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ESG INVESTING AND PUBLIC PENSIONS: AN UPDATE

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INTRODUCTION

Public pension funds have engaged in social investing since the early 1970s, when several states passed laws to screen out "sin" stocks, such as tobacco, alcohol, and gambling. The practice was broadened in the early 1980s in the wake of a major campaign to encourage pension funds and others to divest from companies doing business in South Africa. States have also aimed to achieve domestic goals, such as promoting union workers, economic development, and homeownership. In the mid-2000s, the focus shifted to "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. In the last few years, state

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Interestingly, a "new" form of investing – called ESG (environmental, social, and governance) – has gained traction among public plans themselves – as opposed to being imposed by state legislatures. A key tenet of ESG investing is that certain non-financial factors – such as a firm's environmental impact, its relationship with communities where it operates, and its management culture – are also relevant to longterm value.¹ Proponents believe that, by integrating these ESG factors into existing methods of financial analysis, investors can both earn higher returns and promote socially beneficial practices and outcomes.² This *brief* explores whether this new form of investing can fulfill its claims.

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The discussion proceeds as follows. The first section describes various approaches to social investing and the U.S. Department of Labor's guidance on this activity. The second and third sections analyze the impacts of traditional social investing and ESG investing on social change and returns, respectively. The fourth section offers further thoughts on the relationship between decisionmakers and stakeholders and on the differences in social goals across stakeholders. The final section concludes that social investing of any form does not appear to improve returns and has the potential to reduce them; hence, it is not appropriate for public pension funds.

BACKGROUND ON SOCIAL INVESTING

The concept of social investing has been around since the 1970s and has involved a variety of approaches.³ In response, the U.S. Department of Labor, which regulates private pension plans covered by the Employee Retirement Income Security Act of 1974 (ERISA), has issued a number of statements about the appropriateness of social investing in private defined benefit plans. The following discusses both the methodology and regulation of social investing.

THE EVOLUTION OF SOCIAL INVESTING

Over the years, social investing has been undertaken in a number of ways, including economically targeted investments, shareholder advocacy, and stock selection (either divesting stocks of undesirable companies or, more recently, investing in "good" companies).

Economically targeted investments, generally undertaken by public pension funds in response to legislation, were aimed primarily at fostering local economic development, protecting jobs, and increasing homeownership. Although advocates generally contended that these goals could be achieved without any loss of return, early reports revealed that plans were losing money. A 1983 study showed that many states were foregoing up to 200 basis points on mortgagebacked pass-through securities designed to increase the supply of mortgage funds in their state.⁴ Similarly, Connecticut's state pension fund lost \$25 million attempting to shore up Colt Industries in an effort to protect jobs.⁵ In Kansas, the state pension fund lost \$100-\$200 million on defaulted loans from an in-state investment program.6 Since the losses in the 1980s and early 1990s, very few pension funds have introduced new policies for economically targeted investments.

Another approach to fostering broader social goals has been shareholder advocacy - that is, investors engage directly with companies regarding social, environmental, and governance issues. In 2018, 165 institutional investors and 54 investment managers filed shareholder resolutions.⁷ More than half of these initiatives were undertaken by faith-based institutions and money managers; public pension funds accounted for only 8 percent of the total. The leading issue was proxy access - the ability of shareholders to nominate directors to corporate boards.8 The popularity of this approach is still relatively limited; the organizations that filed shareholder resolutions controlled only about \$2 trillion in assets in 2018, less than 4 percent of the total of \$47 trillion under financial management.9

The main approach to social investing was, and continues to be, stock selection. The two most popular strategies today are screening out companies viewed as undesirable, and the systematic inclusion of social factors in the process of financial analysis. Money managers have offered socially responsible funds since Pax World was introduced in 1971, but for decades these funds did not gain a lot of traction. However, in the last 10 years – with the emergence of so-called ESG funds – social investing has surged (see Figure 1). This surge reflected both the desire of financial service firms to offer new high-fee products and receptive investors interested in both higher returns and social impact. As noted, the underlying premise of ESG investing is that environmental,



Figure 1. Assets in Funds with ESG Criteria, 1995-2018, Trillions of Dollars

Sources: The Forum for Sustainable and Responsible Investments (2016 and 2018).

social, and governance considerations are relevant to a firm's long-term value, so taking them into account will lead to more valuable investments.¹⁰

In 2018, money managers applied some kind of ESG criteria in their investment decisions for about \$12 trillion of assets. Of this amount, roughly \$3 trillion was invested on behalf of individual investors and \$9 trillion on behalf of institutional investors.

Public pension funds represent a substantial share of institutional assets to which ESG criteria are applied (see Figure 2).¹¹ And public pensions applied ESG to at least \$3 trillion in assets, which represents more than half of all assets in public pension funds.¹²

Figure 2. Assets in Funds, by Type of Institutional Investor, 2018



Note: The "other" category includes: foundations, healthcare, labor, faith-based, nonprofit, and family officer. *Source*: The Forum for Sustainable and Responsible Investments (2018).

Importantly, virtually none of the institutional ESG assets are held by private sector defined benefit plans. This status reflects the U.S. Department of Labor's (DOL) stringent interpretation of ERISA's duties of loyalty and prudence.¹³ As early as 1980, a key official DOL article warned that the exclusion of investment options would be very hard to defend under ERISA's prudence and loyalty tests.¹⁴ But, from 1994 to 2015, the DOL issued a number of subsequent statements, which tended to take an increasingly favorable tone towards social investing (see Box).¹⁵ This trend culminated in a 2015 assertion that ESG factors may have a direct impact on the economic value of a plan's investment and, as such, should be integrated into quantitative models of risk and return calcula-

tions. However, in June 2020, the DOL announced a proposed rule that discourages the inclusion of non-pecuniary factors in investing decisions, opining that such an approach usually involves trading off returns for social goals and thereby has no place in ERISA plans.¹⁶

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 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.

The 2020 *Bulletin* rejected the notion that non-pecuniary factors can be considered as "tie-breakers," opining that tie-breaking situations rarely arise and adding special analysis and documentation requirements when fiduciaries claim to be choosing among "indistinguishable" investments.

Sources: U.S. Department of Labor (1994, 2008, 2015, and 2020).

It is important to note that the DOL rules do not apply to state and local government plans because these plans are not covered by ERISA. Nevertheless, the prior DOL guidance may have had an indirect impact on public plan behavior by legitimizing the role of ESG factors in investment decisions. It remains to be seen whether the recent reversal by the DOL will curb ESG activity among public plans.

Can Social Investing Solve Social Problems?

Is the goal of social investing simply to make a statement against, say, tobacco, or in favor of, say, a stop to global warming? Or do social investors think that they are going to affect the financial fate of targeted firms and thereby cause a decline in smoking or reduce the use of fossil fuels? The rhetoric suggests that investors think they will have a real impact.¹⁷ The mechanism apparently must work through a decline in the value of stocks at "bad" companies and an increase in the value of stocks at "good" companies – thereby encouraging more companies to adopt "good" behaviors.

Those inclined to see ESG investing as a way to generate social change, however, face two problems. First, the standards of ESG investing are often unclear. MIT researchers looked at the methods used by six different ESG-rating providers and found that their assessments differed significantly.¹⁸ Another deviation from the fundamental price would represent a profitable trading opportunity that market participants would quickly exploit and thus correct.²² In other words, boycotting tobacco stocks or international companies doing business in Iran may result in a temporary fall in the stock price, but as long as some buyers remain they can swoop in, purchase the stock, and make money. And the buyers are out there. The Vitium Fund (formerly the Vice Fund and the Barrier Fund), which was established in 2002, stands ready to buy alcohol, tobacco, arms, and gambling stocks screened out of standard portfolios. Thus, the textbooks suggest that boycotting tobacco companies or international companies doing business in Iran is unlikely to have any impact on the price of their stocks.²³

And, in 1999, a comprehensive survey on the effect of the South African boycott – the largest and most visible social investing action – documents virtually no effect on share prices, suggesting the real world mirrors the textbook model.²⁴ A series of event

group of researchers found a wide range of rating outcomes for a given company. For example, Wells

Boycotting companies is unlikely to have any impact on the price of their stocks.

Fargo received a top score on ESG issues from one provider and below average from another.¹⁹ These inconsistencies in classification make it difficult for investors to accurately and consistently evaluate the ESG performance of companies in which they may want to invest.²⁰ Contributing to this inconsistency in classification may be the broad range of ESG goals. The environmental, social, and governance categories are extraordinarily diverse and, in many cases, quite distinct from one another. And the goals of investors may range from wanting to simply make a statement that they care about non-financial issues to specific, actionable goals, such as limiting fossil fuel pollution or the proliferation of guns.

The second problem is that the academic literature suggests stock selection is unlikely to affect the price of either the "good" or the "bad" companies. According to standard finance theory, the price of any stock equals the present discounted value of the company's 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.²¹ That is, even a big change in the quantity demanded will lead to only a small change in price. And any significant studies concluded that the anti-apartheid shareholder and legislative boycotts
 had no negative effect

on the valuations of banks or corporations with South African operations or on the South African financial markets. This is not to say that the boycott was not important politically, but merely that it did not impact financial markets.²⁵

In short, stock selection is unlikely to stop smoking, slow global warming, or change the behavior of "terrorist" countries.²⁶

Does Social Investing Affect Returns?

While investing based on social factors may not bring about the desired social goals, it would be nothing but a diversion if it did not adversely affect returns. Given that many public plans were early participants in social investing through state-mandated requirements and more recently have themselves embraced ESG investing, they are a natural place to assess the investment performance of these two approaches. For 176 plans in our *Public Plans Database*, for each year from 2001-2018, we identified state investment directives (for state-administered plans) and scanned the investment policy statements of both state and local plans for the adoption of any ESG policies.²⁷ Of the 176 plans reviewed, roughly two-thirds currently have either a social investing state mandate or an ESG policy in place (see Figure 3).

Figure 3. Type of Social Investing by State and Local Plans, 2018



Note: See Endnote 28. *Source:* Authors' calculations from the *Public Plans Database* (PPD) (2001-2018).

The types of state mandates and ESG policies for public plans run the gamut. State mandates include the traditional forms of social investing such as divestment from Iran, Sudan, fossil fuels, tobacco, and weapons, and other policies include mandates to invest locally and/or in minority-owned businesses. The ESG policies are focused mainly on requiring (or, at least, allowing for) ESG criteria – such as ecological impacts, labor practices, business ethics, etc. – to be considered alongside pecuniary factors.²⁹

To relate state mandates and ESG policies to public pension investment performance, the analysis uses two types of regressions. The first regression explores the relationship between the average rate of return for the 160 plans with complete data over the period 2001-2018, the number of years that the plan faced a state social-investing mandate, and the number of years that it had an ESG policy, controlling for plan size and asset allocation. The results show a negative relationship between the rate of return and both state mandates and ESG policies, although only the coefficient for the state mandate is statistically significant (see Figure 4). It suggests that having a state mandate in place for a single year was associated with an annualized return that was nearly two basis points lower over the 18-year period. To put this finding in context, plans with state mandates have had them for an average of 10 years. So, the average annualized return for those with a state mandate would be 20 basis points lower than for those without a mandate.

FIGURE 4. OLS REGRESSION: FACTORS THAT AFFECT

Geometric Returns for 2001-2018



-0.03% -0.02% -0.01% 0.00% 0.01% Percentage-point-change in geometric return

Note: Solid bar is statistically significant at the 5-percent level. *Source:* Authors' calculations from the PPD (2001-2018).

While the first regression shows an association between social investing activity and returns, it cannot establish causation - for example, maybe only plans with poor investment managers are under state mandates or ESG policies. To establish a causal link, the second equation uses a fixed-effects model. This equation relates one-year investment returns for a given plan over the period 2001-2018 to the presence of either a state mandate or a plan-level ESG policy, controlling for plan size and asset allocation. In essence, for each plan, it looks at the difference in returns for periods with and without social investing activity. The results in Figure 5 (on the next page) show that state mandates and ESG policies reduce annual returns by 70 to 90 basis points, albeit the coefficient of ESG investing is only marginally statistically significant (10-percent level).30



FIGURE 5. FIXED EFFECT REGRESSION: FACTORS THAT

Note: Solid bars are statistically significant at the 5-percent level.

Source: Authors' calculations from the PPD (2001-2018).

The negative relationship between state mandates and returns in both equations is consistent with the results of earlier studies.³¹ The fact that having an ESG policy is also negatively related to returns (with 10-percent significance) appears to contradict the assertion that focusing on social factors produces market or better returns.³²

As a check on our regression results, we compared the returns on ESG mutual funds to unrestricted Vanguard funds over 1-year, 5-year, and 10-year periods (see Table 1).³³ With the exception of the shortduration bond funds, the Vanguard funds generally outperform their ESG counterparts, often by a considerable margin.³⁴ Part of the reason is that the fees in the ESG funds are roughly 80 basis points higher than their Vanguard counterparts, which may reflect the additional resources required to perform the screening.

Final Comments on Pension Fund Social Investing

The question of whether social investing should play a role in public pension investing goes beyond returns. Even assuming that divestment and ESG inclusion were effective mechanisms to stop terrorism and slow the rise in the earth's temperature and that state legislatures and pension fund boards are the right bodies to make foreign and climate policy, pension funds are not an appropriate vehicle for social investing.

Asset class	Туре	1-year	5-year	10-year	Expense ratio	Average AUM (\$ billions)	Benchmark index
Bond – short	ESG	5.29%	3.63%	3.46%	0.90%	\$1.1	Barclays US
	Vanguard	4.85	2.92	2.68	0.20	62.6	1-5 Year Credit Index
Bond – long	ESG	10.98	6.34	4.54	0.76	0.2	Barclays US Long Credit
	Vanguard	16.77	9.18	8.11	0.22	20.2	
Equities large cap	ESG	6.75	8.13	11.58	1.04	2.1	S&P 500 Index
	Vanguard	7.47	10.69	13.95	0.04	533.6	
Equities mid cap	ESG	-1.56	5.21	10.12	0.92	1.3	Russell Midcap Value
	Vanguard	-0.20	6.99	12.47	0.05	106.9	
International	ESG	2.08	5.00	7.24	1.16	0.5	
	Vanguard	4.64	8.01	10.79	0.48	6.4	MSCI ACWI
Real estate	ESG	4.95	2.45	2.41	0.89	0.6	Barclays Securitized,
	Vanguard	-6.93	5.36	9.71	0.12	55.8	MSCI US Real Estate

Notes: Data as of July 31, 2020. 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.

Source: Authors' calculations from The Forum for Sustainable and Responsible Investments (2020); Bloomberg's ESG Data Service (2020); and Vanguard Mutual Funds (2020).

The most important factor regarding whether or not public pension funds should engage in social investing is that the decisionmakers and the stakeholders are not the same people. The decisionmakers are either the fund board or the state legislature, or a combination of the two. The stakeholders are tomorrow's beneficiaries and/or taxpayers. If social investing produces losses either through higher administrative costs or lower returns, future retirees will receive lower benefits or tomorrow's taxpayers will have to ante up. The welfare of these future actors is not well represented in the decisionmaking process.

Even if decisionmakers always tried to act in the best interests of beneficiaries and future taxpayers, it is still very difficult to determine how different beneficiaries value ESG factors.³⁵ For example, one beneficiary may accept lower returns for fossil-free but not firearms-free investments, while another 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 for all beneficiaries. Additionally, these preferences may change over time as social values and political views shift.³⁶ Therefore, the range and variation in preferences provide one more argument for why public plans are not an appropriate vehicle for social investing, especially given that both fees are higher and returns are lower. On the other hand, if individual investors, who know their own preferences, want to pay the higher fees for ESG funds, they should go ahead and do it.

CONCLUSION

The evolution of social investing from economically targeted investments and state-mandated divestments, where public plans clearly sacrificed return, to shareholder engagement and ESG investing, where the goal, at least, is to maintain market or better returns, is definitely a step forward. But both data and theory show that stock selection is not the way to reduce smoking or slow the rise in the earth's temperature. And focusing on social factors, at least for public pension plans, does not appear to be costless – plans earn less in returns and fail to capture beneficiaries' interests. Most importantly for public plans, the people who are making the decisions are not the ones who will bear the brunt of any miscalculations. 1 Bhagat and Hubbard (2020) argue – as Milton Friedman did in 1970 – that firms should focus on long-term value creation, not socially beneficial business practices. But they also note that many socially beneficial business practices align with long-term value creation and conclude that better incentives for long-term thinking by managers and boards, as well as government schemes to help firms internalize more of the benefits from socially desirable business practices, would promote these natural alignments. At the same time, the authors make clear that some issues like climate change cannot be solved by corporations and must be addressed by government policy.

2 Not all advocates of ESG investing agree that financial returns will be higher, but that mitigating negative externalities is itself a form of value creation that should be considered on equal footing with pecuniary factors (Impact-Weighted Accounts Project 2020).

3 Rifkin and Barber (1978).

4 Munnell (1983).

5 Schwimmer (1992) and Langbein, Stabile, and Wolk (2006).

6 White (1991).

7 The Forum for Sustainable and Responsible Investments (2018).

8 Corporate political activity, climate change, labor force issues, executive pay, and human rights were also major concerns.

9 Proxy voting on ESG issues, which is less pro-active than filing a shareholder resolution, is more wide-spread.

10 Many of the largest ESG-focused mutual funds directly consider companies' long-term sustainability and impact as central to their viability as a business (see Hale 2020). This incorporation of long-run value along social and environmental guidelines goes beyond simply considering monetary return (see The Forum for Sustainable and Responsible Investments 2020). 11 To understand the types of institutional investors that use ESG, the US SIF Foundation surveyed 496 institutional investors representing \$5.6 trillion of the total \$9 trillion in institutional ESG assets reported by money managers. While the survey did not cover all institutional ESG assets, it did include all the ESG assets for public pensions – about \$3 trillion. For Figure 2, the remaining \$6 trillion in institutional ESG assets were apportioned based on the proportion of non-pension ESG assets surveyed by US SIF.

12 The \$3.0 trillion figure is from The Forum for Sustainable and Responsible Investments (2018). The Federal Reserve's *Flow of Funds* data report total assets for state and local pension plans of \$5.0 trillion in 2018.

13 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).

14 Lanoff (1980).

15 U.S. Department of Labor (1988, 1994, 2008, and 2015).

16 U.S. Department of Labor (2020). See also Scalia (2020).

17 According to the 2018 Report on US Sustainable, Responsible and Impact Investing Trends (from The Forum for Sustainable and Responsible Investments), "Many of these money managers and institutions, concerned about racial and gender discrimination, gun violence and the federal government's rollbacks of environmental protections, are using portfolio selection and shareowner engagement to address these important issues."

18 Berg, Kölbel, and Rigobon (2020).

19 Li and Polychronopoulos (2020).

20 Kotsantonis and Serafeim (2019).

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

22 See Brealey and Myers (1988).

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

24 Teoh, Welch, and Wazzan (1999).

25 Yes, the regime changed in South Africa, but many South Africans say that it was the cultural boycott – particularly in sports – rather than the divestiture of companies with South Africa-linked activities that resulted in the peaceful ascendance of Nelson Mandela as president. See Authers (2007).

26 Further, O'Connor and Labowitz (2017) estimate that only about 8 percent of the criteria used to vet companies for socially responsible policies actually capture whether the policies have any effect on social goals, so companies may be rated favorably regardless of their impact.

27 In many cases, the assets of multiple plans are jointly held in a pension trust that is overseen by a single investment entity that sets a uniform policy for all assets in the trust.

28 Eleven locally administered plans match state guidance on divestment: Baltimore Fire & Police, Boston Retirement System, Chicago Municipal, Chicago Police, Chicago Teachers, Cook County Employees, Miami Fire & Police, Montgomery County MD ERS, NYC ERS, NYC Police, and NYC Teachers.

29 Sustainability Accounting Standards Board (2020).

30 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 state plans and 50 percent of assets. 31 See Mitchell and Hsin (1994); Munnell (2007); Munnell and Chen (2016); Winegarden (2019); Ciciretti, Dalò, and Dam (2019); and Azmi, Mohamad, and Shah (2020).

32 Two other studies focusing on ESG investing have also found a negative impact on returns (see Auer and Schuhmacher (2016) and Halbritter and Dorfleitner (2015).

33 Requiring 10 years of data necessarily reduces the sample size of ESG funds for comparison. Hence, we repeated the exercise for funds for a larger sample of funds that have been in existence for only 5 years, and the results were the same for the 5-and 1-year periods. Similarly, we also compared only the top third of ESG funds to their Vanguard counterparts, and found similar differences in returns and expense ratios.

34 Similar analyses suggest that some ESG funds may hold up well against Index funds. For example, if the sample of ESG funds is limited to the top third in each asset class based on the 10-year return, ESG funds outperform Vanguard funds in Large Cap Equities and International Equities. Similarly, Hildebrand (2020) and Lefkowitz (2020) found that ESG funds outperformed broad indices in the first quarter of 2020. Nonetheless, several academic studies find that a focus on ESG factors hurts market performance (Grewal, Riedl, Serafeim (2017), Christensen et al. (2017), Manchiraju and Rajgopal (2017), Hoque et al. (2016), and Christensen, Hail, Leuz (2018)).

35 Social investing can be viewed as a form of valuedriven 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.

36 Further, in the absence of a standardized ESG rating system, year-to-year fluctuations in institutional priorities are likely to lead to difficulty in expressing and measuring impact (see O'Connor and Labowitz 2017).

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APPENDIX

Variables	(1) Geometric returns (from 2001)
Years w/ state-mandated social investing	-0.000174**
	(8.70e-05)
Years w/ plan-level ESG policy	-0.000039
	(9.75e-05)
Avg. % in equities	0.0000396
	(9.41e-05)
Avg. % in alternatives	-0.0000895
	(8.95e-05)
Ln. of average assets	0.000766**
	(0.000380)
Constant	0.0480***
	(0.00760)
Observations	160
R-squared	0.043

TABLE A1. OLS REGRESSION: FACTORS THAT AFFECT
Geometric Returns for 2001-2018

TABLE A2. FIXED EFFECTS REGRESSION: FACTORS THAT Affect 1-Year Returns for 2001-2018

Variables	(1) 1-year returns
Current state-mandated social investing	-0.00681**
	(0.00327)
Current plan-level ESG policy	-0.00897*
	(0.00526)
% in equities	0.00140***
	(0.000350)
% in alternatives	-0.000911***
	(0.000288)
Stock market downturn	-0.193***
	(0.00286)
Constant	0.0505**
	(0.0221)
Observations	2,724
Number of plans	160
R-squared	0.532

Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05.

Source: Authors' calculations from the PPD (2001-2018).

Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Source: Authors' calculations from the PPD (2001-2018).

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