

U.S. PUBLIC PENSION FUNDS AND RISK SEEKING BEHAVIOR OF MONEY MANAGERS: THE PATH TO ALTERNATIVE INVESTMENTS

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ABSTRACT

State Public Pension funds have increased their portfolios into riskier alternative investments to meet their annual required contributions (ARC). Our paper uses The Public Plans Data (PPD) to analyze the differences in alternative investments for 2001 to 2013 by Democrats and Republican lawmakers. The shift in funds from traditional to alternative investments ushers in a new era for public pension fund money managers and their appetite for taking on higher levels of risk. This paper shows that the shift from traditional low risk – low return investments to alternative high risk – high return investments of state public pension funds are due to changes in governance and risk seeking investment behavior of the money managers.

JEL: H75, J38, E6, P16

KEYWORDS: Public Pensions, Funding Ratio, Alternative Investments, Democrats, Republicans, Panel Data & OLS Regression, Random Effects Model, Risk Seeking Behavior

INTRODUCTION

A recent article in a prominent newspaper headlined that New York City’s pension system is in danger of ‘operational failure’ (Craig, 2016). Similar headlines are not an anomaly. Pensions are a popular subject in US public discourse. Public pension plans are even more so. Indeed, back in 2010, an expert noted that 20 state pension funds will run out of cash by 2025 (Lowenstein, 2010). Surprisingly, public pension funds have no federal oversight and are not insured by the Pension Benefit Guaranty Corporation (PBGC), which insures private pension plans. While the public pension accounting practices follow guidelines established by the Governmental Accounting Standards Board (GASB) (Mohan & Zhang, 2014; O’Reilly, 2014). Interestingly, the GASB requirements are less stringent than the requirements imposed on private pension plans. Newspapers regularly feature stories pertaining to public pension underfunding. Unfunded pensions are a worrisome trend not only in the United States, but also in Europe (Samuel, 2016) and not limited to governments. Matter of fact, many of the corporations have frozen their defined benefit plans at a much higher rate in 2015 than in 2009, which “stops earning benefits for workers” (Monga, 2016). This paper focuses on funding challenges faced by the biggest public pension funds in the US and subsequent allocation decisions within the context of political party affiliation. More specifically this paper analyses how investment allocations by public pension funds in alternatives (which have higher levels of risk than traditional stocks and government bonds) fared under the Democrats and Republicans regimes at the state level in the United States from 2001 to 2013. Furthermore, we also determine whether there exists any differences between the two political parties in accruing higher levels of risk in their respective pension fund allocations. At present, there is no on-point research in current literature. This paper is organized with this introduction section, followed by literature review, analysis of data and methodology, and concludes with a recommendation for further research.

Pensions have a long history and is one of few public welfare schemes consistently supported by all hues of public (Wolf et. al, 2014; Huber and Stephens, 1993). In the United States, pension funds began as a way to provide for those disabled in military service (Short, 2003). Moreover, management of pension funds and investment by trustees of the Navy pension funds in stock of Washington, DC banks began as far back as 1813 (ibid.). Generally major political parties take positions opposite to each other in many welfare programs, but support of pensions are supported by both major parties of the United States—the Republicans and the Democrats. Therefore, any opportunity to increase pension benefits is generally supported by the American voters. Pensions are defined as a shift in “labor costs from the present to future, which allows employees to save for retirement without the temptation of raiding their savings” (Kelley, 2014, p. 21). Generally, there are two types of pensions. One is defined benefit (DB) plan, and the other is defined contribution plans. For a DB plan, the retirement benefit is independent of investment returns of the pension fund (O’Reilly, 2014). The severity of unfunded (or low funded) public pensions have come in sharp focus since the economic recession of 2008. Mainly, the recession of 2008 led to a precipitous drop in assets of many public pension plans and exposed the low level of funding for the biggest public pension plans in the US.

A pension fund has three sources of funds: (a) contributions from employees, (b) contributions from employers, and (c) earnings from the pension investments (Lowenstein, 2010). All sources have contributed to the pension funding gap leading to DB pensions being short of funds to pay for future claims. The lack of funding is due to: (i) increased number of pensioners, (ii) decreasing number of workers who contribute to pensions versus pension seekers, (iii) no or very little contribution by employees, (iv) increased life expectancy, (v) decreasing value of stocks, (vi) low interest rates, (vi) lack of adequate staff to monitor investments, (vi) increase in pension benefits during economic growth (Martin, 2015), (vii) lawmakers not making required payments into the pension system (ibid.), (viii) boosting of retirement benefits for early retirement (Ibid.), (ix) unemployment growth (ibid.), and (X) investing in non-traditional assets such as private equity and hedge funds (ibid.).

To make up for the decline in funding of public pension plans, many of the public pensions have started to allocate their funds at an increasing rate in private equity and other alternatives. A pension is considered underfunded (or not fiscally sound), “if it is less than 70 percent” funded (Dorfman, 2014). A funding ratio below 80% puts in question the long-term viability of a pension plan (Dobra & Lubich, 2013). A pension’s funding level is the ratio of the plan’s current (market) assets divided by the present value of its liabilities (outflow of funds to beneficiaries) (Elder and Wagner, 2015) or simply, pension assets over pension liabilities (Mohan & Zhang, 2014). The present value of future liabilities is determined using the discount rate. A discount rate is the “future expected return on the pension fund investments [and it] controls how much money the politicians need to pay into the workers’ pension funds now” (Dorfman, 2014). Thus, the higher the discount rate, the less money needs to be deposited in a pension fund. The discount rate has been traditionally around 7.75% to 8% (Biggs, 2015). In turn, the discount rate is based on the assumed interest rate made by pension fund’s investments. When the stock markets are doing well, a return of 8% has been usually easy to achieve. Studies have found that rising national incomes leads to more pension expenditure and more generous pension plans (Huber and Stephens, 1993).

However, when the stock markets decline, for example the tech bubble burst of early 2000 and the recession of 2008, the returns on pension investments were much less (Walsh, 2014). Another misplaced reason for the assumed high rate of return of 8% was that GASB accounting rules allowed public pension plans to “credit themselves with higher returns on risky assets before those returns are earned, creating an artificial incentive to take risk” (Biggs, 2014). Therefore, the low returns on the pension fund investments reduce the funded ratio considerably. Also in 2010, the GASB required the pension funds to value their assets at market value and exclude the smoothing and other actuarial assumptions, which also increases the liabilities of the pension funds (Rasmus, 2012). Resulting in an increased pressure on pension administrators to seek investments that which make up the losses quickly and considerably via higher rates of return.

Traditionally, pension funds invested in mostly stocks and bonds. This combination provided a balanced return—no big losses but also no big gains. With the considerable loss in stock market returns, and other causes stated earlier, pension funds sought other investments where they could get large returns on their investments. Eventually the public pension fund trustees settled on investing in alternatives funds, i.e., private equities, hedge funds, and other high-risk high-reward financial instruments, which provided larger returns. Private Equity is generally defined as “any type of equity that is bought and sold in a privately negotiated transaction and is not traded on a public stock exchange. Private equity investors provide capital to companies when it is not possible or desirable to access the public markets, or when there are opportunities to purchase public enterprises that are seen as undervalued or poorly managed. Private equity firms establish funds that raise money and invest it on behalf of their investors in companies that they believe can achieve profitable growth” (Vanguard, 2010). Private equity firms take funds from pensions and hope to make big profits when they sell the firms they have invested in future (Martin, 2015).

Returns in alternative investments soar in value when the economy is strong and lose value very quickly when it is weak (Barro, 2014). A struggling economy compounds the negative impact on a pension fund with low returns on pension’s investments while tax receipts are low for the state and local governments all the while demand for social services go up. Thus, even though the public employers want to increase funding for pensions, they are unable to do so because of funds needed for other crucial societal needs. Thereby, exacerbating the pension funding gap (Barro, 2014). Another important component of alternatives is the hedge funds. Recently, hedge funds--supposed hedge against difficult investing environment--has also not performed up to its name. In addition to the possibility of big losses by hedge funds (Walsh, 2014), hedge funds generally charge a 2% annual fee on assets they manage and 20% of any profits they make, thereby making them not only risky but also expensive (The Economist, 2015). Even worse, lately hedge funds’ annual performance has been very similar to yields of a well-balanced portfolio of stocks and bonds (The Economist, 2015; Morgenson, 2015). In 2008, hedge funds lost 19% on their investments, while a balanced fund lost 22.2% (Lanhart, 2014). Therefore, these negatives have now led pension funds to reduce their estimated rate of returns (discount rate used in liability calculation) to 6.4% (Martin, 2015). Thereby, increasing the funding gap of pension plans. Generally, a reduction of 1% in the expected returns lead to an increase of pension liabilities of 12% (Martin, 2015).

While the stated reasons for investing in alternatives is higher returns, reports have also highlighted another troubling reason. Pension funds seek advice of politically connected consultants, who advise pension trustees to invest in riskier alternative funds, and then the principals of these alternative funds provide fees to the consultants who in turn contribute to election campaigns of politicians. The state politicians generally choose many of the public pension fund trustees (Walsh, 2013; Steyer, 2014). An author argues that the current crisis in pension funds is due to state politicians and government employee unions (Dorfman, 2014). By overpromising, politicians get votes and the unions get their dues and prestige. Interestingly, one columnist argues that the reason the politicians do not adequately fund the pension is because they are busy giving corporate handouts. He states that circa 2013, public pensions faced a shortfall of around \$30 billion, while they gave away \$120 billion in subsidies and tax loopholes to corporations (Sirota, 2013). Others have argued that a stagnant economy suppresses upward movement of real wages and thus employees could not contribute additional funds to their pension plans, even if they wanted to (Rasmus, 2012).

Around 2008, similar to the actions taken post technology bubble of 2000-01, there was a pronounced shift by public pensions to invest in *risky* alternative assets (Barro, 2014). Moreover, the passage of the Pension Protection Act of 2006 permitted pension funds to partner with hedge funds and thus resulted in greater investments into alternatives (Rasmus, 2012). Despite the shift towards alternatives, hedge funds were only 1.3% of large public pension plans as of June 2015 (Stevenson & Corkery, 2015). Social Security trust fund also faces similar funding concerns as do the public pensions, thus back in 2003, then George W. Bush administration floated the idea that Social Security trust fund may be privatized and or the Social Security trust fund invest in the stock market (Short, 2003). The underlying reason being that the social security funds

would then see higher returns and thereby increasing the value of the Social Security trust fund. However, the Democrats (the opposition party in Congress at that time) soundly opposed this suggestion and the Social Security initiative failed in 2005 (Galston, 2007). The Democrats' reasoning was that investing in the stock market would introduce higher levels of risk than warranted and could result in catastrophic losses for social security recipients while putting the viability of social security fund at risk. Politicians on the left (i.e., Democrats) are generally seen as supporters of social programs and policies and regarded as its natural defenders (Wolf et al., 2014).

LITERATURE REVIEW

The underfunding of pensions have been thoroughly analysed in academic papers and covered extensively in national newspapers in the United States. Indeed, the underfunding has led the US government to give monies to state pension funds from the fines it collected from wrong doers such as Bank of America, JP Morgan, Citibank, Wells Fargo, Citibank, Morgan Stanley and Goldman Sachs post mortgage crisis (Rexrode and Glazer, 2016). In addition, the influence of politics and investments has also been analysed in academic papers. While discussing asset allocation decisions Dobra and Lubich (2013) concluded that in a public pension (i) the higher the percentage of board members who are retired, the higher the percentage of assets in riskier investments, (ii) the larger the size of the board, the greater the percentage of assets placed in riskier investments, and (iii) exofficio members desire less risky portfolio than board members elected by system participants when economically targeted investments (ETS) are made. ETSs are outside the traditional risk return template. Mohan and Zhang (2014) find that public pension funds: take more risk if they are underfunded and have lower investment returns in prior years; states facing fiscal constraints allocate more assets to equity and have higher betas; and California Public Employees Retirement Systems' (CalPERS) equity allocation and beta is mimicked by other public pension plans. O'Reilly (2014) argues that it is fully possible that the federal government will be forced to bail out pensions in an event of a default and thus it is better to take the difficult steps now to make the pension funds fully funded now and that inaction will be lot more costly. Across Europe, Wolf et al. (2014) find that political parties in western democracies who are supposed to be supporters of pension benefits were able to make deeper cuts in pension benefits.

Analyzing institutions in UK, Switzerland, Sweden and Netherlands--Cumming et al. (2011) conclude that investment in listed private equity is made more commonly by smaller, private (not public) pension institutions. Kelley (2014) finds that special interest groups and median voters are the main drivers of pension funding levels. Rich and Zhang (2015) find that municipalities that permit direct citizen participation in legislative process (via petition drives) are associated with better funded DB pension plans. Bradley et al. (2016) find that pensions with higher proportion of politically affiliated trustees invest in riskier assets, and powerful politicians can impose political pressure on state pensions to invest in politically connected local firms. Finally, Wang and Mao (2015) state that many public pension fund boards are dominated by politicians (appointed or ex officio trustees) which have no direct financial interest in a fund's performance. They point out that many use pension funds to advance their political careers. States that are red (leaning Republican) and blue (leaning Democrat) and its impact on allocation in alternative assets has not been by analysed in prior literature. Our analysis adds to the literature by determining whether states considered Democratic or Republican generally influence the percentage of pension funds being allocated to alternatives. Put differently, do the democratic leaning states tend to invest to a lesser degree, public pension funds in alternatives in comparison to Republican leaning states?

DATA AND METHODOLOGY

This paper examines the relationship between political party affiliation, primarily Republicans and Democrats at the state level and behavioural changes in riskier investments by state public pension fund managers. The analytical framework applies two random effects panel econometric models. The dependent variables are average annual returns [model 1, see eq. 2], and the Sharpe Ratio [model 2, see eq. 3]. The explanatory

variables are investment in alternative assets, real estate, all bonds (domestic and international), international equities, other assets and a dummy variable for political party affiliation. The public pension plans analysed pertain to state workers, teachers and others (Public Fund Survey, 2015). Determination of whether a State is Democratic or Republican is based on US Senate election results for 2000, 2004, 2008 and 2012. The election data was retrieved from the US Federal Election Commission website (FEC.gov, 2015). A state is classified as either Democratic or Republican based on the overall total number of votes received by a senate candidate. Thus, if the voters of a state elected a Democrat senator during that election, it was determined to be democratic leaning state and if the voters of a state elected a Republican senator, it was determined to be a Republican leaning state. The Public Fund Survey (2015) is an online compendium of key characteristics of most of the nation's largest public retirement systems. Beginning with fiscal year 2001, the Survey contains data on public retirement systems that provide pension and other benefits for 12.6 million active (working) members and 8.2 million annuitants (those receiving a regular benefit, including retirees, disabilitants and beneficiaries). Equation [1] below gives the general form of the random effects panel regression model. The composite and idiosyncratic error term is uncorrelated with all past, current and future time periods for each individual unit. Y_{it} is the dependent variable observed for individual i in time t . X_{it} is the time-variant regressor, α_i is the unobserved individual effect, u_{it} is the error term.

$$y_{it} = \beta_0 + X_{it}\beta_k + \alpha_i + u_{it} \quad [1]$$

$$\begin{aligned} Avg\ Returns_{it} = & \beta_0 + \beta_{i1} Alternatives + \beta_{i2} RealEstate + \beta_{i3} Bonds + \beta_{i4} IntEquities \\ & + \beta_{i5} OtherAssets + \beta_{i6} DemDummy + \alpha_i + u_{it} \end{aligned} \quad [2]$$

$$\begin{aligned} SharpeRatio_{it} = & \beta_0 + \beta_{i1} Alternatives + \beta_{i2} RealEstate + \beta_{i3} Bonds + \beta_{i4} IntEquities \\ & + \beta_{i5} OtherAssets + \beta_{i6} DemDummy + \alpha_i + u_{it} \end{aligned} \quad [3]$$

Two random effects panel regressions were used to analyse average annual returns [see eq. 2], and the Sharpe Ratio [see eq. 3] controlling for the type of financial instruments invested in state public pension funds. A dummy variable ($\beta_{i6} DemDummy$) was created to measure the effects of state political party affiliation on dependent variables average returns and the Sharpe Ratio, respectively. This paper examines whether there is a correlation between political party affiliation and taking on higher levels of risk (i.e., investing in alternative assets rather than the traditional and safer financial instruments such as stocks and government bonds)? State public pension funds average annual returns did not perform as expected in the past decade or so (Table 1). In early 2000s, average annual returns (not taking into account political party affiliation) were negative in fiscal years 2001 (-5.9%), 2002 (-6.3%) and 2003 (-2%). While the funded ratio in 2001 (98.8%), 2002 (91.4%) and 2003 (86.2%) also declined. Average annual returns were at their lowest in 2002 (-6.3%) and the funded ratio reached its lowest mark in 2013 (68.4%). Meanwhile, the shift to alternatives and away from traditional and safer investments such as bonds and equities transpired at the cusp of the Great Recession of 2008-2009. From 2001 to 2007, investments in alternatives was between 4.2% (2001) to 6.8% (2007). By 2008, alternatives investments increased to 10.7 and reached a high of 16.7% in 2013. The increase in alternatives investments coincided with decreases in both bonds, 2001 (31.2%) and in 2013 (20.9%), and equities, 2001 (57.2%) and in 2013 (46.5%), respectively.

To measure the correlation between risk and expected returns in different types of financial assets and their associated risk levels, Sharpe Ratio is used. A positive Sharpe Ratio indicates higher expected returns relative to the risk associated with the financial instrument, while a negative Sharpe Ratio indicates lower expected returns relative to the risk associated with the financial instrument. A positive Sharpe Ratio is favourable, preferably above one because the asset earns a higher expected return relative to its associated

risk level. Stated differently, a negative Sharpe Ratio indicates that higher levels of risk did not translate into higher levels of expected returns and the asset underperformed relative to its risk level. Table 1 below, shows a negative Sharpe Ratio for fiscal years 2001 (-2.13), 2002 (-1.76) and 2003 (-.68); while being positive in 2004, even though, the value did not reach above one until 2013 (1.11). This illustrates that from 2004 to 2012 expected returns from investments in riskier assets did not come to fruition and thus could not contribute adequately to the public pension fund portfolio.

State public pension funds average annual returns did not perform as expected in the past decade or so (Table 1.). In early 2000s, average annual returns (not taking into account political party affiliation) were negative in fiscal years 2001 (-5.9%), 2002 (-6.3%) and 2003 (-2%). While the funded ratio in 2001 (98.8%), 2002 (91.4%) and 2003 (86.2%) also declined. Average annual returns were at their lowest in 2002 (-6.3%) and the funded ratio reached its lowest mark in 2013 (68.4%). Meanwhile, the shift to alternatives and away from traditional and safer investments such as bonds and equities transpired at the cusp of the Great Recession of 2008-2009.

Table 1: State Public Pension Fund Investment

Year	Average Annual Returns (%)	Funded Ratio (%)	Sharpe Ratio	Alternative Investment (%)	Bonds (%)	Equities (%)
2001	-5.9	98.8	-2.13	4.2	31.2	57.2
2002	-6.3	91.4	-1.76	4.4	32.5	55.3
2003	-2.0	86.2	-.68	4.6	30.4	57.0
2004	1.9	83.9	0.16	4.4	26.8	61.0
2005	3.6	81.2	0.13	4.5	26.5	61.8
2006	4.9	81.9	0.05	5.5	25.4	62.2
2007	6.5	83.0	0.43	6.8	24.2	61.2
2008	4.6	80.4	0.67	10.7	25.9	54.3
2009	2.3	74.6	0.48	12.6	26.8	51.4
2010	3.3	72.9	0.71	14.0	26.4	49.9
2011	4.5	70.8	0.99	15.0	24.0	51.1
2012	4.4	68.7	0.98	17.4	23.3	48.1
2013	5.0	68.4	1.11	16.7	20.9	46.5

This table shows the annual average returns, funded ratio, Sharpe Ratio, alternative investments, bonds and equities for variables under consideration over the sample period from fiscal year 2001 to 2013. Annual return is the return an investment provides over a period of 2001 to 2013, expressed as a time-weighted annual percentage. We define the funded ratio as ratio of a pension or annuity's assets to its liabilities. A funding ratio above 100 indicates that the pension or annuity is able to cover all payments it is obligated to make. The Sharpe ratio is defined as the average return earned in excess of the risk-free rate per unit of volatility or total risk. Alternative investment excludes conventional investment types, such as stocks, bonds and cash.

When analysing public pension fund money managers' investment strategies pre-post Great Recession (Table 2), their main focus was directed towards alternative investments and away from bonds and equities. There was a 169.6% increase of investment in alternatives pre-post Great Recession. The second highest increase was in real estate (31%). The largest declines were in international bonds (-81.5%), U.S. equities (-43%) and U.S. bonds (-35.1%), respectively.

Table 2: State Public Pension Fund Investment Pre-Post Great Recession

Investment in (%)	Pre-Recession (2001-2008)	Post-Recession (2009-2013)	(%) Change Pre-Post Recession	All Years (2001-2013)
All Bonds	27.7	24.3	-12.3	26.5
All Equities	58.8	49.1	-16.5	55.2
Alternatives	5.6	15.1	169.6	9.3
Cash Short Term	2.4	2.7	12.5	2.5
Intl. Bonds	0.5	0.10	-81.5	0.7
Intl. Equities	14.9	15.6	4.7	15.1
Other Assets	1.1	1.2	9.1	1.1
Real Estate	4.2	5.5	31.0	4.7
U.S. Bonds	7.7	5.0	-35.1	6.7
U.S. Equities	39.5	22.5	-43.0	33
Avg. Returns	0.9	3.9	323	2.1
Funded Ratio	86	71	-17	80
Sharpe Ratio	-.396	.856	115	.085

This table shows investment of state public pension funds before and after the Great Recession in percent of the overall investment for variables under consideration in this study over the sample period from fiscal year 2001 to 2013. The Great Recession was defined according to the Business Cycle Dating Committee, National Bureau of Economic Research (NBER). Prior to the Great Recession money managers followed a more conservative approach to investment in public pension after the Great Recession the data shows a significant shift to make up lost ground in investing in alternative types of financial instruments.

The public pension fund data also supports political party affiliation and changes in investment behaviour from safer assets into riskier alternatives (Table 3). Focusing on pre (2001-2008) – post (2009-2013) Great Recession, Democrats increased investments into alternatives by 97.3%, while Republicans increased it by 312.8%. This shift was due to the decline in investment in U.S. equities--Democrats (-79%) and Republicans (-75%). In the case of U.S. bonds, there was a small decline for Democrats (-17%) while a greater decline for Republicans (-61%).

Table 3: Party Affiliation Differences in State Public Pension Fund Investment

Investment in (%)	Pre-Recession (2001-2008)		Post-Recession (2009-2013)		All Years (2001-2013)	
	Dem	Rep	Dem	Rep	Dem	Rep
All Bonds	25.1	30.7	23.6	25.6	24.4	29.1
All Equities	59.9	57.7	48.9	50.4	54.9	55.5
Alternatives	7.4	3.9	14.6	16.1	10.6	7.6
Cash SR Term	2.0	2.8	2.6	3.0	2.2	2.9
Intl. Bonds	0.4	0.7	0.64	1.6	0.5	0.9
Intl. Equities	16.7	13	16.3	14.0	16.5	13.4
Other Assets	1.4	0.7	1.3	0.97	1.4	0.8
Real Estate	4.2	4.2	6.3	4.0	5.1	4.1
U.S. Bonds	4.8	10.7	4.1	6.6	4.5	9.5
U.S. Equities	40.7	38.4	22.8	21.9	32.7	33.4
Avg. Returns	1.0	0.9	4.0	3.8	2.3	1.8
Funded Ratio	84	88	71	70	78	82
Sharpe Ratio	-.389	-.403	.871	.829	.177	-.032

This table shows the average investment as a percentage of the total in the variables under consideration in the study pre-post Great Recession by Republicans and Democrats over the sample period, pre-recession (2001 to 2008), post-recession (2009 to 2013) and all years (2001 to 2013), respectively. Average returns post-recession are higher indicating greater returns from investment in alternative financial instruments. This was evident for both Republicans and Democrats alike. Average returns were modest for all years--which raises concerns about investing strategies of properly funding benefits of holders of public pensions.

Table 4 below shows that the average annual returns increased when invested in alternative (6.5%), real estate (19.5%), and other assets (15.8%) but there was a decline in the case of bonds (-17.5%). The average annual returns for Democrats and Republicans is 1.8% and 5.1% respectively. The Sharpe Ratio was 2.69 for alternatives and 6.32 in the case of real estate. In both cases, investment in alternatives and in real estate, the

expected returns were higher relative to the risk incurred by the investments. For bonds, the expected returns were lower relative to the risk levels of the investments. The Sharpe Ratio for Democrats is .571 and for Republicans 1.09. The overall R-Squared for average returns and Sharpe ratio are .089 and .112, respectively. In random effects panel regression models it is common to have a low R-Squared due to the nature of the data i.e., cross-sectional rather than primarily time series data.

Table 4: Maximum Likelihood Panel Regression Random Effects Estimation of Average Returns and Sharpe Ratio

Dependent	Model 1 Average Returns (%) [Coef.]	Model 2 Sharpe Ratio (Levels) [Coef.]
Alternatives	6.5* (0.025)	2.697*** (0.589)
Real Estate	19.5** (0.068)	6.328*** (1.63)
Bonds	-17.5*** (0.029)	-4.087*** (0.649)
Equities	1.4 (0.021)	-.617 (0.482)
Other Assets	15.8* (0.069)	-1.859 (1.61)
Cash Short-Term	1.09 (0.073)	3.574 (1.72)
DemRepDummy	1.8** (0.006)	0.571*** (0.131)
Constant	3.3 (0.091)	0.572 (0.442)
Sigma u	2.4 (0.004)	0.649*** (0.096)
Sigma e	3.9 (0.001)	0.895*** (0.025)
rho	28 (0.072)	0.344 (0.071)
R-Squared (overall)	0.089	0.112
N. of Cases	728	728

*This table shows the estimation results of maximum likelihood panel regression models 1 and 2. The dependent variables for model 1 and model 2 are average annual returns and Sharpe Ratio, respectively. Model 1 variables are in percentage and model 2 in levels, respectively. Rho indicates the variability in investment across panels due to differences in financial instruments. Sigma u and sigma e are standard deviations of the residuals within groups and the overall estimated model, respectively. The numbers in parentheses are the standard errors and *, **, *** indicate significant levels at the 10%, 5% and 1%, respectively.*

CONCLUDING COMMENTS

State public pension funds data for fiscal years 2001 to 2013; support our claim that state public pension funds money managers shifted their focus away from safer and more traditional investment strategies to more risky investments to reap the higher levels of expected returns. The data also upholds that there are statistical differences between Democrats and Republicans investment strategies and managerial investment behaviour overseeing state public pension funds portfolios. The panel regression results show that investment in alternative assets and real estate increased average annual returns by 6.5% and 19.5%, respectively. The Sharpe Ratio is 2.967 (alternatives) and 6.328 (real estate) which illustrate that expected returns were higher relative to the risk level of the asset. Overall, during the study period (2001-2013), we found that the Democrats tend to invest more in alternative investments and accrue higher levels of risk in contrast to the Republicans. However, the data analysis of pre and post Great Recession leads to mixed results. For alternatives investments, pre Great recession, the difference between Democrats and Republicans is statistically significant but insignificant for post Great Recession.

This research is limited since many of the pension trustees and managers are appointed by the state governor. Therefore, an analysis based on the governor's political affiliation should also be completed. Although, this limits our findings, many of the state governors go on to become senators at the federal level while being

member of the same political party. Our future research will include this analysis and any recent trends such as pension funds moving away from alternatives (i.e., hedge funds) and active managers.

Ultimately, the \$1 trillion gap in large public-worker retirement systems pensions is forcing the Democrats and their affiliated groups to focus toward overhauling and finding solutions to reducing the pension funding gap in the United States (Martin & Maher, 2015). The appropriate; however, unpopular solution is a combination of increased realistic contribution by employers and employees and reduction in promised benefits (The Economist, 2015). The changes are already underway. In 2015, CalPERS—the largest public retirement system in US, and considered a bellwether of large public pension plans (Lanhart, 2014)—announced that it was eliminating its investments in hedge fund holdings (Morgenson, 2015). These steps are sorely needed since the funding gap not only hurts the future beneficiaries, but the continuing funding gap leads to a State's poor credit rating (in turn leading to more expensive borrowing costs), but also siphoning off funds that could go to schools, social services (Lowenstein, 2010), infrastructural investments, and health care support. This is not a lost cause because as recently as 2000, New York City's pension funds were more than fully funded at 136% of needed contributions (Dorfman, 2014). Therefore, there is no reason to believe that with some transparent and correct decisions, pension funds will become healthy again.

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