS model with the same independent and dependent variables.