NBER WORKING PAPER SERIES

THE IN-STATE EQUITY BIAS OF STATE PENSION PLANS

Jeffrey R. Brown
Joshua M. Pollet
Scott J. Weisbenner

"
"
"

The In-State Equity Bias of State Pension Plans
Jeffrey R. Brown, Joshua M. Pollet, and Scott J. Weisbenner
NBER Working Paper No. 21020
March 2015
JEL No. G11,G23,H75

ABSTRACT

This paper provides evidence on the investment behavior of 27 state pension plans that manage their own equity portfolios. Even though these state plans typically hold broadly diversified portfolios, they substantially over-weight the equity of companies that are headquartered in-state. The over-weighting of within-state stocks by these plans is three times larger than that of other institutional investors. We explore three possible reasons for this in-state bias: familiarity bias, information-based investing, and political considerations. While there is a substantial preference for in-state stocks, there is no similar tilt toward holding stocks from neighboring states or out-of-state stocks in the state's primary industry. States generate excess returns through their in-state investment activities, particularly among smaller stocks in the state's primary industry. We also find that state pension plans are more likely to hold a within-state stock if the headquarters of the firm is located in a county that gave a high fraction of its campaign contributions to the current governor. These politically-motivated holdings yield excess returns for the pension fund.

Jeffrey R. Brown
Department of Finance
University of Illinois at Urbana-Champaign
515 East Gregory Drive
Champaign, IL 61820
and NBER
brownjr@illinois.edu

Joshua M. Pollet
College of Business
University of Illinois at Urbana-Champaign
4039 BIF
515 E. Gregory Drive
Champaign, IL 61820
pollet@illinois.edu

Scott J. Weisbenner
University of Illinois at Urbana-Champaign
Department of Finance
340 Wohlers Hall, MC-706
1206 South Sixth Street
Champaign, IL 61820
and NBER
weisbenn@illinois.edu

1. Introduction

By nearly any measure, state and local pension plans are important institutions in the U.S. economy. Public defined benefit plans held assets of over $3.7 trillion in 2014[1] (Federal Reserve, 2014). With more than a third of these assets held in corporate stocks, public pensions account for approximately 6 percent of the ownership of the U.S. stock market.[2] In terms of participants, the U.S. Census Bureau reports that there were nearly 20 million members in state and local retirement plans in 2012, with over 9 million receiving benefit payments.[3] Because the responsibility for funding these defined benefit (DB) plans lies with the sponsoring government, taxpayers that are not employed in the public sector also have a stake in how these pension plans are managed. Thus, the investment decisions of these pension systems are of substantial interest to state employees as well as the general public.

Although most state and local plans outsource their asset management activities to outside money management companies, many of the larger state plans internally manage their own equity portfolios. This raises natural questions about how well these states manage their equity portfolios. This is of particular concern because public pensions operate in a more politically-charged environment than private pensions. In this paper, we reconstruct the detailed equity portfolios of the 27 state pension plans that, for at least part of our sample period, managed their own U.S equity investments. We analyze these equity portfolios for in-state investment bias and, given the evidence of a substantial bias, we examine explanations for and the consequences of over-weighting in-state stocks.

---

[1] Federal Reserve, Flow of Funds Accounts of the United States: Flows and Outstandings, Third Quarter 2014, Table L.118, line 21 (http://www.federalreserve.gov/releases/z1/current/z1.pdf).
[2] According to the U.S. Census Bureau's 2012 Annual Survey of Public Pensions, total state and local government holdings of corporate stocks amounted to $1.11 trillion of total 2012 assets of $3.05 trillion (http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk). For comparison, total U.S. stock market capitalization was $18.67 trillion in 2012 (https://www.quandl.com/c/economics/stock-market-capitalization-by-country).
[3] https://www.census.gov/govs/retire/.

We construct the individual equity portfolios of these plans, an exercise made possible due to the legal requirement that "institutional investment managers who exercise investment discretion over $100 million or more in Section 13(f) securities must report their holdings on Form 13F with the SEC."[4] Effectively, this means that all public pension funds that manage their own stock investments worth in aggregate at least $100 million must file a detailed 13F report with the SEC that includes for each asset the name, CUSIP number, number of shares, and value of all securities held on the last day of the reporting period. The 13F data can be aggregated to create the entire equity portfolio held by these state funds on each quarterly reporting date, and these aggregate amounts can be compared with independent sources of data on equity holdings of these plans to provide assurance that we are accurately measuring the plan's equity holdings. With this unique data, we can then explore how these states manage their own U.S. equity portfolios.

Like most pension plans, states that manage their own portfolios tend to hold a broadly-diversified portfolio of stocks. Relative to the value weighted index of all U.S. equities, these state-managed plans overweight large stocks (i.e., constituents of the S&P 500 index). Given these holdings, it is not surprising that their performance tends to be highly correlated with broad market indices.

A more in-depth analysis reveals strong evidence that these plans over-weight the stocks of companies that are headquartered in the state. The size of this in-state bias is both economically and statistically significant: on average, in-state stocks represent 9.7 percent of these states' pension portfolios, versus a 5.6 percent weighting that would occur if the state plan was invested to mimic the overall value-weighted market portfolio – leading to a within-state

---

[4] http://www.sec.gov/answers/form13f.htm.

bias of 76%. This tilt toward within-state stocks is three times larger than the 24% within-state bias that Baik, Kang, and Kim (2010) found for institutional money managers in general.[5]

The evidence of in-state bias is particularly interesting given the intuition of standard portfolio theory in the presence of risky income from other sources. This theory suggests that, all else equal, state governments should optimally *under*-weight in-state stocks rather than over-weight them, because each state's economic activity, tax revenue, and the income of state residents is more positively correlated with the performance of in-state stocks compared to other stocks. For example, if the economy of California is highly correlated with the performance of the high-tech industry, then standard tax or consumption smoothing models would lead California to under-weight tech stocks in order to ensure that the pension does not lose value at precisely the same time that California is experiencing economic difficulties or fiscal pressures. To over-weight in-state stocks is analogous to an individual investing in the stock of her own employer. Doing so increases the correlation between labor income and stock performance. This decision would increase, rather than decrease, the *overall* portfolio risk. Indeed, we find, controlling for year and state effects, that the return on the stock investments in a state pension plan is strongly correlated with growth in state tax revenue during the next year.

Given the intuition that counsels against an in-state bias, and the potential costs of this lack of diversification, why might states still choose to use this approach? We explore three reasons. The first is *familiarity* bias, or put simply, the tendency for people and institutions to invest in what they know (Huberman, 2001).[6] A key feature of familiarity bias is that it is not

---

[5] Their sample includes mutual fund managers, independent investment advisers, insurance companies, banks, and public and private pension fund managers. They find that within-state holdings are 8.2 percent of institutional portfolios, which is 24% larger than the 6.6% they would hold if they mirrored the market.
[6] Other examples of familiarity bias include the home bias puzzle, i.e., the tendency of citizens of countries to over-invest in stocks from their own country (e.g., French and Poterba, 1991), as well as Bernartzi's (2001) finding that 401(k) participants in general overweight their investment in employer stock but companies with high ownership of

information-based, i.e., investing in the familiar does not lead to excess returns. If local investing induces a positive correlation between the state's economy and its pension fund performance while delivering no excess returns, then the citizens of the state would experience a welfare loss as a result of this in-state investment bias because of the extra risk involved (i.e., when the pension fund is performing poorly, state tax revenue is also in decline).

A second possible reason for the in-state bias is that the officials making the investment decisions have an *information advantage* with regard to in-state stocks. Evidence of an information advantage for local investors has been found in many other contexts, including institutional money managers (e.g., Coval and Moskowitz, 2001, and Baik, Kang, and Kim, 2010), individual investors (e.g., Ivković and Weisbenner, 2005), equity analysts (e.g., Malloy, 2005, and Bae, Stulz, and Tan, 2008), and "block" acquirers of corporate shares (Kang and Kim, 2008). There are two distinctions between the "familiarity" explanation and the "information" explanation. First, and most importantly, the latter implies excess returns while the former does not. Second, familiarity based on geography or industry should be associated with greater holdings of stocks located in nearby states as well as greater holdings of out-of-state stocks in a state's dominant industry.

A third possible explanation is that state pension plan investment allocations are affected by political considerations. The first two explanations are typically distinguished on the basis of whether the returns on local (or in this case, in-state) investments outperform non-local investments. The relevance of the third explanation is evaluated by examining the link between investment decisions and various measures of political activity (e.g. voting patterns and campaign contribution data for the most recent gubernatorial election cycle). It is worth noting

---

employer stock in their 401(k) plan do not outperform companies with lower concentrations of ownership in employer stock.

that these three explanations are not mutually exclusive, and all three could contribute to the overweighting of within-state stocks.

Our evidence is supportive of an information-based explanation and is not consistent with broad-based familiarity tied to geography or industry. For example, although state pension fund managers invest disproportionately in the within-state stocks in the state's primary industry (e.g., energy for Texas, finance for New York, business equipment/computers for California), they do not favor out-of-state stocks in this same dominant home-state industry. In addition, the performance results suggest that information advantages stop at the borders of the state.

To test for the presence of information-based investing, we initially analyze the subset of the state pension plans' portfolio where we might expect within-state investors to have an informational advantage over non-local investors. Following Ivković and Weisbenner (2005), we examine the return to investments in small stocks that are not constituents of the S&P 500 index (and thus do not have the same level of national attention). We pay particular attention to the stocks of small firms that are members of the state's primary industry. We find that state pension fund managers deliver excess returns (as measured by the alpha) by investing in small, in-state stocks, especially those that are in the state's largest industry. Indeed, we find that among non-S&P 500 firms in a state's largest industry (as measured by the industry's share of total market capitalization among all in-state firms), state pension fund investment managers are able to outperform the out-of-state small firms in the same industry by 6.5% per year (controlling for the underlying risk of the investments in a four-factor model).

Another test of information-based investing is a comparison of the performance of stocks held and those not held by the pension fund. We find that the within-state stocks pension plans hold outperform the within-state stocks they do not hold by 3.0% per year; this differential

increases to 5.0% per year when we focus on within-state stocks held versus not held that are in the state's largest industry. Moreover, we find that among the stocks of small firms in the state's largest industry, the stocks that the pension fund holds outperform those that it chooses not to hold by 8.3 percentage points per year. Consistent with the information advantage of state pension plans stopping at the state boundary, no significant return difference exists between out-of-state firms that the plan invests in versus those it does not. The evidence indicates that some portion of the active management by state pension plans results in stock selection with an information advantage.

While the evidence is consistent with there being an information-based rationale for overweighting in-state stocks, we also find evidence suggesting the relevance of political factors. We obtain gubernatorial campaign contribution data from the Institute on Money in State Politics and gubernatorial election data from Polidata. These datasets allow us to link county-level campaign contributions and electoral outcomes to the county where a firm is headquartered. The evidence indicates that state pension plans are more likely to hold a within-state firm in its portfolio if the county where the firm is located gave a high fraction of its campaign contributions in the last election to the current governor. Interestingly, the performance of in-state investments is strongest for stocks in the counties that gave the current governor the highest fraction of their financial support during the preceding election cycle, with these potentially politically connected holdings earning risk-adjusted returns that are 5.7% higher on an annual basis than the stocks from the counties that were less generous to the governor. Although we are unable, due to data limitations, to further identify the channel through which political connections influence state pension plans, our results are consistent with the importance of networking in fund management (as found in Cohen, Frazzini, and Malloy (2008)) and research

on political contributions/connections and stock returns (e.g., Cooper, Gulen, and Ovtchinnikov (2010)).

This paper proceeds as follows. Section 2 discusses the prior literatures on state pension plans and their investment behavior as well as the literature in finance about local investing. Section 3 documents the U.S. equity holdings of state pension plans that decide to manage their own stock investments and the evidence of a strong in-state bias. Implications of the within-state bias are discussed in Section 4. Section 5 concludes and offers extensions.

2. Prior Literatures on State Pension Plan Investment Behavior and Local Investing

2.1 State Pension Plan Investment Behavior

Despite the importance of state and local plans, the empirical literature analyzing their investment behavior is rather small. This fact is explained largely by data limitations. Early papers relied primarily on the PenData data, which was derived from a survey of state and local pension plans conducted on an irregular basis from the late 1980s through the late 1990s. Useem and Mitchell (2000) provided evidence that governance policies – most notably independent performance evaluations – influenced asset allocation at broad levels, such as the mix of equity and fixed income investments, the share of non-U.S. assets, and whether a plan contracts externally for asset management. Coronado, Engen, and Knight (2003) showed that public pension plans earned a lower rate of return than private plans in 1998, but the authors were unable to determine whether this under-performance was reflected different allocations across broad asset classes or inferior investment selection abilities within an asset class. Munnell & Sunden (2001) discuss that in the early 1980s, some public plans sacrificed returns for "social

considerations," but that plan managers became increasingly sophisticated and (at the time of their study) performed on par with their private sector counterparts.

More recent studies have used other data sources. Munnell, Haverstick, Soto, and Aubry (2008) use data from the Census of Governments to obtain an understanding of the broader universe of public plans, including more than 2,000 locally-administered plans. The authors were able to analyze broad trends in overall equity allocation, but did not have detailed information on equity holdings. Similarly, Pennacchi and Rastad (2011) analyzed portfolio allocations of 125 state pension funds from 2000 to 2009 using data from Wilshire Associates, and found that plans chose greater asset-liability portfolio risk following periods of relatively poor investment performance.

Even though each of these studies provided useful insights on asset allocation, none of the authors had data on the specific securities held by public plans. Thus, the authors were unable to investigate the existence or extent of any in-state portfolio bias. The key advantage of our data is the specific information about the decision of a pension plan to hold a particular stock. This level of detail enables us to not only document in-state investment bias, but also differentiate among competing explanations for it. Analysis at the security level allows us to control for differing riskiness across various potential stock investments and enables us to link characteristics of the firm and the location of the firm's headquarters to whether the state pension fund decides to hold that firm's stock.

Only one other study has been able to examine the in-state bias and performance of public pensions using detailed portfolio data. Hochberg and Rauh (2013) study limited partner private equity holdings of public pensions and find over-weighting of in-state investments. They find that public pensions over-weight in-state private equity by approximately 10 percent of the

private equity portfolio, or about half of one percent of the overall state pension portfolio.[7] An important distinction of our study from theirs is that we focus on publicly-traded stocks, not private equity. This distinction is important for at least two reasons. First, according to Wilshire Consulting (2014), holdings of domestic public equity by state plans in the U.S. were more than three times larger than holdings of private equity, comprising 28.1 percent of the portfolio, versus 9.2 percent for private equity (with this difference in portfolio share being larger in earlier years). Second, because holdings of public equity are plausibly more transparent to the public than are holdings of private equity, there may be different incentives and different opportunities for tilting the investment portfolios. Indeed, as we will discuss in more detail below, Hochberg and Rauh (2013) find evidence of underperformance of state plans in within-state private-equity investments, whereas we document over-performance in within-state public-equity holdings.

2.2 Local Investing

A growing literature in finance documents that many different types of investors seem to tilt their portfolio holdings toward local investments and, further, make better stock picks or recommendations concerning firms that are geographically proximate. The interpretation of this finding is that investors located closer to a potential investment may have more information concerning that investment than more distant investors.

Coval and Moskowitz (1999) examine the holdings of U.S. mutual fund managers and find a local bias in their holdings. Coval and Moskowitz (2001) further find that mutual fund managers' local investments (defined as investments in firms located within 100 kilometers of the manager) outperform their non-local investments by 2.65% per year. However, since mutual

---

[7] According to Wilshire Associates (2014), private equity comprised about 5.6% of the overall portfolio of state pensions in 2008, which is near the end of the sample analyzed by Hochberg and Rauh. We note that the share of state portfolios in private equity has increased, and the share in public equities has decreased, since that time.

fund managers may target a particular benchmark index, the extent to which they can tilt their portfolio toward local stocks appears to be limited – the bias in aggregated mutual fund holdings is only 13% (mutual fund managers invest 7% in local stocks; if they all simply invested in the stock market, the percent of local holdings would be 6.2%).

Baik, Kang, and Kim (2010) extend the work of Coval and Moskowitz by examining the portfolio decisions of all institutional money managers (that is, all institutions that file a Form 13F with the SEC disclosing their U.S. equity holdings). Besides mutual fund managers, this includes investment advisors, insurance companies, banks, and the small number of pension plans and endowments that manage their own money. They find that these institutional investors tilt their holdings to local stocks, with a local bias of 24% (their definition of a local investment is the holding of a firm headquartered within the same state as the fund manager, which makes their result on local bias directly comparable to our analysis of in-state bias). In general, institutional money managers invest 8.2% of their portfolio in within-state stocks (while their market weight is 6.6%). Again, there appears to be some information in the local holdings of institutional investors because these holdings earn excess returns, particularly for those entities classified as investment advisors.

Equity analysts and corporate acquirers also seem to exploit a local informational advantage. Malloy (2005) finds that geographically-proximate analysts issue more accurate forecasts and update their forecasts more frequently. Bae, Stulz, and Tan (2008) document local analysts' information advantage in a non-U.S. setting. Kang and Kim (2008) find that local acquirers of a "block" of corporate shares engage in more monitoring than do more distant acquirers, with the more local target earning a higher return on the announcement of the acquisition and having better post-acquisition operating performance.

Finally, individual investors exhibit a strong local bias in both their 401(k) plan through investments in employer stock (Benartzi, 2001) and through their direct stock holdings outside of their retirement plan (Ivković and Weisbenner, 2005). Indeed, the local bias among individual investors is substantially larger than that for institutions: the typical individual holds one-third of their stock portfolio in local stocks, whereas if they instead invested in the overall market, the fraction of local stocks would be just over one-tenth. Benartzi (2001) finds no information advantage, i.e., there is no difference in the future performance of stocks with low or high company stock allocations in the firm's 401(k) plan. However, Ivković and Weisbenner (2005) find that outside their retirement plan, individuals' local stock holdings outperform their non-local stock holdings,[8] but only for the subset of stocks not in the S&P 500. For the nationally-known S&P 500 stocks, the authors find that being "local" confers no informational advantage.

Thus, a local tilt in portfolio holdings, although slight in many cases, has been documented across several different types of market participants with many of them earning some "return to their locality." State pensions are of particular interest because, unlike other institutional investors, they have to take into account both background risk (how is the performance of holdings in the pension fund related to the state's tax revenue growth), as well as political considerations when making their investment decisions.

3. What U.S. Stocks Do State Pension Plans Hold?

3.1 Overview of Portfolio-Holdings Data

In order to construct the equity portfolio holdings for the states that self-manage their portfolios, we obtain data on plan-level holdings of publicly traded stocks from the SEC form

---

[8] While Massa and Simonov (2006) document a similar result for investors in Sweden, Seasholes and Zhu (2010) challenge this conclusion.

13F filings. Institutional investment managers with more than $100 million under management in domestic equities are required to file the 13F report. Investment managers disclose their holdings on a quarterly basis.[9]

Most states have multiple public plans: a 2007 Wilshire Associates research report on the financial status of state pension plans in 2007 includes 125 state plans in the U.S. The vast majority of these plans contract with outside firms for their investment management. Because these outside investment managers are required only to report their total holdings of each security, and specifically are not required to identify the clients for whom they are holding the assets, it is not possible to evaluate the detailed security holdings by state plans with these outside investment managers. We are able to identify 27 state pension plans that filed 13F forms at least once between the first quarter of 1980 and the third quarter of 2008. In table 1 we show the state plans that are included in our data, the first and last quarters that they appear in our sample (we collected holdings data each quarter through the third quarter of 2008), and the total number of quarters in which they appear in the sample. A few of these states, such as Colorado and Michigan, invest the assets of multiple state pension systems together as one, so these 27 state pension plans are represented by 20 separate investment funds.

We can compare the characteristics of these plans to the ones not in our sample using data from the 2007 Wilshire report on the financial status of state pension plans. Table 2 reports that 21 plans managed their own U.S. equity holdings at the end of 2007 (representing 17 separate investment funds). Although this represents only one sixth of the 125 state plans in the

---

[9] There is some confusion in the academic literature over the filing requirements for form 13F. For example, Badrinath and Wahal (2002) suggest that the filing of a 13F is voluntary for public pension plans. Our discussions with the relevant SEC staff, however, suggest that state pensions with more than $100 million in 13F assets are, in fact, required to file. Thus, the absence of many state pensions from the data is due to the use of investment managers under whose name the assets are reported, not due to the absence of a requirement to report.

Wilshire report, these 21 plans manage more than half (53 percent) of all the state pension plan

assets.

As these figures suggest, it is primarily the very large plans that manage their own equity

portfolio: the median size of the plans in our sample was $54.9 billion in 2007, compared with a

median size of $8.6 billion for plans outside of our sample. These large plans tend to hold a

slightly higher fraction (43%) of their overall portfolio in equities than do the smaller plans not

in our sample (41%). Finally, for state pension plans that report U.S. stock holdings on form

13F, these stock holdings represent the vast majority of the plans total U.S. equity ownership

(obtained by comparing total 13F holdings with total U.S. equity holdings in the Wilshire

report). As seen in Table 2, the U.S. stock holdings reported on the 13F represent approximately

four fifths of total U.S. equity holdings for half of the plans in 2007.

Using the 13F data, we are able to construct the self-managed equity portfolios for these

plans. Our data spans 115 quarters (from the first quarter of 1980 to the third quarter of 2008),

although not all plans manage their own portfolio over the entire sample period. We will report

the state pension plans' equity allocation by size (S&P 500 versus smaller companies) and by

industry classification (we use a 12-industry classification, focusing on the largest industry for a

given state).[10] We also compare the pension plan weights of their U.S. equity investments to the

weights of these particular categories of stocks in the entire U.S. stock market.

3.2 Is There an In-State Bias?

---

[10] The industry classifications are from Ken French's website:
http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/Data_Library/det_12_ind_port.html. The 12 broad industry
categories are: 1) consumer nondurables; 2) consumer durables; 3) manufacturing; 4) energy (e.g., oil); 5) chemicals
and allied products; 6) business equipment (e.g., computers/software); 7) telecommunications; 8) utilities; 9)
wholesale, retail and some services; 10) healthcare; 11) finance; and 12) "other".

Table 3 provides the first evidence that state pension plans managing their own equity portfolios exhibit a substantial in-state bias in their stock holdings. A firm is defined as being in-state if it is headquartered in the same state as the pension plan. In rows 1 through 6, we compare in-state and out-of-state stock holdings – further delineated by large (S&P 500) stocks versus smaller (non-S&P 500) stocks – to the holdings we would expect if these plans simply held a value-weighted index for the entire U.S. stock market. We report portfolio shares on a value-weighted basis – in other words, we simply add up the asset holdings across all 27 plans in our sample for each quarter, compute the portfolio shares for this overall state pension plan portfolio, and then take the average of these shares across the 115 quarters. These value-weighted state-pension plan holdings over the 115 quarters of the sample are then compared to the average quarterly stock-market weights.

On a value-weighted basis, the plans in our sample hold 9.7 percent of their portfolio in in-state stocks (column 1), versus a benchmark holding of only 5.6 percent in the market portfolio (column 2), a difference of 4.2 percentage points in their portfolio (column 3), representing a 76% overweighting (column 4). The Coval and Moskowitz (1999) study of mutual fund managers and the Baik, Kang, and Kim (2010) study of institutional managers in general, were also conducted on a value-weighted basis across funds/institutions, thus allowing direct comparison with our sample of state pension plans. Coval and Moskowitz found mutual fund managers overweight local holdings by 13% and Baik, Kang, and Kim found that institutions in general overweight their within-state holdings by 24% – one third of the within-state bias exhibited by state pension plans that manage their own U.S. equity holdings.[11]

---

[11] We also find that the bias to invest in within-state stocks does not spill over to the stocks of firms headquartered in neighboring states (e.g., Oklahoma for Texas; New Jersey for New York), as the percent underweighting of neighbor-state stocks and non-neighbor out-of-state stocks is very similar (rows 7 and 8 of Table 3).

States exhibiting an in-state bias would seem to be ignoring the initial intuition of most financial economists because this bias would appear to be increasing, rather than decreasing, the volatility of the state's overall fiscal "portfolio" – more on this in Section 4.1 and Table 4. Relative to other institutional money managers, a state pension fund manager should also account for the background risk of the state financial situation. For example, if the economy of Texas (and consequently the state's budget balance) is correlated with the performance of the oil industry, it would be unwise from a diversification perspective for state pension plans in Texas to invest heavily in oil stocks. Indeed, Texas might increase the benefits of diversification by holding airline stocks that do particularly well when oil prices are low.

Prior work on the returns to local information suggests that information advantages are most likely to exist for smaller, non-S&P 500, companies (Ivkovich and Weisbenner, 2005). The intuition is simply that it would be difficult to maintain an informational advantage on the large firms which are national in scope, that tend to have dedicated analysts at leading investment firms, and that receive prominent coverage from the business press. To the extent that informational advantages exist for investments in local firms, therefore, they are likely to be concentrated in smaller firms that receive less national attention.

At first blush, this within-state bias of state pension plans appears to be concentrated in larger S&P 500 stocks, whereas the in-state non-S&P 500 stocks are held in the same proportion as in the market portfolio (rows 2 and 3). However, once one considers that these pension plans underweight small company stocks in general by a wide margin, it becomes clear that the in-state bias is present in the selection of smaller stocks. For example, out-of-state small company stock comprises nearly 27% of the market portfolio, but only 14% of the portfolio of state pension plans (row 6). Thus, while in-state non-S&P 500 stocks comprise 9.7% of all non-S&P 500

stocks in the state pension portfolios (1.5 / 15.5), they account for only 5.3% of the market

weight of all non-S&P 500 stocks (1.5 / 28.3), indicating a substantial within-state bias.

As a final breakdown of the state pension plan portfolio, we examine investment in firms

in the industry that dominate the state's economic base. For example, it is reasonable to think

that investment managers in Texas may know more about the oil industry than investment

managers in Illinois. Further, members of the primary industry in the state may have stronger

within-state political connections than other firms. The final 6 rows of Table 3 present the

portfolio holdings on the basis of whether a firm is in the largest industry in the state (as

measured by total firm market capitalization across the industries in the state at the end of the

prior quarter). For example, when the state in question is California, the state's largest industry

is business equipment/technology (e.g., computer/software), and thus any firm that is in the

business equipment/technology industry is coded as a 1 when the plan being analyzed is a

California plan, and zero otherwise.[12] Thus, Microsoft (headquartered in Washington state)

would be coded as "Largest industry = 1" for California PERS and California Teachers, but

would be coded as "Largest industry = 0" for all other plans in states for which technology is not

the largest industry. The within-state bias of pension plan holdings for stocks in the state's

largest industry is 89% (3.7% of the portfolio but only 2.0% of the market benchmark; row 10),

while the out-of-state bias for stocks in the largest industry in the pension plan's home state is

zero (e.g., investments by the California plans in technology companies in Washington; row 11).

---

[12] We define the largest industry of a state as being the industry with the largest share of aggregate market
capitalization of all public-traded firms in the state at the end of the prior quarter. The industry that is most
frequently the largest industry for the 17 states that have pension plans with 13F holdings in our sample are as
follows: Alaska – telecommunications; California – business equipment (e.g., computers/software); Colorado –
telecommunications; Florida – finance; Illinois – manufacturing; Kentucky – wholesale, retail, and some services;
Maryland – manufacturing; Michigan – consumer durables (e.g., cars); Missouri – consumer nondurables; Montana
– utilities; New Mexico – finance; New York – finance; Ohio – chemicals and allied products; Pennsylvania –
finance; Texas – energy (e.g., oil); Virginia – consumer nondurables; Wisconsin – manufacturing. Thus, there is
considerable diversity of the largest industry across these states as of the 12 Fama-French industries, 10 of them are
the "largest industry" of at least one state (the exceptions being health care and "other").

4. Implications and Explanations of the In-State Bias

4.1 Do Pension Stock Holdings Exacerbate or Mitigate State Fiscal Risks?

The data on portfolio holdings clearly indicate that there exists an in-state bias. Before turning to an analysis of why state pension plans might choose this approach, it is instructive to consider whether this in-state bias is likely to have welfare consequences aside from any differences in returns. The intuition from standard economic models would suggest that a state pension plan would want to avoid investing in securities whose returns are more positively correlated with the home state's tax revenues than other stocks; otherwise, the state will observe a greater decline in its pension assets at the same time that it is also experiencing negative shocks to its tax revenue.

Table 4 reports the correlations of the growth in annual state tax revenue with both the contemporaneous and lagged annual returns on the self-managed U.S. equity portion of the state pension plan from an OLS regression that also includes both year and state fixed effects. The inclusion of year fixed effects assures that the correlation between the growth in state tax revenue and state pension plan performance is identified by variation in plan stock holdings (and their performance) across states as opposed to simple time-series variation in economy-wide factors, such as the U.S. stock market. We find that there is zero correlation with contemporaneous pension returns and the growth in state tax revenue (column 1), but a positive correlation emerges when we lag returns by one year (column 2). Specifically, in column 2, we find a positive coefficient of 0.16 on the one-year-lagged state pension return on U.S. stock holdings. This lead-lag relation likely reflects the fact that stocks are typically leading indicators of changes in a state's economy. These changes are then reflected in tax revenue growth a year later. Thus, state plans are investing in a manner that creates a positive correlation between this

year's pension returns on U.S. stock investments and the subsequent year's growth in tax revenue over and above the baseline correlation between tax revenue growth and the U.S. stock market index. Given the within-state bias in stock investments by state pension plans documented in Table 3, this higher correlation should not be a surprise.

4.2 Familiarity versus Information: Do States Earn Excess Returns from their In-State Bias?

Given that overweighting in-state stocks increases risk to taxpayers (as measured by the correlation between investment returns and the growth in tax revenues), it is important to know whether state pension plans are able to generate excess returns on their stock holdings (consistent with an information-based story), or whether the in-state bias is welfare-reducing and largely driven by familiarity or political factors. Thus, we now turn to an analysis of investment performance.

As a starting point, we report in Table 5 analyses of aggregated state pension plan stock holdings as a whole using standard empirical asset-pricing models. In this and subsequent tables that analyze the returns from various stock holdings, we calculate monthly returns aggregated across state pension plans based on pension plan holdings from the end of the prior quarter (weighted by the dollar amount of the holding). State pension plan holdings are available every 3 months from the end of the first quarter of 1980 to the end of the third quarter of 2008. Thus, the monthly return series calculated based on these holdings spans April of 1980 to December of 2008 or 345 months.

In column 1 of Table 5, we report the results from the CAPM model, in column 2 we report results from a 3-factor model that adds size and value factors (Fama and French, 1993), and in column 3 we report the results from a 4-factor model that adds a momentum factor

(Carhart, 1997). These return analyses suggest that relative to the market portfolio, the self-managed state plans tend to overweight large stocks and underweight small stocks (consistent with the portfolio shares documented in Table 3). We do not find strong evidence of any other "style" investing: the coefficients on the value and momentum factors are rather small in magnitude even though they are statistically significant. We also find in Table 5 that the alpha, or risk-adjusted performance, of the *overall stock portfolio* of state pension plans is insignificantly different from zero and small in magnitude. Thus, in aggregate, state pension plan portfolios mimic the U.S. stock market, with a slight tilt towards large-cap stocks.

The more detailed analysis in Table 6 reveals some evidence consistent with information-based portfolio decisions. In this table, we separately measure alpha for in-state and out-of-state stock holdings.[13] *A priori*, we would expect that if the state pension plan managers have an informational advantage on any type of their plan holdings, it would most likely be the home-state stocks of firms that are within the state's largest industry (i.e., Texas pension plan managers likely know more about oil/energy firms than do New York pension plan managers). In particular, we would expect this advantage to be stronger in smaller (non-S&P 500) stocks that have less of a national reputation and receive less coverage from professional analysts.

We begin by looking at holdings in panel A of Table 6. Across all industries (the first row), the alphas are not significantly different across in-state and out-of-state investments. Consistent with the hypothesis that it is difficult to have or maintain an information advantage for larger, more well-known stocks, there is no significant difference in the alphas for S&P 500 firms across in-state and out-of-state investments. Although the difference in performance across within-state and out-of-state holdings for non-S&P 500 firms is larger than it is for S&P

---

[13] All risk-adjusted returns (i.e., alpha) reported in Tables 6, 7, and 10 are obtained from a 4-factor model.

500 firms (rising from 4 basis points per month in column 6 to 16 basis points in column 9), it just misses statistical significance (p-value = 0.11).

In row 2 of Table 6, we focus on the largest industry in a state. Here, evidence of information-based selection of stocks surfaces. We find that investments made in stocks that are in the largest home-state industry of the pension plan, the in-state portion of the portfolio significantly outperforms the out-of-state portion of the portfolio. While this is true for both S&P and non-S&P firms, the advantage is more pronounced for the smaller stocks. Specifically, we find that in-state, non-S&P 500 stocks from the state's largest industry outperform out-of-state small stock investments from the same industry by 53 basis points per month, or an annual difference of 6.5 percentage points (roughly twice the differential found for S&P 500 stocks).

A natural question is whether this performance is due to the in-state location or simply due to close geographic proximity. To address this, we have also compared (in results not shown) in-state holdings with holdings from neighboring states (e.g., oil holdings in Texas to oil holdings in Oklahoma from the perspective of the Texas plan). The difference in risk-adjusted returns of in-state and neighbor-state holdings in the largest home-state industry is a statistically significant 0.47% per month for all stock holdings, and 0.58% for non-S&P 500 stocks. Thus, it is the actual in-state location that is important, not geographic proximity that is linked to the superior stock selection – any information-based portfolio holdings seem to stop at the state boundary.

Whereas panel A focused on holdings, panel B of Table 6 focuses on stocks that the pension fund purchased during the prior quarter. We define a purchase of a stock as an increase in the number of shares of stock held by the fund from the start to the end of the prior quarter, adjusted for stock splits. We calculate monthly returns, aggregated across all state pension

funds, for the three months following the purchase made in the prior quarter.[14] As with holdings,

we find no differences in the performance between in-state and out-of-state stock purchases

across all industries, but strong differences in the stocks purchased from the largest industry in

the plan's home state. In particular, we find a 1.16 percentage point difference in monthly

returns between in-state and out-of-state stocks purchased over the prior quarter. This is an

extremely large difference in performance that is driven both by superior performance of in-state

stock purchases (+0.72) and underperformance of out-of-state purchases (-0.43) within the

largest industry.

The prior analysis was based on comparing in-state and out-of-state stocks *held by the*

plans, another way to assess the presence of information-based investing is to test whether these

self-managed state plans are able to choose the better stocks and shun the worse stocks (Coval

and Moskowitz, 2001, conduct such an analysis for mutual fund managers). We examine this

issue in Table 7 by comparing the performance of the stocks in which state pensions chose to

invest relative to those that they avoided, for various types of stock investments.

The evidence in Table 7 is striking: for in-state stocks – and especially for smaller in-

state stocks or in-state stocks from the largest state industry – pension funds appear to be able to

differentially choose between winners and losers (and indeed, they seem particularly adept at

avoiding the losers). The in-state stocks held in the state pension plan outperform in-state not

held in the plan by a statistically significant 25 basis points per month on a risk-adjusted basis, or

3 percent annually. Further, when comparing small (non-S&P 500) stocks in the state's largest

industry, we find that the firms in which the state plan invests have a risk-adjusted return of 32

basis points per month while those firms that are avoided by the state have a negative risk-

---

[14] Specifically, the returns in Panel B of Table 6 are weighted by the dollar amount of the buy (calculated as the
change in shares held last quarter multiplied by the average of the beginning and end-of-period stock prices from the
prior quarter), aggregated across all the state pension plans.

adjusted return of 35 basis points per month, for a difference of 67 basis points per month. This translates into an 8.3 percent annual return difference between the performance of small in-state stocks from the largest industry that the state invests in and the performance of those they shun. Put simply, CALPERS appears to know which in-state small technology stocks to buy and which to avoid, and Texas Teachers knows which in-state small oil companies to buy and which to shun.

Also consistent with an information-based explanation, we do not find any evidence of an information advantage when comparing the returns of "chosen" versus "avoided" *out-of-state* stocks. In results not shown, we also confirm that there is no informational advantage for stocks held versus not held in neighboring states (our prior example of Oklahoma as the neighbor of Texas.) Across all stocks, the return to neighbor-state stocks held minus neighbor-state stocks not held is insignificantly different from zero (0.07% per month, SE = 0.12). A similar analysis of neighbor-state stocks held versus not held that are from the largest industry of the pension fund's home state also show insignificant differences (-0.18% per month, SE = 0.31). Thus, once again, there is something special about the state boundaries, rather than close geographic proximity.

4.3 Political Considerations

Despite some efforts to isolate state pension funds from political interference, state pension fund management is nonetheless potentially subject to political considerations. These considerations could be quite explicit – such as outright corruption (e.g., sharing of inside information, states investing in companies in return for political support, etc.) – or it could be

much more subtle – such as investment managers simply have more exposure to the leadership of well-connected companies (particularly those that share similar political leanings).

Finding systematic evidence of outright corruption is difficult because empirical work is limited by the fact that those who engage in corrupt behavior have an obvious incentive to hide their actions from the public, and thus from researchers. Until quite recently, researchers circumvented this problem primarily by using variation in the amount of corruption perceived by the public.[15] Olken (2009), however, has shown that using corruption perceptions can lead to incorrect conclusions, even if the perceptions appear correct on average. A recently emerging literature – particularly in development economics – has begun to focus on more objective measures. For example, Olken (2007) documents missing expenditures in Indonesian road projects by comparing independent engineering estimates of prices and quantities to official village expenditure reports.[16]

Glaeser and Saks (2006) note that there is no shortage of corruption in the U.S. with federal prosecutors in the U.S. having "convicted more than 10,000 government officials of acts of official corruption, such as conflict of interest, fraud, campaign-finance violations, and obstruction of justice" between 1990 and 2002. Using this data, Hochberg and Rauh (2013) find that overweighting in home-state private-equity investments by public pension funds is greater in states with higher levels of corruption.

Of course, political connections and influence can affect firm value even in the absence of outright corruption. Indeed, a number of papers have used event studies to show that political connections affect firm value. Roberts (1990) provides evidence that U.S. politicians with seniority can provide benefits to specific firms by documenting a differential stock-price reaction

---

[15] Rose-Ackerman (2005) provides a review of this literature.
[16] Other studies of corruption in the development literature include Fisman and Wei (2004), Reinikka and Svennson (2004), Olken and Barron (2007), and Tran (2008).

to the news of the death of Senator Henry "Scoop" Jackson, the powerful chairman of the Senate Armed Services Committee. Jayachandran (2006) uses soft-money donations to national parties as a measure of a firm's political alignment and finds that that for every $250,000 a firm gave to Republicans, the firm lost 0.8% of its market valuation when Senator Jeffords switched parties in 2001. Cooper, Gulen, and Ovtchinnikov (2010) find that firms that make federal campaign contributions subsequently earn higher returns and conclude that "… the contribution effect appears to increase for firms that have longer relationships with candidates, that support more home candidates, and support more powerful candidates (p. 689)." Kim (2015) shows that the unexpected exit of a member of Congress leads to a decline in firm value for companies whose lobbyist used to work for that member. In a non-U.S. context, Fisman (2001) estimates the value of political connections by examining share price reactions to the end of Suharto's reign.

We are interested in whether public pension plan investment decisions, and the returns earned on those investments, are influenced by political considerations. Because governors are often in a position to select or influence the members of the governing boards of state pension plans, we collect data on campaign contributions and votes from gubernatorial elections. Specifically, we collect data on campaign finance contributions for state gubernatorial elections from the Institute on Money in State Politics, a not-for-profit organization that maintains a database of contributions to state political campaigns. This data covers the 1994, 1998, and 2002 gubernatorial election cycles and the donations are aggregated at the county-level of the donor. Thus, given the states in our sample, we have campaign gubernatorial campaign contribution data for California, Colorado, Florida, Michigan, New Mexico, New York, Ohio, Pennsylvania (1998 and 2002 contribution data only), Texas, and Wisconsin. We augment the campaign

contribution data with data on voting outcomes for the same gubernatorial elections using information provided by Polidata on historical vote counts (also aggregated at the county level).

We test whether the likelihood a pension plan holds an in-state stock, as well as the likelihood of holding an in-state stock in the state's largest industry, is related to campaign contributions that flowed to the governor's campaign and to voting patterns during the prior election cycle.[17] Using this data, we identify the campaign contributions going to the winning gubernatorial candidate at the county level. We link each firm located in the state of the pension plan (i.e., each potential within-state investment for the pension plan) to the fraction of total county-wide political contributions from the county where the firm is headquartered that went to the current governor. We also examine the vote counts in the county in which each firm is headquartered. For both contributions and votes, we examine a simple measure of whether the Governor received the most dollars or votes from that county during the last election, as well as whether the Governor received a higher fraction of dollars or votes from that county than s/he did statewide. The comparison to statewide figures is especially informative for elections that were not particularly close because it helps assess a county's relative support for the Governor.

For reference, Figure 1 shows the probability that a state pension plan holds a particular type of stock (averaged across all plans and all quarters). The probability of a state pension holding any stock is 17.8%. This probability rises to 24.8% for stocks that are in-state. Further, we find that the probability of being held in a state's pension portfolio is 31.1% for in-state stocks from the state's largest industry. This is nearly double the probability of an out-of-state stock from the largest industry in the plan's home state being held (16.6%).

---

[17] Our campaign contributions and vote outcomes data cover the 1994, 1998, and 2002 elections. We relate a decision to hold a stock to the election variables from the most recent election (e.g., holding decisions at the end of the first quarter of 1995 through the last quarter of 1998 are related to 1994 election data). Thus, the holding decisions in both Table 9 and 10 span the first quarter of 1995 to the last quarter of 2006.

With these tabulations as background information, we test how holding probabilities vary with the flow of campaign contributions and votes. We start in Table 8 with an OLS regression of the likelihood that a state pension plan holds an in-state stock in its portfolio. The first column focuses on all in-state stocks, whereas the second column focuses on the in-state stocks of the largest industry. The dependent variable is set to one if the in-state stock is held in a given pension plan's portfolio that quarter and is set to zero if the in-state stock is not held by the given pension plan during the quarter. All coefficients are multiplied by 100 so they represent percentage points. Regressions include both plan-by-quarter fixed effects (to control for a plan's average likelihood of holding in-state stocks in a given quarter) and firm-county fixed effects (to control for county-level characteristics that do not vary over time). For example, given the inclusion of county-level fixed effects in the regression, the campaign contribution and vote variables are identified by changes in donation patterns and electoral outcomes *within a given county over time* (as opposed to simple cross-sectional differences across counties within a state).

The first pattern to note from Table 8 is that campaign contributions matter significantly for in-state pension plan portfolio decisions, particularly those in the largest industry in the state. In contrast, measures of voting outcomes from the last gubernatorial election have no significant effect on in-state pension holdings. Focusing on the results in the first column for all in-state stocks, the stock of a firm located in a county that gave most of its campaign contributions to the current Governor last election is a statistically significant 0.9 percentage points more likely to be held by the state pension plan (or 1.7 percentage points more likely if the firm was further located in a country that gave a higher fraction of contributions to the current governor than the statewide average). The most striking result is that an in-state stock in the largest industry is 2.8 percentage points more likely to be held in the state's portfolio if the county in which that

26

company is headquartered gave a disproportionately large share of campaign contributions to the Governor (i.e., 4.3-1.5=2.8, p-value = 0.02). This 2.8 percentage point increase represents almost 10% of the baseline likelihood of the state plan holding such a stock. Also, the highly significant coefficient of 4.3 on whether the Governor received a higher fraction of campaign contributions from that county than statewide and the insignificant coefficient on the simple gave-majority-of-contributions variable, suggest that it is the relative-share variable that is most important for influencing the plan's in-state portfolio decisions of these firms.

The in-state holding regressions reported in Table 8 also include firm-level and additional county-level controls. Not surprisingly, larger firms headquartered in the state (whether measured by market cap or number of employees) are more likely to be held in the state pension plan. We also include several county-of-firm controls to be sure that the campaign contribution results are driven by political considerations and do not reflect other factors (such as state pension plans investing in firms from better-off counties). We find that for firms in the largest industry of the state, the state plan is significantly more likely to hold the stock of firms located in counties with a higher level of campaign donations and higher median income (these effects are insignificant for the "in-state holding" regression). The key takeaway is that even after controlling for various measures of the wealth and size of a county where a firm is headquartered, the share of campaign contributions that went to the current governor is an important predictor of a stock being in the state pension plan.

To further increase confidence that these results are driven by political considerations, Table 9 expands on the Table 8 results. In Table 9, we focus on holdings of stocks in the largest industry of the pension fund's home state, with the first two columns considering in-state holding decisions and the last two columns considering out-of-state holding decisions for this group of

stocks. In the first column of Table 9, we revisit the result that companies in the state's largest

industry are more likely to be held by the state pension fund if the Governor received a

disproportionate share of campaign contributions in the prior election cycle. In the second

column, we add a control for the number of times the home state was mentioned in the firm's 10-

k, as a fraction of all state mentions, a measure developed by Garcia and Norli (2012) to control

for the degree of economic concentration in the state. Including this control has virtually no

effect on the coefficient related to campaign contributions, and the home-state mention variable

itself is insignificant. This result likely reflects the fact that in-state firms from the state's largest

industry are already well known to the state pension fund.

In columns 3 and 4 of Table 9, we analyze the holding decisions of out-of-state stocks

from the largest industry in the pension fund's home state. For these out-of-state stocks, the

campaign contribution and vote outcome variables reflect political attitudes of the firm's home

state (which is, by definition, different from the home state of the pension plan making the

holding decision).[18] Under our political-consideration hypothesis, the campaign contributions to

the Governor in the home state of the pension plan should affect holding decisions of in-state

stocks, but the flow of campaign contributions to the Governors of other states should not

influence a given pension plan's *out-of-state holdings*. We indeed find, for out-of-state stocks in

the largest industry of the home state of the pension fund, that there is no relation between

campaign contributions and vote outcomes and the likelihood that the out-of-state stock is held

by the pension fund. These results clearly indicate that the patterns found in columns 1 and 2 –

that campaign contributions from a firm's home county increase the likelihood of that in-state

firm being held in the state pension portfolio – reflect within-state political considerations.

---

[18] Since campaign contribution data is only available for California, Colorado, Florida, Michigan, New Mexico, New York, Ohio, Pennsylvania, Texas, and Wisconsin for the 1994, 1998, and 2002 elections, the out-of-state holding decisions by pension plans are limited to firms headquartered in those 10 states.

According to the results in columns 3 and 4, a state pension plan is more likely to hold an out-of-state stock if it is larger in size (whether based on S&P 500 status, market cap, or number of employees). Also, the more mentions of the home state of the pension plan in the 10-k of the out-of-state firm, the more likely is the plan to hold the stock. These state mentions could reflect that the out-of-state firm sells products or has operations in the home state of the pension plan and this familiarity may lead to inclusion in the pension plan portfolio.

Finally, we consider the role political considerations/connections may have on portfolio performance. In particular, we relate the return on in-state stock holdings to whether the firm was located in a county that gave a high share of campaign contributions last election to the current governor (above the statewide average).[19] As shown in the top panel of Table 10, the performance of within-state investments is strongest for the counties that gave the current governor the highest fraction of their financial support. The stocks of in-state firms that gave a higher share of contributions to the Governor than the statewide share experienced a risk-adjusted return of 0.22% per month, while the holdings of firms that are headquartered in counties that were less generous to the Governor underperform their benchmark by 0.23% per month. Thus, the difference in the performance of in-state holdings in politically-connected counties and those from counties that are less so is 46 basis points per month – both highly significant and economically substantive. This difference rises to 53 basis points per month (6.5% on an annual basis) for in-state firms in the largest industry of the state.

One explanation for this pattern of results is that counties that were generous to the current Governor during the last election receive economic development that benefits all firms in

---

[19] Our campaign contributions and vote outcomes data cover the 1994, 1998, and 2002 elections. Thus, as discussed in an earlier footnote, the sample that uses this election data consists of stock holdings from the first quarter of 1995 to the last quarter of 2006. Thus, the monthly return series calculated based on these quarterly holdings after the 1994, 1998, and 2002 elections spans April of 1995 to March of 2007.

the county (both those subsequently held and not held by the state pension plan). Under this hypothesis, there should be no difference in the performance of the stocks held and not held. Thus, the differences in performance displayed in the last row should be zero, once we account for the return of the stocks not held by the pension plan. To test this possibility, in the right two columns of Table 10, we report the returns on *holdings of stocks held versus those that are not held* for each category of in-state firms. We again find substantial and significant differences between the performance of in-state holdings in politically-connected counties and those from counties that are less so (on the order of 35 to 87 basis points per month). In sum, the ability of pension plans to differentiate good from bad in-state stock investments is much stronger in the counties that gave the strongest financial support to the Governor during the last election. This pattern suggests that some form of information is transmitted along a network that shares common connection points with the political power structure of the state.

Turning to bottom panel of Table 10, we conduct a similar exercise using sample splits based on votes rather than campaign contributions. Unlike the flow of campaign contributions, the share of votes has absolutely no predictive power for the performance of within-state investments. This result mirrors our finding for state pension plan holdings; simply put, vote outcomes are not relevant while the flow of campaign contributions is important.

5. Conclusions

State pension plans that manage their own U.S. equity investments tilt their portfolios to stock holdings within the state to an even larger degree than other institutional investors. A significant portion of this within-state bias reflects an informational advantage, since the holdings of these pension plans, particularly their holdings in companies in the state's primary

the county (both those subsequently held and not held by the state pension plan). Under this hypothesis, there should be no difference in the performance of the stocks held and not held. Thus, the differences in performance displayed in the last row should be zero, once we account for the return of the stocks not held by the pension plan. To test this possibility, in the right two columns of Table 10, we report the returns on *holdings of stocks held versus those that are not held* for each category of in-state firms. We again find substantial and significant differences between the performance of in-state holdings in politically-connected counties and those from counties that are less so (on the order of 35 to 87 basis points per month). In sum, the ability of pension plans to differentiate good from bad in-state stock investments is much stronger in the counties that gave the strongest financial support to the Governor during the last election. This pattern suggests that some form of information is transmitted along a network that shares common connection points with the political power structure of the state.

Turning to bottom panel of Table 10, we conduct a similar exercise using sample splits based on votes rather than campaign contributions. Unlike the flow of campaign contributions, the share of votes has absolutely no predictive power for the performance of within-state investments. This result mirrors our finding for state pension plan holdings; simply put, vote outcomes are not relevant while the flow of campaign contributions is important.

5. Conclusions

State pension plans that manage their own U.S. equity investments tilt their portfolios to stock holdings within the state to an even larger degree than other institutional investors. A significant portion of this within-state bias reflects an informational advantage, since the holdings of these pension plans, particularly their holdings in companies in the state's primary

industry, outperform the stocks they choose not to hold by a wide margin. This differential is only found for investments made (or avoided) within the state, the domain in which the pension plan is more likely to have access to information about firm prospects. We find evidence that political influence may also play a substantial role in the stock selection process: state pension plans are more likely to hold a within-state firm in its portfolio if the county where the firm is located gave a high fraction of its campaign contributions in the last election to the current governor. Further, these politically-motivated within-state holdings yield excess returns for the pension fund. Even though data limitations preclude a more in-depth investigation of the channel through which political connections influence state pension plans, our results are broadly consistent with the importance of networking in fund management (as found in Cohen, Frazzini, and Malloy (2008)) as well as the research on political contributions/connections and stock returns (e.g., Cooper, Gulen, and Ovtchinnikov (2010)).

References

Bae, K., R. Stulz, and H. Tan, 2008, "Do Local Analysts Know More? A Cross-Country Study of the Performance of Local Analysts and Foreign Analysts," *Journal of Financial Economics* 88(3), 581-606.

Badrinath, S. G. and Sunil Wahal, 2002, "Momentum Trading by Institutions," *Journal of Finance* 57(6), 2449-2478.

Baik, Bok, Jun-Koo Kang, and Jin-Mo Kim, 2010, "Local Institutional Investors, Information Asymmetries, and Equity Returns," *Journal of Financial Economics* 97, 81-106.

Benartzi, Shlomo, 2001, "Excessive Extrapolation and the Allocation of 401(k) Accounts to Company Stock," *Journal of Finance* 56(5), 1747-1764.

Carhart, M., 1997, "On Persistence in Mutual Fund Performance," *Journal of Finance* 52, 57-82.

Cohen, L., A. Frazzini, and C. Malloy, 2008, "The Small World of Investing: Board Connections and Mutual Fund Returns," *Journal of Political Economy* 116, 951-979.

Cooper, M., H. Gulen, and A. V. Ovtchinnikov, 2010, "Corporate Political Contributions and Stock Returns," *Journal of Finance* 65, 687-724.

Coronado, Julia L., Eric M. Engen, and Brian Knight, 2003, "Public Funds and Private Capital Markets: The Investment Practices and Performance of State and Local Pension Funds," *National Tax Journal* 56(3), 579-594.

Coval, J. and T. J. Moskowitz, 1999, "Home Bias at Home: Local Equity Preferences in Domestic Portfolios," *Journal of Finance* 54, 2045-2073.

Coval, J. and T. J. Moskowitz, 2001, "The Geography of Investment: Informed Trading and Asset Pricing," *Journal of Political Economy* 109, 811-841.

Fama, Eugene F. and Kenneth R. French, 1993, "Common Risk Factors in the Returns on Stocks and Bonds," *Journal of Financial Economics* 33, 3-56.

Federal Reserve, 2014, "Flow of Funds Accounts of the United States: Flows and Outstandings, Third Quarter 2014." http://www.federalreserve.gov/releases/z1/current/z1.pdf

Fisman, Raymond, 2001, "Estimating the Value of Political Connections," *American Economic Review* 91(4), 1095-1102.

Fisman, Ray and Wei, Shang-Jin, 2004, "Tax Rates and Tax Evasion: Evidence from Missing Imports in China," *Journal of Political Economy* 112, 471-500.

French, Kenneth R. and James M. Poterba, 1991, "International Diversification and International Equity Markets," *American Economic Review* 81(2), 222-226.

Garcia, Diego and Oyvind Norli, 2012, "Geographic Dispersion and Stock Returns," *Journal of Financial Economics* 106(3), 547-565.

Glaeser, Edward L. and Raven E. Saks, 2006, "Corruption in America," *Journal of Public Economics* 90(6-7), 1053-1072.

Hochberg, Yael V. and Joshua D. Rauh, 2013, "Local Overweighting and Underperformance: Evidence from Limited Partner Private Equity Investments," *Review of Financial Studies* 26(2), 403-451.

Huberman, Gur, 2001, "Familiarity Breeds Investment," *Review of Financial Studies* 14, 659-680.

Ivković, Zoran and Scott Weisbenner, 2005, "Local Does as Local Is: Information Content of the Geography of Individual Investors' Common Stock Investments," *Journal of Finance* 60, 267-306.

Jayachandran, Seema, 2006, "The Jeffords Effect," *Journal of Law and Economics* 49(2), 397-425.

Kang, J. and J. Kim, 2008, "The Geography of Block Acquisitions," *Journal of Finance* 63, 2817-2858.

Kim, Taehyun, 2015, "Does a Firm's Political Capital Affect Its Investment and Innovation?," University of Illinois working paper.

Malloy, Christopher, 2005, "The Geography of Equity Analysis," *Journal of Finance* 60, 719-755.

Massa, Massimo and Andrei Simonov, 2006, "Hedging, Familiarity and Portfolio Choice," *Review of Financial Studies* 19, 633-686.

Munnell, Alicia H., Kelly Haverstick, Mauricio Soto, and Jean-Pierre Aubry, 2008, "What do we Know about the Universe of State and Local Plans?," BC CRR Issue Brief Number 4. http://crr.bc.edu/images/stories/Briefs/slp_4.pdf?phpMyAdmin=43ac483c4de9t51d9eb41

Munnell, Alicia H. and Annika Sunden, 2001, "Investment Practices of State and Local Pension Plans: Implications for Social Security Reform," In Olivia S. Mitchell and Edwin C. Hustead, eds., *Pensions in the Public Sector* (The Pension Research Council and University of Pennsylvania Press).

Olken, Benjamin A., 2007, "Monitoring Corruption: Evidence from a Field Experiment in Indonesia," *Journal of Political Economy* 115(2), 200-249.

Olken, Benjamin A. and Patrick Barron, 2007, "The Simple Economics of Extortion: Evidence from Trucking in Aceh," NBER Working Paper 13145.

Olken, Benjamin A., 2009, "Corruption Perceptions vs. Corruption Reality," *Journal of Public Economics 93* (7-8), 950-964.

Pennacchi, George and Rastad, Mahdi, 2011, "Portfolio Allocation for Public Pension Funds," *Journal of Pension Economics and Finance* 10(2), 221-245.

Reinikka, Ritva and Jacob Svennson, 2004, "Local Capture: Evidence from a Central Government Transfer Program in Uganda," *Quarterly Journal of Economics* 119, 679-705.

Roberts, Brian E., 1990, "A Dead Senator Tells No Lies: Seniority and the Distribution of Federal Benefits," *American Journal of Political Science* 34(1), 31-58.

Rose-Ackerman, Susan, 2005, "The Challenge of Poor Governance and Corruption," *Revista Direitogv* Special Issue 1, 207-266.

Seasholes, Mark S. and Ning Zhu, 2010, "Individual Investors and Local Bias," *Journal of Finance* 65(5), 1987-2010.

Tran, Anh, 2008, "Can Procurement Auctions Reduce Corruption? Evidence from the Internal Records of a Bribe-Paying Firm," Harvard University working paper.

Useem, Michael and Olivia S. Mitchell, 2000, "Holders of the Purse Strings: Governance and Performance of Public Retirement Systems," *Social Science Quarterly* 81(2), 489-506.

Wilshire Consulting, 2014, "2014 Report on State Retirement Systems: Funding Levels and Asset Allocation."
http://www.wilshire.com/media/17614/wilshire_2014_state_funding_report_20130226.pdf

Figure 1: Likelihood of a State Pension Plan Holding a Particular Stock, by Type of Stock (in percentage points), 1980:Q1 to 2008:Q3
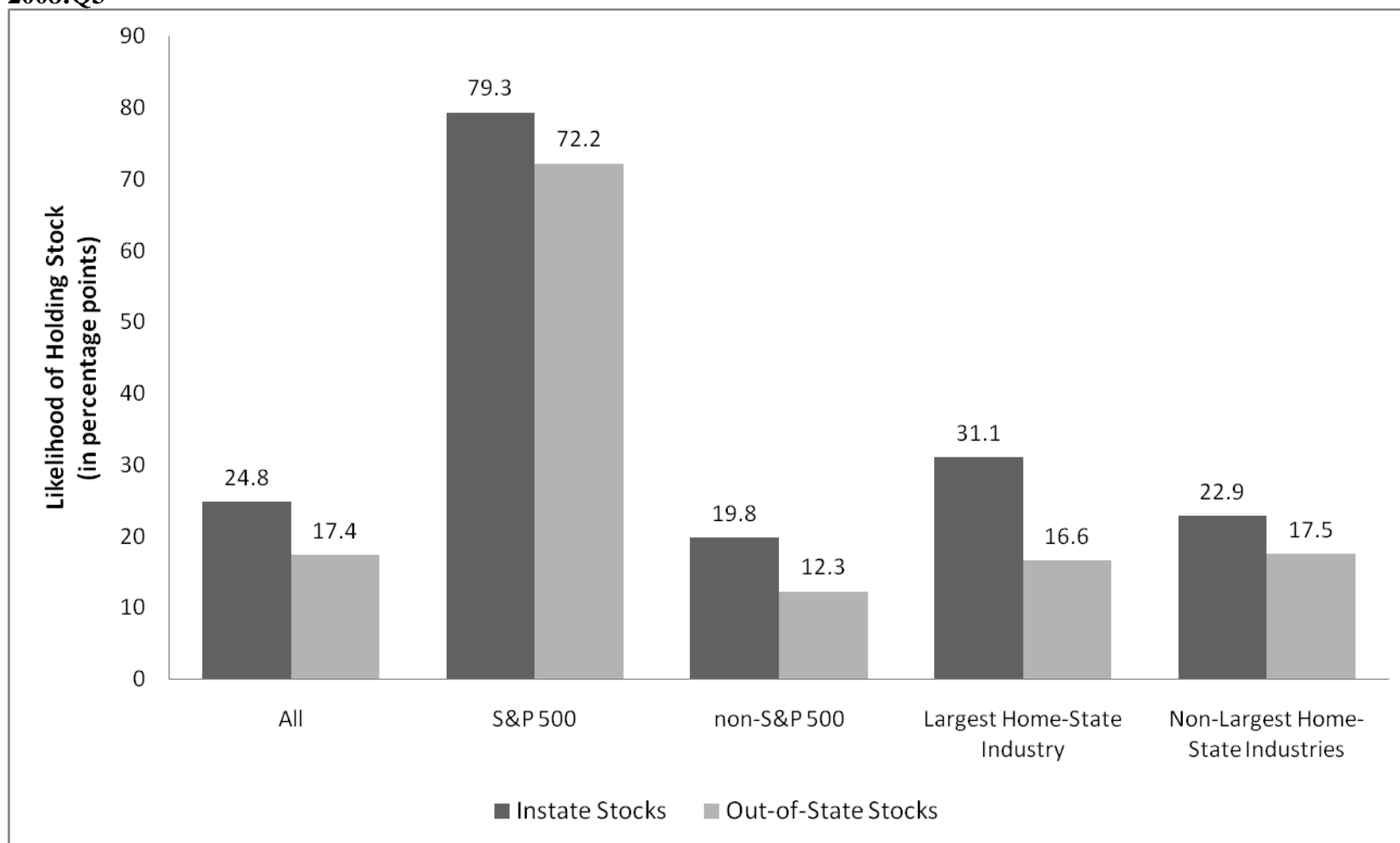
Sources: 13F filings with SEC, Compustat and CRSP databases, and authors' calculations. State pension plan holdings are available every 3 months from the end of the first quarter of 1980 to the end of the third quarter of 2008, see Table 1 for the list of individual state pension plans filing form 13F and their sample coverage. The likelihoods displayed are averages across the full sample of state pension plan investment decisions. The largest home-state industry is the largest industry in the pension plan's home state based on total firm market capitalization at the end of the prior quarter with firms assigned to one of the 12 Fama-French industries.

Table 1: List of State Pension Plans in Sample

State Pension Plan Fund Name	First Quarter U.S. Stock Holdings are Reported in 13F filing with SEC	Last Quarter U.S. Stock Holdings are Reported in 13F filing with SEC[*]	Total Number of Quarters in Sample
Alaska PERS	2006:Q2	2008:Q3	10
California PERS	1980:Q2	2008:Q3	111
California Teachers	1980:Q1	2007:Q2	105
Colorado Public Employees (2 plans combined)	1980:Q1	2008:Q3	115
Florida RS	1986:Q2	2008:Q3	90
Illinois SURS	1980:Q2	1985:Q1	20
Kentucky Teachers	1982:Q4	2008:Q3	104
Maryland State Retirement (3 plans combined)	1980:Q1	1992:Q4	52
Michigan Dept. of Treasury (4 plans combined)	1984:Q3	2008:Q3	97
Missouri State Employees	1998:Q3	2007:Q4	38
Montana State Board of Investment (2 plans combined)	1991:Q3	2001:Q4	42
New Mexico Education Retirement Board	1990:Q1	2008:Q3	75
New York Common Retirement Fund	1986:Q4	2008:Q3	88
New York Teachers	1980:Q1	2008:Q3	108
Ohio PERS	1980:Q1	2008:Q3	110
Ohio STRS	1980:Q1	2008:Q3	115
Pennsylvania Teachers	2000:Q2	2008:Q3	34
Texas Teachers	1980:Q1	2008:Q3	115
Virginia RS	1996:Q4	2008:Q3	48
Wisconsin RS	1980:Q1	2008:Q3	115

[*]The last quarter of data we collected was holdings at the end of the third quarter of 2008. Our data on state pension plan stock holdings covers 27 state plans that are represented by 20 separate investment funds (as some state plans are comingled with others from the same state).

Source: 13F filings with SEC.

Table 2: Number, Size, and Investment Allocation of State Pension Plans by Whether Directly Manage U.S. Stock Investments, end of Fiscal Year 2007

	Plans that Manage U.S. Equity Investments Directly on Own	Plans that Outsource Management of U.S. Equity Investments
Number of Plans	21	104
Number as Percent of All State Pension Plans	17%	83%
Median Plan Size (assets, in $B)	54.9	8.6
Percent of Aggregate State Pension Plan Assets	53%	47%
Median Percent of Plan Invested in U.S. Equities	43%	41%
Median Percent of Total U.S. Equity Holdings that are Reported on 13F filing (i.e., percent of U.S. equity holdings that are directly managed by the pension plan)	79%	0%

Sources: 2007 Wilshire Report on State Retirement Systems and 13F filings with the SEC. The 21 state plans that manage stock investments on their own as of 2007 are represented by 17 separate investment funds (as some state plans are comingled with others from the same state).

Table 3: Breakdown of State Pension Plan Stock Holdings by In-State and Out-of-State Investments (allocation expressed as a share of total stock holdings, weighted by size of holdings, in percentage points), 1980:Q1 to 2008:Q3

	State Plans weighted by Size ($) within a quarter			
	Average weight in holdings	Average weight in market	Difference (bias)	Amount of bias in percent
	(1)	(2)	(3) = (1) – (2)	(4) = (1)/(2) - 1
(1) In-State Investments	9.7	5.6	4.2	76%
(2) In-State & Member of S&P 500	8.2	4.0	4.2	105%
(3) In-State & Not in S&P 500	1.5	1.5	0.0	0%
(4) Out-of-State Investments	90.3	94.4	-4.2	-4%
(5) Out-of-State & Member of S&P 500	76.2	67.6	8.6	13%
(6) Out-of-State & Not in S&P 500	14.0	26.8	-12.8	-48%
(7) Investment in Neighbor States	8.3	8.5	-0.2	-2%
(8) Investment in Non-Neighbor States (that are out-of-state)	81.9	85.9	-4.0	-5%
(9) Largest/Primary Home-State Industry	13.1	11.3	1.8	16%
(10) In-State Investment in Largest Home-State Industry	3.7	2.0	1.8	89%
(11) Out-of-State Investment in Largest Home-State Industry	9.3	9.3	0.0	0%
(12) Non-Largest Home-State Industry	86.9	88.7	-1.8	-2%
(13) In-State Investment in non-Largest Home-State Industries	6.0	3.6	2.4	68%
(14) Out-of-State Invest. in non-Largest Home-State Industries	80.9	85.1	-4.2	-5%

State pension plan holdings are available every 3 months from the end of the first quarter of 1980 to the end of the third quarter of 2008. See Table 1 for the list of individual state pension plans filing form 13F and their sample coverage. The pension plan portfolio weights displayed in this table are calculated by first tabulating aggregate value-weighted portfolio weights across plans in a given quarter, and then averaging these aggregate portfolio weights across quarters. The largest home-state industry is the largest industry in the pension plan's home state based on total firm market capitalization at the end of the prior quarter with firms assigned to one of the 12 Fama-French industries.

Table 4: Correlation of Annual Growth Rate in State Tax Revenue with Contemporaneous and Lagged Annual State Pension Plan Returns (OLS Regression), 1981-2008

	Coefficient from Regression of Annual Growth Rate in State Tax Revenue:	
	(1)	(2)
Contemporaneous Annual State Pension Return on U.S. Stock Investments	0.01 (0.10)	
One-year Lagged State Pension Plan Return on U.S. Stock Investments		0.16** (0.08)
Include year fixed effects and state fixed effects?	Yes	Yes
Number of Pension-Year Observations	375	350

Annual state tax revenue is obtained from the U.S. Census Bureau (http://www.census.gov/govs/www/qtax.html). State pension plan returns on their U.S. stock investments are based on authors' calculations using 13F filings with the SEC and the CRSP and Compustat databases. State pension plan holdings are available every 3 months from the end of the first quarter of 1980 to the end of the third quarter of 2008. See Table 1 for the list of individual state pension plans filing form 13F and their sample coverage. Thus, 1981 is the first full year an annual return on U.S. stock investments can be calculated for a state pension plan. The standard error of the coefficient estimate is in parentheses. Standard errors are calculated allowing for heteroskedasticity as well as two-way clustering by year and state of the pension plan.

***, **, * denote statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

Table 5: Performance of U.S. Stock Investments of State Pension Plans (aggregated across plans, expressed as monthly returns in percentage points), 1980-2008

	Regressions of Monthly Returns of Aggregated State Pension Plans, 4/1980-12/2008, (in percentage points)		
	(1)	(2)	(3)
Constant (Alpha = risk-adjusted excess return)	0.01 (0.03)	-0.01 (0.03)	0.01 (0.03)
Market Factor Return: Value-weighted Market (VWRF)	0.98*** (0.01)	1.01*** (0.01)	1.00*** (0.01)
Size Factor Return (SMB)		-0.10*** (0.01)	-0.10*** (0.01)
Value Factor Return (HML)		0.05*** (0.01)	0.04*** (0.02)
Momentum Factor Return (UMD)			-0.02** (0.01)
R-squared	0.98	0.99	0.99
Number of Observations (months)	345	345	345

This table presents monthly returns aggregated across state pension plans based on pension plan holdings of U.S. stocks from the end of the prior quarter (weighted by the dollar amount of the holding). State pension plan holdings are available every 3 months from the end of the first quarter of 1980 to the end of the third quarter of 2008. See Table 1 for the list of individual state pension plans filing form 13F and their sample coverage. Thus, the monthly return series calculated based on these holdings spans April of 1980 to December of 2008. The standard error of the coefficient estimate is in parentheses. Standard errors are calculated allowing for heteroskedasticity as well time-series correlation in the error term over the prior four quarters (i.e., Newey-West standard errors). ***, **, * denote statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

Table 6: Performance of Various Components of State Pension Plans' Stock Investments (aggregated across pension plans, expressed as monthly returns in percentage points), 1980-2008

	Panel A: Risk-adjusted Excess Monthly Portfolio Return of Holdings (in percentage points), 4/1980-12/2008								
	All Stocks			*S&P 500 Stocks*			*Non-S&P 500 Stocks*		
	In-State	Out-of-State	**Diff**	In-State	Out-of-State	**Diff**	In-State	Out-of-State	**Diff**
	(1)	(2)	**(3)**	(4)	(5)	**(6)**	(7)	(8)	**(9)**
Stock holdings in all industries	0.07 (0.07)	0.01 (0.04)	**0.06 (0.07)**	0.07 (0.07)	0.03 (0.05)	**0.04 (0.07)**	0.08 (0.13)	-0.09 (0.07)	**0.16 (0.10)**
Stock holdings in the largest home-state industry	0.10 (0.16)	-0.18** (0.08)	**0.28* (0.16)**	0.09 (0.15)	-0.17** (0.08)	**0.26* (0.16)**	0.32 (0.24)	-0.21* (0.13)	**0.53** (0.25)**
	Panel B: Risk-adjusted Excess Monthly Portfolio Return of Buys (in percentage points), 7/1980-12/2008								
	All Stocks			*S&P 500 Stocks*			*Non-S&P 500 Stocks*		
	In-State	Out-of-State	**Diff**	In-State	Out-of-State	**Diff**	In-State	Out-of-State	**Diff**
	(1)	(2)	**(3)**	(4)	(5)	**(6)**	(7)	(8)	**(9)**
Stock buys in all industries	-0.05 (0.17)	-0.03 (0.06)	**-0.02 (0.15)**	-0.04 (0.14)	-0.01 (0.07)	**-0.03 (0.13)**	-0.08 (0.26)	-0.08 (0.11)	**0.00 (0.20)**
Stock buys in the largest home-state industry	0.10 (0.28)	-0.36*** (0.13)	**0.46* (0.28)**	-0.11 (0.26)	-0.32** (0.14)	**0.21 (0.27)**	0.72* (0.39)	-0.43*** (0.15)	**1.16*** (0.42)**

This table presents monthly returns aggregated across state pension plans by whether the stock investment is within the state, in the home state's largest industry, and S&P 500 status. State pension plan holdings are available every 3 months from the end of the first quarter of 1980 to the end of the third quarter of 2008. See Table 1 for the list of individual state pension plans filing form 13F and their sample coverage. Thus, the monthly return series calculated based on these holdings spans April of 1980 to December of 2008. Panel A presents monthly returns aggregated across all pension plans based on pension plan holdings of U.S. stocks from the end of the prior quarter (weighted by the dollar amount of the holding), while Panel B presents monthly returns aggregated across all pension plans based on stocks bought by pension plans during the prior quarter (returns following buys thus start in July 1980). A buy of a stock by the pension plan is defined as an increase in the shares of the stock held by the plan over the prior quarter (split adjusted). The returns in Panel B are weighted by the dollar amount of the buy (calculated as the change in shares held last quarter multiplied by the average of the beginning and end-of-period stock prices from the prior quarter). The displayed returns are risk-adjusted, that is, they are obtained from a four-factor return model that controls for market, firm size, firm value/growth, and momentum factors as in column 3 of Table 5. The largest home-state industry is the largest industry in the pension plan's home state based on total firm market capitalization at the end of the prior quarter with firms assigned to one of the 12 Fama-French industries. The standard error of the coefficient estimate is in parentheses. Standard errors are calculated allowing for heteroskedasticity as well time-series correlation in the error term over the prior four quarters (i.e., Newey-West standard errors).
***, **, * denote statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

Table 7: Performance of Stocks that State Pension Plans HELD Relative to Stocks NOT HELD (aggregated across pension plans, expressed as monthly returns in percentage points), 1980-2008

| | Risk-adjusted Excess Monthly Portfolio Return (in percentage points), 4/1980-12/2008 | | | | | | | | |
| | *All Stocks* | | | *S&P 500 Stocks* | | | *Non-S&P 500 Stocks* | | |
	Held	Not Held	**Diff**	Held	Not Held	**Diff**	Held	Not Held	**Diff**
All in-state stocks	0.07 (0.07)	-0.18** (0.08)	**0.25** (0.11)**	0.07 (0.07)	-0.01 (0.32)	**0.08 (0.32)**	0.08 (0.13)	-0.18** (0.08)	**0.25* (0.14)**
In-state stocks in the largest home-state industry	0.10 (0.16)	-0.31** (0.16)	**0.41** (0.17)**	-0.01 (0.14)	-0.56 (0.35)	**0.55 (0.36)**	0.32 (0.24)	-0.35** (0.16)	**0.67*** (0.25)**
All out-of-state stocks	0.01 (0.04)	-0.10 (0.07)	**0.10 (0.09)**	0.03 (0.05)	0.00 (0.19)	**0.03 (0.19)**	-0.09 (0.07)	-0.13* (0.07)	**0.05 (0.09)**
Out-of-state stocks in the largest home-state industry	-0.18** (0.08)	-0.26** (0.10)	**0.08 (0.08)**	-0.17** (0.08)	-0.01 (0.34)	**-0.16 (0.33)**	-0.21* (0.13)	-0.37*** (0.11)	**0.16 (0.13)**

This table presents monthly returns aggregated across state pension plans by whether the stock investment is within the state, in the home state's largest industry, and S&P 500 status. State pension plan holdings are available every 3 months from the end of the first quarter of 1980 to the end of the third quarter of 2008. See Table 1 for the list of individual state pension plans filing form 13F and their sample coverage. Thus, the monthly return series calculated based on these holdings spans April of 1980 to December of 2008. The table also presents monthly returns aggregated across state pension plans of stocks NOT HELD by plans in the different categories. Monthly returns of stocks held are aggregated across all pension plans based on pension plan holdings from the end of the prior quarter (weighted by the dollar amount of the holding). The monthly returns of the portfolio of stocks NOT HELD by a given pension plan last quarter is value-weighted by firm market cap. Each pension plan's NOT HELD return is then weighted by total equity assets of the pension plan to compute the aggregated NOT HELD return across all state pension plans for a given month. The displayed returns are risk-adjusted, that is, they are obtained from a four-factor return model that controls for market, firm size, firm value/growth, and momentum factors as in column 3 of Table 5. The largest home-state industry is the largest industry in the pension plan's home state based on total firm market capitalization at the end of the prior quarter with firms assigned to one of the 12 Fama-French industries. The standard error of the coefficient estimate is in parentheses. Standard errors are calculated allowing for heteroskedasticity as well time-series correlation in the error term over the prior four quarters (i.e., Newey-West standard errors). ***, **, * denote statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

Table 8: Likelihood a State Pension Plan Holds an IN-STATE Stock in its Portfolio (OLS Regression in percentage points), 1995-2006 (based on 1994, 1998, and 2002 election data)

	All IN-STATE Stocks	IN-STATE Stocks in Largest Industry
Governor Received Most $ in Firm's County during last election?	**0.9****	**-1.5**
	(0.4)	**(2.6)**
Governor Received Higher Share of $ in Firm's County than did Statewide during last election?	**0.8**	**4.3****
	(1.3)	**(1.9)**
Governor Got Most Votes in Firm's County during last election?	0.3	2.7
	(1.0)	(2.0)
Governor Got Higher Share of Votes in Firm's County than did Statewide during last election?	-0.0	-0.6
	(0.9)	(1.6)
Firm is in the state's largest industry?	1.5	
	(2.3)	
S&P 500?	11.3*	-2.1
	(6.5)	(6.0)
Ln(firm market cap)	10.9***	12.2***
	(1.6)	(1.5)
Ln(number of firm employees)	3.0***	3.4***
	(0.5)	(0.9)
(County Firm Market Cap / State Firm Market Cap) end of prior quarter	-4.3	-5.0
	(6.2)	(5.4)
(County Firm Employees / State Firm Employees) last year	-3.7	-24.1
	(4.4)	(14.9)
(Total County Gubernatorial Contributions / Total State Gubernatorial Contributions) last election	-1.5	-4.7
	(4.9)	(7.8)
Ln(Total County Gubernatorial Contributions during last election)	1.3	2.8***
	(0.9)	(1.0)
Ln(Median income in county during prior year)	30.9	42.9**
	(21.8)	(19.1)
Include Plan-by-Quarter fixed effects?	Yes	Yes
Include Firm's County fixed effects?	Yes	Yes
R-squared	0.51	0.53
Number of Plan-Quarter-Stock Holding Decisions	198,223	52,693

The dependent variable takes on the value one if the in-state stock is held in a given pension plan's portfolio that quarter and is zero if the in-state stock is not held by the given pension plan during the quarter. All coefficients are multiplied by 100 so they represent percentage points. The largest home-state industry is the largest industry in the pension plan's home state based on total firm market capitalization at the end of the prior quarter with firms assigned to one of the 12 Fama-French industries. Gubernatorial campaign contribution data (aggregated at the county level) are available for the 1994, 1998, and 2002 elections for California, Colorado, Florida, Michigan, New Mexico, New York, Ohio, Pennsylvania (1998 and 2002 only), Texas, and Wisconsin. Data on voting outcomes in gubernatorial elections covers the same elections (i.e., years and states). The standard error of the coefficient estimate is in parentheses. Standard errors are calculated allowing for heteroskedasticity as well as two-way clustering by pension plan and quarter.

***, **, * denote statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

Table 9: Likelihood a State Pension Plan Holds Stock in the Largest Industry of its Home State (OLS Regression in percentage points), 1995-2006 (based on 1994, 1998, and 2002 election data)

	Investments in Largest Industry of Pension Fund's Home State			
	IN-STATE *Stocks*		*OUT-of-STATE* *Stocks*	
	(1)	**(2)**	**(3)**	**(4)**
Governor Received Most $ in Firm's County during last election?	**-1.5**	**-2.6**	**-0.5**	**-0.0**
	(2.6)	**(3.6)**	**(0.7)**	**(0.7)**
Governor Received Higher Share of $ in Firm's County than did Statewide during last election?	**4.3**[**]	**4.6**[*]	**-0.7**	**-1.1**
	(1.9)	**(2.5)**	**(0.7)**	**(0.7)**
Governor Got Most Votes in Firm's County during last election?	2.7	3.5	-0.3	0.2
	(2.0)	(2.2)	(0.6)	(0.7)
Governor Got Higher Share of Votes in Firm's County than did Statewide during last election?	-0.6	-0.1	-0.6	-0.7
	(1.6)	(1.5)	(0.8)	(0.9)
Mentions of pension fund home state in firm's 10-k last year (as a fraction of all state mentions in the 10-k)		-1.6		9.2[***]
		(2.3)		(3.0)
S&P 500?	-2.1	-6.3	30.8[***]	29.3[***]
	(6.0)	(4.5)	(7.9)	(8.6)
Ln(firm market cap)	12.2[***]	12.9[***]	8.1[***]	8.6[***]
	(1.5)	(1.6)	(1.3)	(1.5)
Ln(number of firm employees)	3.4[***]	3.3[***]	1.3[***]	1.4[***]
	(0.9)	(0.7)	(0.5)	(0.3)
(County Firm Market Cap / State Firm Market Cap) end of prior quarter	-5.0	-10.7	-3.9	-5.2
	(5.4)	(9.5)	(4.6)	(5.7)
(County Firm Employees / State Firm Employees) last year	-24.1	-21.0[*]	-4.8	-4.2
	(14.9)	(11.7)	(5.0)	(6.2)
(Total County Gubernatorial Contributions / Total State Gubernatorial Contributions) last election	-4.7	4.6	-6.4	-4.0
	(7.8)	(10.4)	(4.2)	(4.4)
Ln(Total County Gubernatorial Contributions during last election)	2.8[***]	0.7	0.1	0.1
	(1.0)	(1.6)	(0.2)	(0.2)
Ln(Median income in county during prior year)	42.9[**]	2.6	9.5	-12.1
	(19.1)	(22.6)	(12.7)	(20.6)
Include Plan-by-Quarter fixed effects?	Yes	Yes	Yes	Yes
Include Firm's County fixed effects?	Yes	Yes	Yes	Yes
R-squared	0.53	0.57	0.49	0.52
Number of Plan-Quarter-Stock Holding Decisions	52,693	40,885	154,305	119,318

The dependent variable takes on the value one if the stock is held in a given pension plan's portfolio that quarter and is zero if the stock is not held by the given pension plan during the quarter. All coefficients are multiplied by 100 so they represent percentage points. The largest home-state industry is the largest industry in the pension plan's home state based on total firm market capitalization at the end of the prior quarter with firms assigned to one of the 12 Fama-French industries. Gubernatorial campaign contribution data (aggregated at the county level) are available for the 1994, 1998, and 2002 elections for California, Colorado, Florida, Michigan, New Mexico, New York, Ohio, Pennsylvania (1998 and 2002 only), Texas, and Wisconsin. Data on voting outcomes in gubernatorial elections covers the same elections (i.e., years and states). Since campaign contribution data is available for California, Colorado, Florida, Michigan, New Mexico, New York, Ohio, Pennsylvania, Texas, and Wisconsin, the out-of-state holding decisions by pension plans are limited to firms in those 10 states. The standard error of the coefficient estimate is in parentheses. Standard errors are calculated allowing for heteroskedasticity as well as two-way clustering by pension plan and quarter.
***, **, * denote statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

Table 10: Performance of IN-STATE Investments of State Pension Plans by Campaign Contributions and Votes of Firm's County (aggregated across plans, expressed as monthly returns in percentage points), 1995-2007

	Risk-adjusted Excess Monthly Portfolio Return (in percentage points), 4/1995-3/2007			
	SHARE OF CAMPAIGN CONTRIBUTIONS			
	Return on Holdings		Return on Holdings MINUS Return on Stocks Not Held	
	All IN-STATE Stocks	*IN-STATE in Largest Industry*	*All IN-STATE Stocks*	*IN-STATE in Largest Industry*
Firms in Counties that Governor **Surpassed** Statewide Result Last Election	0.22* (0.12)	0.46** (0.22)	0.06 (0.19)	0.32 (0.27)
Firms in County that Governor **Did Worse** than Statewide Result Last Election	-0.23 (0.14)	-0.07 (0.29)	-0.29 (0.24)	-0.55* (0.29)
Difference	**0.46*** (0.16)**	**0.53* (0.31)**	**0.35* (0.19)**	**0.87** (0.34)**
	SHARE OF VOTES			
	Return on Holdings		Return on Holdings MINUS Return on Stocks Not Held	
	All IN-STATE Stocks	*IN-STATE in Largest Industry*	*All IN-STATE Stocks*	*IN-STATE in Largest Industry*
Firms in Counties that Governor **Surpassed** Statewide Result Last Election	0.14 (0.23)	0.24 (0.41)	0.20 (0.28)	0.11 (0.39)
Firms in County that Governor **Did Worse** than Statewide Result Last Election	0.15 (0.12)	0.34* (0.18)	0.09 (0.20)	0.24 (0.29)
Difference	**-0.01 (0.28)**	**-0.10 (0.41)**	**0.11 (0.23)**	**-0.13 (0.44)**

This table presents monthly returns from in-state stock holdings aggregated across state pension plans. The top (bottom) panel presents the returns from in-state holdings by whether the firm is located in a county that gave a higher share of campaign contributions (votes) to the current governor during the last election than was the share of contributions (votes) received by the current governor statewide. Monthly returns of stocks held are aggregated across all pension plans based on pension plan holdings from the end of the prior quarter (weighted by the dollar amount of the holding). The right panel of the table presents monthly returns aggregated across state pension plans of stocks held minus the aggregated return of the stocks NOT HELD by plans in the different categories. The displayed returns are risk-adjusted, that is, they are obtained from a four-factor return model that controls for market, firm size, firm value/growth, and momentum factors as in column 3 of Table 5. The largest home-state industry is the largest industry in the pension plan's home state based on total firm market capitalization at the end of the prior quarter with firms assigned to one of the 12 Fama-French industries. Gubernatorial campaign contribution data (aggregated at the county level) are available for the 1994, 1998, and 2002 elections for California, Colorado, Florida, Michigan, New Mexico, New York, Ohio, Pennsylvania (1998 and 2002 only), Texas, and Wisconsin. Data on voting outcomes in gubernatorial elections covers the same elections (i.e., years and states). State pension plan holdings are available every 3 months, so the monthly return series calculated based on these holdings after the 1994, 1998, and 2002 elections spans April of 1995 to March of 2007. The standard error of the coefficient estimate is in parentheses. Standard errors are calculated allowing for heteroskedasticity as well time-series correlation in the error term over the prior four quarters (i.e., Newey-West standard errors).
***, **, * denote statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively.