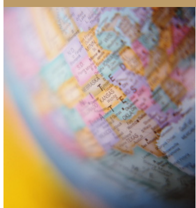


CENTER *for* RETIREMENT RESEARCH at BOSTON COLLEGE

STATE AND LOCAL PENSION PLANS

NUMBER 53, NOVEMBER 2016

NEW DEVELOPMENTS IN SOCIAL INVESTING BY PUBLIC PENSIONS

*By Alicia H. Munnell and Anqi Chen**

Introduction

Social investing is the pursuit of environmental, social, and governance (ESG) goals through investment decisions. Public pension funds have been active in this arena since the 1970s, when many divested from apartheid South Africa. They have also aimed to achieve domestic goals, such as promoting union workers, economic development, and homeownership.[1] In the mid-2000s, the focus shifted to preventing terrorism and gun violence. This effort included "terror-free" investing in response to the Darfur genocide and to weapons proliferation in Iran. And, after mass shootings in Aurora, CO, and Newtown, CT, some public funds shed their holdings in gun manufacturers. Most recently, states have renewed the call to divest from Iran and have increasingly targeted fossil fuels to combat climate change.[2]

This *brief* provides an update of social investing developments and assesses whether, in this changing environment, public funds should engage in this practice. This assessment addresses two questions: 1) can ESG-screened portfolios meet the same return/risk objectives as non-screened portfolios; and 2) are public plans the right vehicle for advancing ESG goals?

The discussion proceeds as follows. The first section explores trends in social investing and the U.S. Department of Labor's guidance on this activity. The second section examines recent state divestment efforts. The third section analyzes the economics of social investing. The fourth section outlines the economic, political, and legal complications. The final section concludes that although social investing may be worthwhile for private investors, lower returns and fiduciary concerns make public pension funds unsuited for advancing ESG goals.

**Alicia H. Munnell is director of the Center for Retirement Research at Boston College (CRR) and the Peter F. Drucker Professor of Management Sciences at Boston College's Carroll School of Management. Anqi Chen is a research associate at the CRR.* *The authors thank Ian Lanoff and Meir Statman for helpful comments.*

LEARN MORE

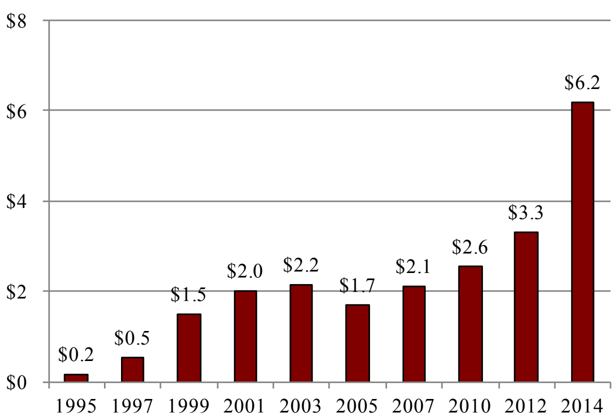
Search for other publications on this topic at:
crr.bc.edu

Trends in Social Investing

One of the main forms of social investing is screening (either excluding "bad" companies or including "good" companies).[3] Assets subject to screening have increased significantly in the last 20 years, with a near doubling between 2012 and 2014 (see Figure 1). ESG-managed assets represented over 16 percent of total assets under professional management in the United States in 2014. The financial industry has also noticed the growing importance of ESG factors to investors.[4] In 2016, Morningstar and Sustainalytics launched the industry's first environmental sustainability rating for mutual funds. Additionally, index provider MSCI has developed ESG ratings for equity and fixed-income issuers. And many prominent fund providers, such as Vanguard and TIAA, offer ESG-screened funds.

The bulk of social investing assets are in public pension funds (see Figure 2), and screening in these funds is pervasive. In 2014, their screened assets amounted to $2.7 trillion, more than half of their total assets.[5]

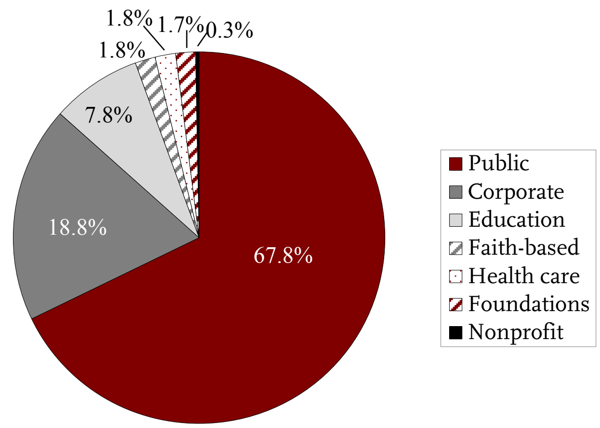
Figure 1. ESG-Screened Assets in the United States, 1995-2014, Trillions of Dollars



Source: The Forum for Sustainable and Responsible Investments (2014).

Interestingly, almost none of the screened money is held by private defined benefit plans. The likely reason is that these plans are generally covered by the Employee Retirement Income Security Act of 1974 (ERISA), and the U.S. Department of Labor (DOL) has stringently interpreted ERISA's duties of loyalty and prudence.[6] In 1980, a key DOL official published an influential article warning that the exclusion of investment options would be very hard to defend under ERISA's prudence and loyalty tests.[7] Thus, ERISA fiduciary law has effectively constrained social investing in the private sector.[8]

Figure 2. ESG-Screened Assets by Investor Type, 2014



Source: The Forum for Sustainable and Responsible Investments (2014).

Since 1980, the DOL has clarified its position on social investing several times in Interpretive Bulletins (see Box, on the next page). Until recently, its guidance clearly stated that plan trustees or other investing fiduciaries may not accept higher risk or lower returns in order to promote social, environmental, or other public policy causes.[9] In 2015, the agency clarified that ESG factors may have a direct impact on the economic value of a plan's investment. As such, these factors should be integrated into quantitative models of risk and return calculations, alongside financial indicators such as liquidity, capital structure, or leverage.

It is important to clarify the relationship between DOL's recent ESG Bulletin and public pension plans. First, DOL rules do not apply to state and local government plans because these plans are not covered by ERISA. Second, while the Bulletin supports integrating ESG factors into any financial assessment of an investment, it says nothing about using ESG factors for screening. Nevertheless, the Bulletin may have an indirect impact on public plan behavior by legitimizing the role of ESG factors in investment decisions.

Box. Evolution of DOL Guidance on ESG Investing, 1994-2015

Since the mid-1990s, the DOL has issued three Interpretive Bulletins on a fiduciary's ability to consider ESG factors under ERISA.

The 1994 Bulletin aimed to "correct the popular misconception" that ESG factors were incompatible with ERISA fiduciary requirements. The Bulletin reiterated that plan fiduciaries may not accept lower expected returns or greater risks in order to promote non-economic benefits; however, ESG goals can be considered as tie-breakers if investment alternatives present equal expected risks and returns.

In 2008, the DOL replaced the 1994 Bulletin with new guidance that the use of non-economic factors in selecting investments should be rare. Fiduciaries considering these non-economic factors must demonstrate their compliance with ERISA.

The 2015 Bulletin withdrew the language from the 2008 Bulletin, reinstating the 1994 Bulletin position. The DOL believed that the 2008 Bulletin unduly discouraged fiduciaries from considering ESG factors. The 2015 Bulletin then went further to clarify that ESG factors may directly affect the economic returns of an investment and may be incorporated when assessing an investment.

Sources: U.S. Department of Labor (1994, 2008, and 2015).

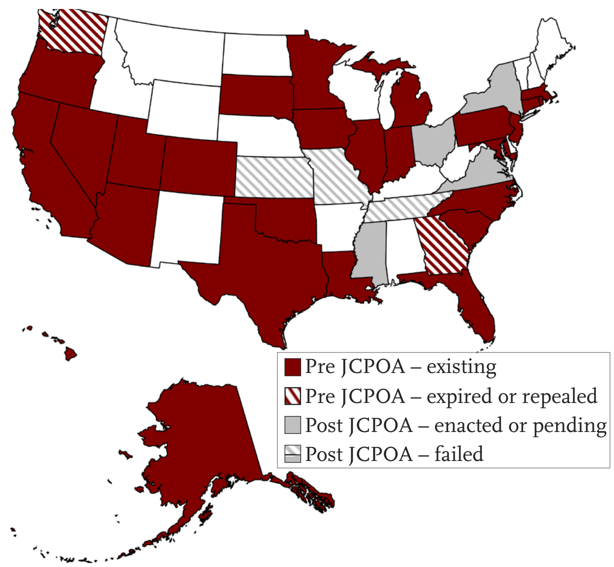
Recent Divestment Proposals

Recent political pressure for public pension divestments has centered on Iran and fossil fuels.

Iran Nuclear Deal

The Joint Comprehensive Plan of Action (JCPOA), commonly known as the Iran Nuclear Deal, removed economic sanctions on Iran when its nuclear program passed the International Atomic Energy Agency inspections in January 2016. Although the JCPOA discourages state and local governments from measures that are inconsistent with U.S. foreign policy, Iran screening by public pension plans is prevalent (see Figure 3).[10] In some cases, states retain sanctions that were imposed on Iran because it is on the State Department's list of countries that sponsor terrorism. The JCPOA does not remove Iran from the list and thus allows these state laws to remain. In other cases, legislatures that opposed the Iran Nuclear Deal have proposed new legislation to screen companies doing business with Iran. Currently, 32 states plus the District of Columbia have either divestiture or contracting statutes, or both.

Figure 3. States with Iran-screening Requirements, Before and After Iran Nuclear Deal



Sources: National Conference of State Legislatures (2016); Garcia and Garvey (2013); and Watson Institute for International and Public Affairs (2016).

Interestingly, in some instances, politics and economics have conflicted. For example, Mississippi initially passed a version of the Iran Divestment Act, which would have prohibited the state from doing business with firms that have certain financial investments in Iran. However, after discovering that the divestment bill would adversely affect Toyota Tsusho – which owns a manufacturing plant in Mississippi – the state Senate killed the bill.[11] The bill was then amended so that Toyota Tsusho would not be impacted.

Fossil Fuels

Another movement that has gained strong momentum is divestment from fossil fuels. This push has largely been driven by student activism over investments held by university endowments. Most notably, in 2014, a group of Harvard students sued the university for its investments in fossil-fuel companies. The movement then spilled over into the public pension fund arena. Currently, four states plus the District of Columbia have some form of pending or enacted fossil fuel divestment legislation.[12]

Most of the fossil fuel legislation covers a very limited scope. For example, California only requires its public pension funds to divest from thermal coal. Similarly, the Washington, DC retirement fund is only divesting from "direct holdings," so its investments in private equity firms that focus on the oil and energy sector are not affected.

Regardless, divestments from Iran and fossil fuels involve a substantial amount of public pension fund assets. Thus, it is useful to consider the likely impact of such activity on target companies and on the pension funds themselves.

Economics of Social Investing

The academic literature suggests that ESG screening is likely to have very little impact on the target company and that the impact on the pension fund depends on the scale of the screening.

Impact on Target Company

According to standard finance theory, the price of any stock equals the present discounted value of expected future cash flows. Thus, the stock of a particular firm has many close substitutes, which makes the demand curve for a particular stock, in economists' terms, almost perfectly elastic.[13] That is, even a big change in demand for a firm's stock will lead to only a small change in its price because investors in similar companies will view it as a profitable opportunity and move in to buy the shares.[14]

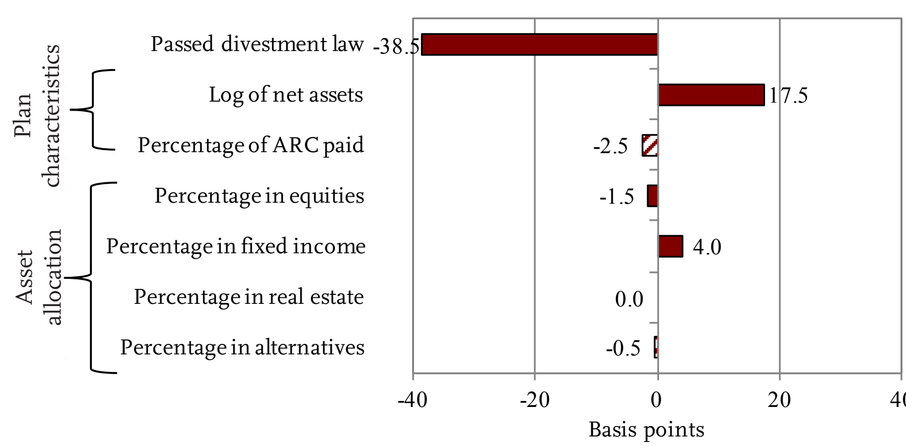
Indeed, in practice, investors are standing by to exploit these lower prices for higher returns. For example, the Barrier Fund (formerly known as the "Vice Fund") was established in 2002 and specializes in only four sectors – alcohol, tobacco, defense, and gambling – and stands ready to buy the stocks screened out of standard portfolios. Empirical studies have found that these vice industries provide relatively high returns, with results staying consistent across countries.[15]

Impact on Pension Funds

In addition to social investing's impact on targeted companies, it is also important to understand how it affects pension funds. Modern portfolio theory states that investors should diversify their asset holdings over a variety of securities so that their returns do not move in lockstep. The question is how many securities are needed for a diversified portfolio? The answer is that an investor needs only 20-30 stocks for a portfolio that reflects the whole market.[16] The small number of required stocks suggests that eliminating, say, tobacco, which accounts for about 1 percent of the S&P 500's market capitalization, should leave enough securities to get very close to the full market index. As the number excluded increases, though, it would become increasingly difficult to duplicate the market.[17]

The following analysis looks at how divestment laws affect rates of return on public pension assets. It uses a fixed-effects regression to compare returns in states with and without divestment laws, controlling for plan characteristics and asset allocation. The results in Figure 4 show that the average annual returns

Figure 4. Impact of Divestment Laws and Other Factors on Annual Average Geometric Returns of State-Administered Plans, in Basis Points, 2001-2015



Notes: Controls were included for each individual state trend, as well as state and year fixed effects. Solid bars are statistically significant at least at the 5-percent level.
Source: Authors' calculations from *Public Plans Database* (2001-2015).

of plans in states with divestment requirements are estimated to be 40 basis points lower than plans in states without such requirements.[18]

Another way to measure the impact of screening is to compare the returns of screened funds to unrestricted funds. The Forum for Sustainable and Responsible Investments provides investment returns for over 200 ESG-screened mutual funds from institutional member firms. Table 1 matches a selection of these ESG funds with comparable Vanguard mutual funds for five asset classes. In most cases, the Vanguard funds outperform their ESG counterparts, often by a considerable margin. Part of the reason is that the fees in the ESG funds are roughly 100 basis points higher than their Vanguard counterparts, which may reflect the additional resources required to perform the screening.

Complexities of Social Investing

The question of whether ESG issues should play a role in public fund investing goes beyond returns. Social investing introduces a host of economic, political, and legal complications. Important issues include whether state legislators and fund managers can act in the best interests of pension beneficiaries, the difficulty in even determining what those interests are, and potential constitutional conflicts between state and federal laws.

Decision Makers Are Not Stakeholders

Social investing in public plans highlights a classic principal-agent problem in economics. The principals in this case are tomorrow's pension beneficiaries and/or taxpayers: the people with skin in the game. The agents are the fund boards or state legislatures that make investment decisions on behalf of the principals. In theory, agents are supposed to act solely in the interests of the principals. In reality, especially in public plans, conflicts of interest may arise if state legislatures make investing decisions for political reasons. If social investing produces losses, tomorrow's taxpayers will have to ante up or future retirees will receive lower benefits. The welfare of these future actors is not well represented in the decision-making process.

Difficulty of Pricing Preferences

Even if decision makers always acted in the best interests of beneficiaries, it is still very difficult to determine how different beneficiaries value ESG factors.[19] For example, one beneficiary may accept lower returns for fossil-free but not firearms-free investments, while a second one may accept lower returns for terror-free but not fossil-free investments, and a third may not accept lower returns at all. Given different preferences, it would be difficult for public pension funds to fully incorporate the value of ESG factors of

Table 1. Average Net Returns of ESG Mutual Funds and Comparable Vanguard Mutual Funds, 2016

Asset class	Type	1-yr	5-yr	10-yr	Assets (billions)	Benchmark index
Equity (large)	ESG	8.4%	12.1%	6.9%	$30.0	S&P 500 Comp Total
	Vanguard	12.5	14.7	7.5	255.7	
Equity (mid)	ESG	5.8	13.5	7.0	4.6	Russell Midcap Value
	Vanguard	5.7	13.1	7.7	9.0	
Equity (intl)	ESG	9.5	7.8	4.9	0.4	MSCI ACWI
	Vanguard	7.4	9.8	4.4	4.4	
Bond (long)	ESG	14.1	6.7	8.3	0.1	Barclays US Long-A
	Vanguard	18.2	8.7	8.2	15.8	
Bond (short)	ESG	3.2	2.1	3.3	4.1	Barclays US 1-5
	Vanguard	3.6	2.4	3.5	57.3	

Note: Data as of August 31, 2016. Comparable funds are both from the same asset class and have the same benchmark index. Funds with less than 10 years of returns history are excluded. Returns are net of fees.
Sources: Authors' calculations from The Forum for Sustainable and Responsible Investments (2016); Bloomberg's ESG Data Service (2016); and Vanguard Mutual Funds (2016).

all beneficiaries. Additionally, these preferences may change over time as social values and political views shift.[20]

Potential Constitutional Conflicts

Recent state-level divestment legislation against Sudan and Iran has prompted debate over the constitutionality of state and local economic sanctions.[21] While some experts claim that states can enact such laws, others argue that these efforts conflict with federal trade and foreign policy objectives. In several instances, federal courts have ruled that state legislation on social investment was unconstitutional on grounds that it overlapped with federal foreign policy or commerce (see Table 2). The implementation of the Iran Nuclear Deal (the JCPOA) in 2016 has revived the debate. Paragraph 25 of the JCPOA states that "If a law at the state or local level in the United States is preventing the implementation of the sanctions lifting as specified in this JCPOA, the United States will take appropriate steps, taking into account all available authorities, with a view to achieving such implementation." As previously discussed, however, since many Iran or terror-free divestment laws are linked to the Federal State Sponsors of Terrorism list, which the JCPOA does not change, it is unclear whether these state-level divestments are unconstitutional.

Table 2. Federal Court Rulings on State-level Divestments, 2000-2012

Court case	Year	Ruling
Crosby v. National Foreign Trade Council[1]	2000	Federal law preempted Massachusetts law limiting transactions with firms involved in Burma.
American Insurance Assoc. v. Garamendi[2]	2003	Federal policy preempted California law on disclosures of Holocaust-era insurance policies sold in Europe.
National Foreign Trade Council v. Giannoulias[3]	2007	Illinois's Sudan sanctions found to be unconstitutional.
Odebrecht Constr., Inc. v. Prasad[4]	2012	Federal law preempted Florida law barring government contracts for firms operating in Cuba.

[1] Stephen Crosby was Secretary of Admin. & Finance of MA.
[2] John Garamendi was Insurance Commissioner of CA.
[3] Alexi Giannoulias was State Treasurer of IL.
[4] Amanth Prasad was Secretary of Transportation of FL.
Source: Garcia and Garvey (2013).

Conclusion

While social investing raises complex issues, public pension funds are not suited for this activity. The effectiveness of social investing is limited, and it distracts plan sponsors from the primary purpose of pension funds – providing retirement security for their employees. Additionally, such activity involves a principal-agent problem since decision makers do not bear the risk of potential losses; rather, any losses will accrue to future beneficiaries and/or taxpayers. Even if a principal-agent problem did not exist, it would still be difficult to price how each beneficiary values each specific ESG goal. Finally, state and local divestment legislation may interfere with federal trade, commerce, or foreign policy goals.

In contrast with public pension funds, social investing should not be discouraged for private investors. With the growing prevalence of ESG-screened products, private investors have an avenue to direct investments away from activities they wish to discourage. Public pension funds, however, should remain focused on providing retirement security for public employees.

Endnotes

1 Two books were instrumental in broadening the social investing debate – Rifkin and Barber (1978) and Litvak (1981).

2 State divestment legislation since 2012 has also targeted firearms manufacturers, companies that boycott Israel, companies that produce songs using lyrics considered racist or obscene, predatory lending companies, and Turkish investment vehicles.

3 Other forms of social investing include shareholder advocacy and community investing. Munnell and Sundén (2001) provide a discussion on how public pension funds have used different forms of social investing.

4 The growth in demand for ESG-screened assets has been attributed to the creation and growth of ESG indices, which make social investing easily accessible, as well as to the emerging millennial investor and shareholder campaigns, among other factors.

5 The $2.7 trillion figure is from The Forum for Sustainable and Responsible Investments (2014). The Federal Reserve's "Flow of Funds" data report total assets for state and local pension plans of $5.0 trillion in 2014.

6 ERISA requires a fiduciary to act "solely in the interests of the [plan] participants and beneficiaries... for the exclusive purpose" of providing benefits to them. A fiduciary must also act "with the care, skill, prudence, and diligence" of the traditional "prudent man." See Langbein, Stabile, and Wolk (2006).

7 Lanoff (1980).

8 Some companies with defined contribution plans offer their employees one or more mutual fund options that pursue social investing criteria. Such an option does not raise any fiduciary concerns because the decision is left entirely to the participant.

9 U.S. Department of Labor (1988, 1994, 2008).

10 Under the JCPOA, the U.N. Security Council's permanent members and Germany are now permitted to engage in trade with Iran in previously prohibited energy, shipbuilding, auto, and financial services sectors. The United States, however, retains its unilateral human rights and terrorism-related sanctions.

11 Toyota Tsusho purchases Iranian crude oil through a special exclusion under the U.S. National Defense Authorization Act.

12 Hawaii and Connecticut considered fossil fuel divestment, but the legislation did not pass.

13 For an in-depth discussion, see Munnell and Sundén (2005) and Munnell (2007).

14 The caveat is, of course, that potential buyers must not think the sale reflects a negative assessment of the firm's financial condition or business prospects. If potential purchasers believe that the seller is disposing of the stock because he knows something adverse that they do not, they will revise down their assessment of the stock's value, and the transaction will reduce the price of the stock.

15 See Fabozzi, Ma, and Oliphant (2008), Hong and Kacperczyk (2009), and Statman and Glushkov (2009).

16 See Brealey and Myers (1988). Campbell et al. (2001) conclude that the number of stocks needed to achieve a given level of diversification has increased over time and may be as high as 50. Statman (2004) suggests the number could be even higher. A greater number of stocks required to achieve diversification implies a greater level of difficulty in replicating the market when screening occurs.

17 Rudd (1981) and Grossman and Sharpe (1986) argue that the investor will not be able to exactly duplicate the market portfolio, because the screened portfolio will have relatively greater covariance in returns. Rudd also argues that social investing will introduce size and other biases into the portfolio, which will lead to deterioration in long-run performance.

18 Brown, Pollet, and Weisbenner (2015) examined the investment behavior and performance of 27 state pension plans that manage their own equity portfolios. Interestingly, the authors found that both overweighting the equity of firms headquartered within the state and the presence of political influence on stock selection yielded excess returns for pension funds. Their sample, however, represented 12 percent of the total state plans or 50 percent of total public pension assets.

19 Social investing can be viewed as a form of value-driven investing – which is dependent on personal preferences – rather than returns-driven investing. Some stakeholders may be willing to risk lower returns because they believe the incorporation of ESG components increases the value in intangible ways that may not be reflected in price growth alone.

20 For example the California Public Employees Retirement System (CalPERS) divested from the tobacco industry at the end of 2000. However, as part of a broader review of its fiduciary obligations, CalPERS is currently considering reinvesting in tobacco after a report (Wilshire Associates 2015) estimated that it took losses for the majority of its divestments. Additionally, CalPERS continues to develop loss threshold policies that would trigger an automatic review of divested assets when losses exceed a certain level.

21 Garcia and Garvey (2013) explain that state and local economic sanctions raise three constitutional issues: 1) whether they violate the Foreign Commerce Clause and, if so, whether protections exist under the market participant exception to the Clause; 2) whether they interfere with the federal government's exclusive power to conduct foreign affairs; and 3) whether they are preempted by federal law.

References

Bloomberg LP. "Environmental, Social and Governance (ESG) Data Service." New York, NY. Available at: https://www.bloomberg.com/bcause/customers-using-esg-data

Brealey, Richard A. and Stewart C. Myers. 1988. *Principles of Corporate Finance*. McGraw-Hill Education – Europe.

Brown, Jeffrey R., Joshua M. Pollet, and Scott J. Weisbenner. 2015. *The In-State Equity Bias of State Pension Plans*. Working Paper 21020. Cambridge, MA: National Bureau of Economic Research.

Campbell, John Y., Martin Lettau, Burton G. Malkiel, and Yexiao Xu. 2001. "Have Individual Stocks Become More Volatile? An Empirical Exploration of Idiosyncratic Risk." *The Journal of Finance* 56(1): 1-43.

Fabozzi, Frank J., K. C. Ma, and Becky J. Oliphant. 2008."Sin Stock Returns." *Journal of Portfolio Management* 35:82.

Garcia, Michael John, and Todd Garvey. 2013. *State and Local Economic Sanctions: Constitutional Issues*. Report RL33948. Washington, DC: Congressional Research Service, Library of Congress.

Grossman, Blake R. and William Sharpe. 1986. "Financial Implications of South African Divestment." *Financial Analysts Journal* 42(4): 15-29.

Hong, Harrison, and Marcin Kacperczyk. 2009. "The Price of Sin: The Effects of Social Norms on Markets." *Journal of Financial Economics* 93(1): 15-36.

Langbein, John, Susan J. Stabile, and Bruce A. Wolk. 2006. *Pension and Employee Benefit Law*. New York, NY: Foundation Press.

Lanoff, Ian. 1980. "The Social Investment of Private Pension Fund Assets: May It Be Done Lawfully Under ERISA?" *Labor Law Journal* 31(7): 387-392.

Litvak, Lawrence. 1981. "Pension Funds and Economic Renewal." Washington, DC: Council of State Planning Agencies.

Munnell, Alicia H. 2007. "Should Public Plans Engage in Social Investing." *Issue in Brief* 7-12. Chestnut Hill, MA: Center for Retirement Research at Boston College.

Munnell, Alicia H. and Annika Sundén. 2005. "Social Investing: Pension Plans Should Just Say 'No'," in Jon Entine, ed., *Pension Fund Politics: The Dangers of Socially Responsible Investing*, 13-55. Washington, DC: AEI Press.

Munnell, Alicia H. and Annika Sundén. 2001. "Investment Practices of State and Local Pension Plans," in Olivia S. Mitchell and Edwin C. Hustead, eds. *Pensions in the Public Sector*, 153-194. Philadelphia, PA: The Pension Research Council and University of Pennsylvania Press.

National Conference of State Legislatures. 2016. "State Divestment Legislation." Washington,DC. Available at: http://www.ncsl.org/research/fiscal-policy/pension-legislation-database.aspx

Public Plans Database. 2001-2015. Center for Retirement Research at Boston College, Center for State and Local Government Excellence, and National Association of State Retirement Administrators.

Rifkin, Jeremy and Randy Barber. 1978. *The North Will Rise Again: Pensions, Politics and Power in the 1980s*. Boston, MA: Beacon Press.

Rudd, Andrew. 1981. "Social Responsibility and Portfolio Performance." *California Management Review* 23: 55-61.

Statman, Meir. 2004. "The Diversification Puzzle." *Financial Analysts Journal* 60 (4): 44-53.

Statman, Meir, and Denys Glushkov. 2009. "The Wages of Social Responsibility." *Financial Analysts Journal* 65(4): 33-46.

The Forum for Sustainable and Responsible Investments. 2016. Washington, DC. "Sustainable & Responsible Mutual Fund Chart." Available at: http://charts.ussif.org/mfpc/?SortBy=FundTenYear

The Forum for Sustainable and Responsible Investments. 2014. "US Sustainable, Responsible and Impact Investing Trends 2014." Washington, DC. Available at: https://www.sec.gov/comments/disclosure-effectiveness/disclosureeffectiveness-18.pdf

U.S. Board of Governors of the Federal Reserve System. 2016. Financial Accounts of the United States: Flow of Funds, Balance Sheets, and Integrated Macroeconomic Accounts. Washington, DC.

U.S. Department of Labor. 1988. *ERISA Advisory Opinion* 88-16A. Washington, DC.

U.S. Department of Labor. 1994. *Interpretive Bulletin* IB 94-1. Washington, DC.

U.S. Department of Labor. 2008. *Interpretive Bulletin* IB 08-1. Washington, DC.

U.S. Department of Labor. 2015. *Interpretive Bulletin* IB 2015-1. Washington, DC.

Vanguard. "Vanguard Mutual Funds." Valley Forge, PA. Available at: https://investor.vanguard.com/mutual-funds/list#/mutual-funds/asset-class/month-end-returns

Wilshire Associates. 2015. "Comprehensive Divestment Analysis." Santa Monica, CA.

Watson Institute for International and Public Affairs at Brown University. 2016."Iran State Sanctions Project." Providence, RI.

APPENDIX

Appendix Table. Impact of Divestment Laws and Other Factors on Annual Average Geometric Returns of State-Administered Plans, 2001-2015

Variable	Coefficient
Passed divestment law	-0.385**
	(0.167)
Plan characteristics	
Log of net assets	0.175***
	(0.0446)
Percentage of ARC paid	-0.0253
	(0.0780)
Asset allocation	
Percentage in equities	-0.0149***
	(0.00471)
Percentage in fixed income	0.0404***
	(0.00556)
Percentage in real estate	-0.000491
	(0.0157)
Percentage in alternatives	-0.00470
	(0.00774)
Constant	-1569.1***
	(37.38)
Observations	1,551
Adjusted R-squared	0.869

Notes: Controls were included for each individual state trend as well as state and year fixed effects. Statistically significant at 5-percent (**), or 1-percent level (***). Robust standard errors in parentheses.
Source: Authors' calculations from *Public Plans Database* (2001-2015).

About the Center

The mission of the Center for Retirement Research at Boston College is to produce first-class research and educational tools and forge a strong link between the academic community and decision-makers in the public and private sectors around an issue of critical importance to the nation's future. To achieve this mission, the Center sponsors a wide variety of research projects, transmits new findings to a broad audience, trains new scholars, and broadens access to valuable data sources. Since its inception in 1998, the Center has established a reputation as an authoritative source of information on all major aspects of the retirement income debate.

Affiliated Institutions

The Brookings Institution
Syracuse University
Urban Institute

Contact Information

Center for Retirement Research
Boston College
Hovey House
140 Commonwealth Avenue
Chestnut Hill, MA 02467-3808
Phone: (617) 552-1762
Fax: (617) 552-0191
E-mail: crr@bc.edu
Website: http://crr.bc.edu

The Center for Retirement Research thanks AARP, BlackRock, Capital Group, Citigroup, Fidelity & Guaranty Life, Goldman Sachs, MassMutual Financial Group, Prudential Financial, State Street, and TIAA Institute for support of this project.

The research reported herein was supported by the Center's Partnership Program. The findings and conclusions expressed are solely those of the authors and do not represent the views or policy of the partners or the Center for Retirement Research at Boston College.