Online Appendix for

"Managerial risk-taking incentives and corporate pension policy"

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This document provides supplemental analyses and robustness tests to the main results presented in "Managerial risk-taking incentives and corporate pension policy." The tables are organized in the order in which we discuss the related results in the manuscript.

Table A1: Economic significance of asset allocation results

Table A2: Funding status and asset allocation results with additional controls for factors that affect risk-shifting

Table A3: Comparison of top executive incentives between the pre- and post-SFAS 123(R) periods for the whole sample

Table A4: Funding status results with an alternative measure of underfunding

Table A5: Funding status and asset allocation results for the sample requiring only CEO incentives data

Table A6: Do the incentives of other Named Executive Officers (NEOs) affect pension risk-shifting?

Table A7: Does equity ownership of the board of directors affect pension risk-shifting?

Table A8: Does union monitoring affect pension risk-shifting?

Table A9: Asset allocation results controlling for regulatory shocks

Table A10: Funding status results with the non-discretionary component of underfunding

Table A11: Funding status results controlling for the effect of the Pension Protection Act of 2006

Table A12: Funding status and asset allocation results for sub-periods

Table A13: Funding status and asset allocation results with an alternative measure of distress – Altman's (1968) Z-score

Table A14: Funding status and asset allocation results with an alternative measure of distress – Campbell, Hilscher, and Szilagyi's (2008) "best" model

Table A15: Funding status and asset allocation results with an alternative measure of distress – Bharath and Shumway's (2008) naïve distance-to-default

Table A1: Economic significance of asset allocation results

This table explains the economic significance of the asset allocation results discussed in Section 5.3 of the manuscript. Definitions of all variables are provided in Appendix B of the manuscript. P25, P50, P75, and P95 are the respective percentiles of each variable. The coefficients are from Model 4 of Table 5 of the manuscript. CEO and CFO incentives are standardized by subtracting the sample mean and scaling by the sample standard deviation. All model variables not presented in the table below are assumed to be held constant.

Panel A: Change in %equity when moving from P50 to P95 of distress, at P25 of lagcfov and P75 of lagcfod

P50 of distress at P25 of lagcfov and P75 of lagcfod			*P95 of distress at P25 of lagcfov and P75 of lagcfod*		
Variable	Coeff.	Value*	Variable	Coeff.	Value**
distress	-0.003	-6.953	*distress*	-0.003	-1.877
underfunding	0.146	0.190	*underfunding*	0.146	0.190
*distress*underfunding*	0.013	-1.321	*distress*underfunding*	0.013	-0.357
lagcfov	0.026	-0.489	*lagcfov*	0.026	-0.489
*distress*lagcfov*	0.002	3.401	*distress*lagcfov*	0.002	0.918
lagcfod	-0.029	0.046	*lagcfod*	-0.029	0.046
*distress*lagcfod*	-0.003	-0.321	*distress*lagcfod*	-0.003	-0.087
Predicted value of *%equity* (A1 = sum of coeff.*value)		0.0267	Predicted value of *%equity* (A2 = sum of coeff.*value)		0.0173

→ Change in *%equity* when moving from P50 to P95 of *distress* (=A2-A1) = **-0.94%**

* The values of *distress*, *underfunding*, *lagcfov*, and *lagcfod* refer to P50, P50, P25, and P75, respectively.

** The values of *distress*, *underfunding*, *lagcfov*, and *lagcfod* refer to P95, P50, P25, and P75, respectively.

Panel B: Change in %equity when moving from P50 to P95 of distress, at P75 of lagcfov and P25 of lagcfod

P50 of distress at P75 of lagcfov and P25 of lagcfod			*P95 of distress at P75 of lagcfov and P25 of lagcfod*		
Variable	Coeff.	Value[#]	Variable	Coeff.	Value[##]
distress	-0.003	-6.953	*distress*	-0.003	-1.877
underfunding	0.146	0.190	*underfunding*	0.146	0.190
*distress*underfunding*	0.013	-1.321	*distress*underfunding*	0.013	-0.357
lagcfov	0.026	0.028	*lagcfov*	0.026	0.028
*distress*lagcfov*	0.002	-0.193	*distress*lagcfov*	0.002	-0.052
lagcfod	-0.029	-0.510	*lagcfod*	-0.029	-0.510
*distress*lagcfod*	-0.003	3.544	*distress*lagcfod*	-0.003	0.956
Predicted value of *%equity* (B1 = sum of coeff.*value)		0.0358	Predicted value of *%equity* (B2 = sum of coeff.*value)		0.0412

→ Change in *%equity* when moving from P50 to P95 of *distress* (=B2-B1) = **0.54%**

[#] The values of *distress*, *underfunding*, *lagcfov*, and *lagcfod* refer to P50, P50, P75, and P25, respectively.

[##] The values of *distress*, *underfunding*, *lagcfov*, and *lagcfod* refer to P95, P50, P75, and P25, respectively.

Table A2: Funding status and asset allocation results with additional controls for factors that affect risk-shifting

This table presents the funding status and asset allocation results with additional controls for determinants of risk-shifting. Related discussion is in Section 5.5 of the manuscript. The dependent variable in Panel A (Panel B) is *underfunding* (*%equity*). *hhi* represents the Herfindahl-Hirschman index and is computed as the sum of squared market shares of all firms in a given 2-digit SIC industry where market shares are computed from Compustat based on firms' sales. Definitions of all other variables are provided in Appendix B of the manuscript.

All models use industry fixed effects based on 2-digit SIC codes and year fixed effects. Coefficient estimates on control variables, year, and industry fixed effects are not reported for brevity. CEO and CFO incentives are standardized by subtracting the sample mean and scaling by the sample standard deviation. All coefficients on CEO and CFO incentives are multiplied by 1000 for ease of presentation. Robust t-statistics adjusted for firm-level clustering are reported in parentheses. ***, **, * denotes significance at the 1%, 5%, and 10% levels, respectively, based on two-tailed t-tests.

Table A2 (continued)

Panel A: Funding status test (dependent variable = underfunding)

	(1)		(2)		(3)	
Variable	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat
distress	0.004	(1.65) *	0.003	(1.54)	0.003	(1.56)
hhi	0.000	(-0.03)	0.000	(-0.19)	0.000	(-0.12)
*distress*hhi*	0.000	(0.03)	0.000	(0.15)	0.000	(0.16)
bm	-0.002	(-0.09)	0.000	(-0.01)	-0.003	(-0.12)
*distress*bm*	0.001	(0.48)	0.002	(0.59)	0.002	(0.56)
lagceov	-1.361	(-0.10)			-18.674	(-1.09)
lagceod	-11.137	(-0.80)			2.099	(0.12)
lagceosd	-10.860	(-1.23)			-10.058	(-1.13)
*distress*lagceov*	0.129	(0.12)			-2.516	(-1.90) *
*distress*lagceod*	-1.353	(-1.22)			0.696	(0.51)
*distress*lagceosd*	0.366	(0.35)			0.278	(0.28)
lagcfov			13.807	(1.05)	23.815	(1.49)
lagcfod			-21.694	(-1.67) *	-20.657	(-1.26)
lagcfosd			-1.514	(-0.23)	0.173	(0.03)
*distress*lagcfov*			2.343	(2.32) **	4.001	(3.02) ***
*distress*lagcfod*			-3.159	(-3.12) ***	-3.510	(-2.60) ***
*distress*lagcfosd*			1.126	(1.72) *	0.985	(1.76) *
Controls	Included		Included		Included	
Adjusted R^2	0.512		0.512		0.514	
N	5748		5748		5748	

Panel B: Asset allocation test (dependent variable = %equity)

	(1)		(2)		(3)	
Variable	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat
distress	-0.003	(-1.79) *	-0.003	(-1.82) *	-0.003	(-1.70) *
hhi	0.000	(0.96)	0.000	(0.91)	0.000	(0.99)
*distress*hhi*	0.000	(1.37)	0.000	(1.19)	0.000	(1.24)
bm	-0.002	(-0.08)	-0.005	(-0.18)	-0.001	(-0.05)
*distress*bm*	0.001	(0.21)	0.001	(0.21)	0.001	(0.21)
lagceov	4.185	(0.42)			-10.223	(-0.86)
lagceod	7.473	(0.88)			22.959	(2.22) **
lagceosd	-15.349	(-1.85) *			-16.766	(-1.93) *
*distress*lagceov*	0.778	(0.85)			-0.640	(-0.58)
*distress*lagceod*	-0.240	(-0.30)			1.163	(1.13)
*distress*lagceosd*	-1.164	(-1.62)			-1.158	(-1.58)
lagcfov			22.612	(1.84) *	27.305	(1.89) *
lagcfod			-16.328	(-1.48)	-28.572	(-2.13) **
lagcfosd			-0.954	(-0.17)	4.709	(0.76)
*distress*lagcfov*			2.369	(2.39) **	2.539	(2.04) **
*distress*lagcfod*			-1.900	(-2.13) **	-2.404	(-2.13) **
*distress*lagcfosd*			-0.388	(-0.86)	-0.064	(-0.14)
Controls	Included		Included		Included	
Adjusted R^2	0.178		0.176		0.178	
N	4398		4398		4398	

Table A3: Comparison of top executive incentives between the pre- and post-SFAS 123(R) periods for the whole sample

This table presents the average incentives (vega, option delta, and stock delta) for CEOs, CFOs, and for all other named executive officers (NEOs) separately for the pre-SFAS 123(R) period (1999-2005) and post-SFAS 123(R) period (2006-2010) for the sample used in funding status tests (n=5748). These statistics supplement Table 8, Panel A of the manuscript, which relates only to the sample used in the SFAS 123(R) test. Related discussion is in Section 5.6 of the manuscript. Variables are defined as follows: *ceo_grant* (*cfo_grant*) is the number of options granted to CEOs (CFOs); *ceov_ng* (*cfov_ng*) is the vega of new grants to CEOs (CFOs); *ceod_ng* (*cfod_ng*) is the option delta of new grants to CEOs (CFOs); *neov*, *neod*, and *neosd* represent the average vega, option delta, and stock delta, respectively, of NEOs in each firm-year. Definitions of all other variables are provided in Appendix B of the manuscript. ***, **, * denotes significance at the 1%, 5%, and 10% levels, respectively, based on two-tailed t-tests.

	Pre-SFAS 123R (n=3188)	Post-SFAS 123R (n=2560)			
Variable	Mean	Mean	Difference (=Post-Pre)	t-stat for difference	
ceov	272.03	211.83	-60.20	(-5.85)	***
ceod	429.47	316.21	-113.26	(-6.89)	***
ceosd	340.40	303.60	-36.80	(-1.63)	
ceo_grant	183.41	167.96	-15.45	(-2.25)	**
ceov_ng	73.06	23.94	-49.12	(-14.23)	***
ceod_ng	76.44	42.58	-33.86	(-9.03)	***
cfov	66.18	51.91	-14.27	(-5.57)	***
cfod	96.24	71.37	-24.87	(-6.98)	***
cfosd	30.80	44.05	13.25	(8.37)	***
cfo_grant	52.36	47.85	-4.51	(-2.33)	**
cfov_ng	19.60	7.45	-12.15	(-14.12)	***
cfod_ng	20.80	11.26	-9.54	(-9.98)	***
neov	57.74	53.74	-4.00	(-1.63)	
neod	86.84	73.68	-13.16	(-3.66)	***
neosd	43.07	64.23	21.16	(5.73)	***

Table A4: Funding status results with an alternative measure of underfunding

This table presents the funding status results with an alternative, cleaner measure of underfunding that attempts to capture underfunding in only ERISA-qualified plans, by excluding balances accrued by Named Executive Officers (NEOs) in non-ERISA-qualified, Supplemental Executive Retirement Plans (SERPs). Related discussion is in Section 6 of the manuscript. The dependent variable is $underfunding_{ERISA1}$, defined as the ($pbpro_{ERISA} - fvpa$) / $pbpro_{ERISA}$. $pbpro_{ERISA}$ is set to the total reported pension liability (*pbpro*) less aggregated SERP balances for all NEOs for the post-2006 period, and for the pre-2006 period, for each firm, it is set to *pbpro* multiplied by (1- that firm's average SERP-to-*pbpro* ratio in the post-2006 period). Definitions of all other variables are provided in Appendix B of the manuscript.

All models include industry fixed effects based on 2-digit SIC codes and year fixed effects. Coefficient estimates on control variables, year, and industry fixed effects are not reported for brevity. CEO and CFO incentives are standardized by subtracting the sample mean and scaling by the sample standard deviation. All coefficients on CEO and CFO incentives are multiplied by 1000 for ease of presentation. Robust t-statistics adjusted for firm-level clustering are reported in parentheses. ***, **, * denotes significance at the 1%, 5%, and 10% levels, respectively, based on two-tailed t-tests.

	(1)		(2)		(3)		(4)	
Variable	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat
distress	0.004	(3.54) ***	0.004	(3.49) ***	0.004	(3.51) ***	0.004	(3.47) ***
lagceov			-0.247	(-0.02)			-15.700	(-0.88)
lagceod			-12.500	(-0.85)			-2.130	(-0.12)
lagceosd			-9.140	(-1.28)			-7.230	(-1.01)
*distress*lagceov*			-0.060	(-0.05)			-2.340	(-1.72) *
*distress*lagceod*			-0.767	(-0.72)			0.811	(0.58)
*distress*lagceosd*			-0.362	(-0.78)			-0.408	(-0.89)
lagcfov					10.400	(0.67)	19.000	(1.05)
lagcfod					-16.700	(-1.09)	-13.700	(-0.74)
lagcfosd					-5.190	(-0.74)	-4.340	(-0.60)
*distress*lagcfov*					1.860	(1.66) *	3.290	(2.34) **
*distress*lagcfod*					-2.230	(-2.03) **	-2.610	(-1.82) *
*distress*lagcfosd*					0.711	(1.29)	0.767	(1.36)
Controls	Included		Included		Included		Included	
Adjusted R^2	0.437		0.438		0.439		0.439	
N	5015		5015		5015		5015	

Table A5: Funding status and asset allocation results for sample requiring only CEO incentives data

This table presents the funding status and asset allocation results for the sample where only non-missing CEO incentives are required, and the no requirement is imposed for non-missing CFO data. Related discussion is in Section 7.1 of the manuscript. Definitions of all variables are provided in Appendix B of the manuscript. All models use industry fixed effects based on 2-digit SIC codes and year fixed effects. Coefficient estimates on year and industry fixed effects are not reported for brevity. CEO incentives are standardized by subtracting the sample mean and scaling by the sample standard deviation. All coefficients on CEO incentives are multiplied by 1000 for ease of presentation. Robust t-statistics adjusted for firm-level clustering are reported in parentheses. ***, **, * denotes significance at the 1%, 5%, and 10% levels, respectively, based on two-tailed t-tests.

	Dependent variable = *underfunding*			Dependent variable = *%equity*		
Variable	Estimate	t-stat		Estimate	t-stat	
distress	0.004	(3.62)	***	-0.002	(-2.12)	**
lagceov	-14.101	(-1.81)	*	-11.948	(-1.63)	
lagceod	-12.555	(-1.02)		7.110	(0.87)	
lagceosd	4.910	(0.40)		0.834	(0.10)	
*distress*lagceov*	-0.122	(-0.15)		-0.808	(-1.36)	
*distress*lagceod*	-1.569	(-1.74)	*	-0.130	(-0.19)	
*distress*lagceosd*	0.639	(0.72)		0.458	(0.61)	
underfunding				0.118	(3.31)	***
*distress*underfunding*				0.011	(3.67)	***
size	0.057	(8.72)	***	-0.015	(-2.76)	***
bm	-0.011	(-0.47)		0.002	(0.08)	
mtr	-0.043	(-1.18)		0.080	(2.41)	**
ocf	-0.095	(-1.58)		0.038	(0.77)	
σ(ocf)	-0.064	(-0.49)		-0.332	(-2.58)	***
log(fvpa)	-0.074	(-14.77)	***	0.011	(2.50)	**
discountrate	-3.590	(-3.61)	***			
returns	-0.464	(-18.59)	***	0.143	(4.51)	***
lagreturns	-0.333	(-14.32)	***	0.056	(2.14)	**
duration				0.088	(2.87)	***
acquisition				0.002	(0.35)	
meetbenchmark				-0.026	(-1.25)	
Adjusted R^2	0.505			0.166		
N	7375			5662		

Table A6: Do the incentives of other named executive officers (NEOs) affect pension risk-shifting?

This table presents the funding status and asset allocation results with incentives of other NEOs as additional explanatory variables. Related discussion is in Section 7.1 of the manuscript. *lagneov*, *lagneod*, and *lagneosd* represent the average vega, option delta, and stock delta (all lagged), respectively, of all the other NEOs (i.e., NEOs other than the CEO and CFO) in each firm-year. Definitions of all other variables are provided in Appendix B of the manuscript. All models use industry fixed effects based on 2-digit SIC codes and year fixed effects. Coefficient estimates on control variables, year, and industry fixed effects are not reported for brevity. All incentive variables are standardized by subtracting the sample mean and scaling by the sample standard deviation. All coefficients on incentive variables are multiplied by 1000 for ease of presentation. Robust t-statistics adjusted for firm-level clustering are reported in parentheses. ***, **, * denotes significance at the 1%, 5%, and 10% levels, respectively, based on two-tailed t-tests.

Panel A: Funding status test (dependent variable = underfunding)

	(1)		(2)		(3)		(4)	
Variable	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat
distress	0.005	(4.38) ***	0.004	(4.21) ***	0.005	(4.39) ***	0.004	(4.22) ***
lagneov	2.740	(0.35)	3.132	(0.40)	1.609	(0.21)	1.786	(0.23)
lagneod	1.868	(0.25)	2.498	(0.34)	2.809	(0.38)	3.276	(0.44)
lagneosd	-3.506	(-0.54)	0.504	(0.08)	-2.997	(-0.46)	-0.396	(-0.06)
*distress*lagneov*	0.280	(0.27)	0.302	(0.30)	0.091	(0.09)	0.078	(0.08)
*distress*lagneod*	-1.222	(-1.07)	-1.062	(-0.94)	-1.091	(-0.98)	-0.934	(-0.85)
*distress*lagneosd*	-0.280	(-0.47)	-0.174	(-0.33)	-0.532	(-0.95)	-0.461	(-0.86)
lagceov			-3.284	(-0.25)			-17.686	(-1.10)
lagceod			-10.647	(-0.80)			0.598	(0.04)
lagceosd			-10.955	(-1.31)			-10.025	(-1.18)
*distress*lagceov*			0.028	(0.03)			-2.338	(-1.91) *
*distress*lagceod*			-1.307	(-1.25)			0.487	(0.38)
*distress*lagceosd*			0.259	(0.28)			0.214	(0.24)
lagcfov					10.637	(0.81)	19.761	(1.26)
lagcfod					-19.126	(-1.56)	-17.262	(-1.12)
lagcfosd					-1.145	(-0.17)	0.167	(0.02)
*distress*lagcfov*					2.110	(2.12) **	3.589	(2.80) ***
*distress*lagcfod*					-2.782	(-2.97) ***	-3.014	(-2.42) **
*distress*lagcfosd*					1.059	(1.62)	0.954	(1.61)
Controls	Included		Included		Included		Included	
Adjusted R^2	0.508		0.511		0.511		0.513	
N	5709		5709		5709		5709	

Table A6 (continued)

Panel B: Asset allocation test (dependent variable = %equity)

	(1)		(2)		(3)		(4)	
Variable	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat
distress	-0.002	(-2.32) **	-0.002	(-2.27) **	-0.002	(-2.29) **	-0.002	(-2.24) **
lagneov	14.896	(1.36)	18.381	(1.28)	6.104	(0.50)	13.635	(0.93)
lagneod	-8.550	(-0.93)	-18.119	(-1.42)	-1.407	(-0.13)	-13.355	(-1.03)
lagneosd	-9.886	(-0.89)	-6.054	(-0.54)	-9.917	(-0.83)	-7.129	(-0.61)
*distress*lagneov*	1.248	(1.47)	1.040	(0.90)	0.059	(0.06)	0.510	(0.44)
*distress*lagneod*	-0.847	(-1.12)	-0.834	(-0.81)	0.198	(0.24)	-0.409	(-0.39)
*distress*lagneosd*	-0.601	(-0.85)	-0.376	(-0.52)	-0.445	(-0.59)	-0.301	(-0.39)
lagceov			-7.654	(-0.57)			-16.654	(-1.12)
lagceod			18.878	(1.61)			29.380	(2.22) **
lagceosd			-14.020	(-1.77) *			-15.751	(-1.92) *
*distress*lagceov*			0.032	(0.03)			-0.960	(-0.68)
*distress*lagceod*			0.343	(0.32)			1.453	(1.14)
*distress*lagceosd*			-1.093	(-1.54)			-1.110	(-1.55)
lagcfov					19.130	(1.39)	23.766	(1.62)
lagcfod					-15.995	(-1.24)	-25.612	(-1.84) *
lagcfosd					3.044	(0.44)	7.123	(1.01)
*distress*lagcfov*					2.377	(2.17) **	2.505	(2.01) **
*distress*lagcfod*					-2.095	(-2.07) **	-2.444	(-2.11) **
*distress*lagcfosd*					-0.198	(-0.40)	0.051	(0.11)
Controls	Included		Included		Included		Included	
Adjusted R^2	0.174		0.177		0.175		0.177	
N	4361		4361		4361		4361	

Table A7: Does equity ownership of the board of directors affect pension risk-shifting?

This table presents the funding status and asset allocation results, with board equity ownership as an additional explanatory variable. Related discussion is in Section 7.3 of the manuscript. The dependent variable in Panel A (Panel B) is *underfunding* (*%equity*). The variable *boardown_outside* is defined as the average equity ownership of outside (i.e., non-employee) members of the board of directors, with director ownership data obtained from the Corporate Library database. Definitions of all other variables are provided in Appendix B of the manuscript.

All models use industry fixed effects based on 2-digit SIC codes and year fixed effects. Coefficient estimates on control variables, year, and industry fixed effects are not reported for brevity. CEO and CFO incentives are standardized by subtracting the sample mean and scaling by the sample standard deviation. All coefficients on CEO and CFO incentives are multiplied by 1000 for ease of presentation. Robust t-statistics adjusted for firm-level clustering are reported in parentheses. ***, **, * denotes significance at the 1%, 5%, and 10% levels, respectively, based on two-tailed t-tests.

Table A7 (continued)

Panel A: Funding status test (dependent variable = underfunding)

	(1)			(2)			(3)		
Variable	Estimate	t-stat		Estimate	t-stat		Estimate	t-stat	
distress	0.004	(3.82)	***	0.004	(3.91)	***	0.004	(3.73)	***
boardown_outside	-0.567	(-0.40)		-0.352	(-0.24)		-0.396	(-0.28)	
*distress*boardown_outside*	-0.070	(-0.60)		-0.005	(-0.03)		-0.044	(-0.37)	
lagceov	-0.874	(-0.06)					-15.200	(-0.93)	
lagceod	-10.100	(-0.75)					0.761	(0.05)	
lagceosd	-11.400	(-1.32)					-11.400	(-1.31)	
*distress*lagceov*	0.282	(0.26)					-2.150	(-1.70)	*
*distress*lagceod*	-1.240	(-1.09)					0.453	(0.33)	
*distress*lagceosd*	0.494	(0.47)					0.357	(0.36)	
lagcfov				9.570	(0.68)		17.600	(1.05)	
lagcfod				-18.300	(-1.33)		-16.300	(-0.94)	
lagcfosd				-0.126	(-0.02)		1.510	(0.22)	
*distress*lagcfov*				2.100	(1.89)	*	3.540	(2.49)	**
*distress*lagcfod*				-2.680	(-2.45)	**	-2.900	(-2.02)	**
*distress*lagcfosd*				1.260	(1.86)	*	1.030	(1.91)	*
Controls	Included			Included			Included		
Adjusted R^2	0.492			0.491			0.495		
N	4100			4100			4100		

Panel B: Asset allocation test (dependent variable = %equity)

	(1)			(2)			(3)		
Variable	Estimate	t-stat		Estimate	t-stat		Estimate	t-stat	
distress	-0.003	(-2.60)	***	-0.003	(-2.64)	***	-0.003	(-2.54)	**
boardown_outside	0.224	(0.40)		0.219	(0.40)		0.227	(0.41)	
*distress*boardown_outside*	0.011	(0.18)		0.008	(0.14)		0.011	(0.19)	
lagceov	-1.040	(-0.10)					-16.600	(-1.33)	
lagceod	4.640	(0.46)					21.500	(1.73)	*
lagceosd	-13.400	(-1.45)					-13.700	(-1.43)	
*distress*lagceov*	0.118	(0.13)					-1.160	(-0.99)	
*distress*lagceod*	-0.328	(-0.37)					1.120	(0.95)	
*distress*lagceosd*	-1.120	(-1.57)					-1.110	(-1.53)	
lagcfov				22.600	(1.62)		30.000	(1.84)	*
lagcfod				-22.300	(-1.73)	*	-32.000	(-2.05)	**
lagcfosd				-0.106	(-0.02)		2.950	(0.45)	
*distress*lagcfov*				2.020	(1.89)	*	2.370	(1.75)	*
*distress*lagcfod*				-2.250	(-2.24)	**	-2.570	(-1.99)	**
*distress*lagcfosd*				-0.122	(-0.28)		0.107	(0.24)	
Controls	Included			Included			Included		
Adjusted R^2	0.181			0.179			0.181		
N	3289			3289			3289		

Table A8: Does union monitoring affect pension risk-shifting?

This table presents the funding status and asset allocation results with unionization of the labor force as an additional explanatory variable. Related discussion is in Section 7.3 of the manuscript. The dependent variable in Panel A (Panel B) is *underfunding* (*%equity*). The variable *union* is union coverage at the 3-digit SIC code level, from the database developed by *Hirsch, B.T., and D.A. MacPherson. 2003. Union membership and coverage database from the Current Population Survey: A Note*. *Industrial and Labor Relations Review* 56(2): 349-354, available at www.unionstats.com. Unionization data are by Census Industry Codes, which are mapped first to NAICS code using the mapping tables provided at http://www.bls.gov/cps/cpsoccind.htm, and then to SIC codes. Definitions of all other variables are provided in Appendix B of the manuscript.

All models use industry fixed effects based on 2-digit SIC codes and year fixed effects. Coefficient estimates on control variables, year, and industry fixed effects are not reported for brevity. CEO and CFO incentives are standardized by subtracting the sample mean and scaling by the sample standard deviation. All coefficients on CEO and CFO incentives are multiplied by 1000 for ease of presentation. Robust t-statistics adjusted for firm-level clustering are reported in parentheses. ***, **, * denotes significance at the 1%, 5%, and 10% levels, respectively, based on two-tailed t-tests.

Table A8 (continued)

Panel A: Funding status test (dependent variable = underfunding)

	Full sample					
	(1)		(2)		(3)	
Variable	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat
distress	0.004	(3.52) ***	0.004	(3.48) ***	0.004	(3.48) ***
union(x1000)	-0.291	(-0.30)	-0.145	(-0.15)	-0.282	(-0.29)
*distress*union(x1000)*	0.002	(0.03)	0.028	(0.35)	0.011	(0.14)
lagceov	-0.789	(-0.06)			-20.000	(-1.16)
lagceod	-13.300	(-0.95)			1.770	(0.10)
lagceosd	-10.800	(-1.20)			-10.200	(-1.12)
*distress*lagceov*	0.150	(0.14)			-2.640	(-1.98) **
*distress*lagceod*	-1.500	(-1.36)			0.714	(0.51)
*distress*lagceosd*	0.329	(0.30)			0.208	(0.20)
lagcfov			15.700	(1.16)	27.400	(1.67) *
lagcfod			-24.800	(-1.87) *	-24.300	(-1.46)
lagcfosd			-0.982	(-0.14)	0.977	(0.14)
*distress*lagcfov*			2.490	(2.41) **	4.260	(3.14) ***
*distress*lagcfod*			-3.410	(-3.36) ***	-3.810	(-2.81) ***
*distress*lagcfosd*			1.150	(1.71) *	1.040	(1.81) *
Controls	Included		Included		Included	
Adjusted R^2	0.512		0.512		0.514	
N	5717		5717		5717	

	Low unionization sample (*union* in the bottom half)		High unionization sample (*union* in the top half)	
	(4)		(5)	
Variable	Estimate	t-stat	Estimate	t-stat
distress	0.007	(3.78) ***	0.002	(0.74)
union(x1000)	-7.575	(-2.12) **	-0.013	(-0.01)
*distress*union(x1000)*	-0.456	(-1.20)	0.132	(1.06)
lagcfov	30.511	(1.59)	-7.223	(-0.42)
lagcfod	-32.661	(-1.70) *	-8.724	(-0.52)
lagcfosd	-3.278	(-0.32)	-4.815	(-0.60)
*distress*lagcfov*	3.616	(2.52) ***	0.699	(0.51)
*distress*lagcfod*	-3.969	(-2.82) ***	-2.250	(-1.65) *
*distress*lagcfosd*	1.318	(1.34)	0.152	(0.19)
Controls	Included		Included	
Adjusted R^2	0.503		0.558	
N	2979		2738	

Table A8 (continued)

Panel B: Asset allocation test (dependent variable = %equity)

	Full sample					
	(1)		(2)		(3)	
Variable	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat
distress	-0.003	(-2.91) ***	-0.003	(-2.85) ***	-0.003	(-2.83) ***
union(x1000)	0.338	(0.50)	0.345	(0.51)	0.368	(0.54)
*distress*union(x1000)*	0.087	(1.52)	0.084	(1.50)	0.087	(1.50)
lagceov	-1.180	(-0.11)			-14.400	(-1.19)
lagceod	8.460	(0.96)			23.700	(2.25) **
lagceosd	-15.800	(-1.94) *			-17.400	(-2.03) **
*distress*lagceov*	0.308	(0.33)			-1.050	(-0.95)
*distress*lagceod*	-0.088	(-0.11)			1.340	(1.28)
*distress*lagceosd*	-1.260	(-1.88) *			-1.270	(-1.85) *
lagcfov			18.200	(1.39)	25.800	(1.70) *
lagcfod			-15.800	(-1.37)	-28.700	(-2.08) **
lagcfosd			0.262	(0.05)	5.950	(0.91)
*distress*lagcfov*			2.050	(1.97) **	2.490	(1.98) **
*distress*lagcfod*			-1.880	(-2.03) **	-2.500	(-2.20) **
*distress*lagcfosd*			-0.312	(-0.67)	0.037	(0.08)
Controls	Included		Included		Included	
Adjusted R^2	0.171		0.169		0.172	
N	4377		4377		4377	

	Low unionization sample (*union* in the bottom half)		High unionization sample (*union* in the top half)	
	(4)		(5)	
Variable	Estimate	t-stat	Estimate	t-stat
distress	-0.005	(-2.89) ***	-0.002	(-0.91)
union(x1000)	1.080	(0.40)	-0.154	(-0.17)
*distress*union(x1000)*	0.194	(0.77)	0.048	(0.58)
lagcfov	27.500	(1.40)	7.430	(0.56)
lagcfod	-23.400	(-1.36)	-6.500	(-0.51)
lagcfosd	0.693	(0.08)	2.060	(0.34)
*distress*lagcfov*	2.390	(1.61)	1.740	(1.34)
*distress*lagcfod*	-2.380	(-1.85) *	-1.290	(-1.05)
*distress*lagcfosd*	-0.204	(-0.32)	-0.162	(-0.30)
Controls	Included		Included	
Adjusted R^2	0.163		0.190	
N	2278		2099	

Table A9: Asset allocation results controlling for regulatory shocks

This table presents the asset allocation results controlling for the transition effects of changing pension reporting rules during the sample period. Related discussion is in Section 7.4 of the manuscript. The dependent variable is *%equity*. Model 1 includes *unexplained_err*, estimated using the Chuk (2013) procedure for the first year of disclosures made under SFAS 132(R) (fiscal years ending December 2003 to November 2004) and set to zero for all other time periods, as an additional explanatory variable, to control for transition effects of SFAS 132(R). Models 2 and 3 include additional controls from Amir, Guan, and Oswald (2010), to control for transition effects of SFAS 158: the ratio of pension assets to total assets (*fvpa/ta*); the ratio of pension liabilities to total assets (*pbo/ta*); leverage (*lev*); and dividend payout (*divyield*). Models 2 and 3, which include *fvpa/ta* or *pbo/ta*, do not include *log(fvpa)*. Model 4 includes additional controls for possible transition effects of FASB's FSP 132(R)(1). *%other* is the proportion of pension assets invested in opaque assets, whose nature is not described in the 10-K; this measure is hand-collected from 10-K filings. *FSPperiod* is an indicator set to one for the first year of disclosures made under FSP 132(R)(1) (all fiscal years ending December 2009 to November 2010), and set to zero otherwise. *Discscore* is an index that captures the transparency of asset allocation disclosures in the year preceding the FSP, and is set to zero otherwise. *Discscore* is coded the following way: it is set to zero for firms disclosing a completely opaque category of "other" assets; to one for firms that have "other" assets but provide some general descriptions of the assets in the pension footnote; to two for firms that have "other" assets but provide specific descriptions of the assets in the pension footnote; and to three for firms that break down "other" investments by type and amount. Definitions of all other variables are provided in Appendix B of the manuscript.

All models use industry fixed effects based on 2-digit SIC codes and year fixed effects. Coefficient estimates on control variables, year, and industry fixed effects are not reported for brevity. All incentive variables are standardized by subtracting the sample mean and scaling by the sample standard deviation. All coefficients on incentive variables are multiplied by 1000 for ease of presentation. Robust t-statistics adjusted for firm-level clustering are reported in parentheses. ***, **, * denotes significance at the 1%, 5%, and 10% levels, based on two-tailed t-tests.

Table A9 (continued)

	Models with CFO incentives only								
	(1)		(2)		(3)		(4)		
Variable	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	
distress	-0.003	(-2.62)	*** -0.003	(-2.72)	*** -0.003	(-2.77)	*** -0.002	(-1.95)	*
lcfov	18.800	(1.48)	21.800	(1.71)	* 21.800	(1.71)	* 19.531	(1.65)	*
lcfod	-17.200	(-1.53)	-19.300	(-1.72)	* -19.100	(-1.70)	* -16.094	(-1.57)	
lcfosd	0.749	(0.13)	0.603	(0.11)	0.625	(0.11)	4.772	(0.95)	
*negdd*lcfov*	2.060	(2.02)	** 2.270	(2.22)	** 2.260	(2.21)	** 1.949	(2.01)	**
*negdd*lcfod*	-1.960	(-2.17)	** -2.100	(-2.31)	** -2.090	(-2.30)	** -1.786	(-2.10)	**
*negdd*lcfosd*	-0.309	(-0.69)	-0.294	(-0.69)	-0.297	(-0.69)	0.012	(0.03)	
unexplained_err	0.006	(0.54)							
fvpa/ta			0.034	(1.46)					
pbo/ta					0.039	(2.02)	**		
lev			0.024	(0.69)	0.025	(0.74)			
divyield			-0.001	(-0.22)	-0.001	(-0.21)			
FSPperiod							-0.052	(-2.75)	***
%other							-0.522	(-13.41)	***
FSPperiod%other*							0.269	(2.32)	**
discscore							-0.001	(-0.23)	
Controls	Included		Included		Included		Included		
Adjusted R^2	0.170		0.164		0.164		0.291		
N	4377		4320		4320		4377		

Table A10: Funding status results with the non-discretionary component of underfunding

This table presents the funding status results with an estimated "non-discretionary" component of underfunding as the dependent variable. Related discussion is in Section 7.4 of the manuscript. The non-discretionary component of underfunding (*underfunding*$_{NONDISC}$) is estimated using the procedure of Hann, Lu, and Subramanyam (2007), which replaces the plan sponsor's actual choice of discount rate, compensation growth rate, and mortality rate assumptions with the industry-median discount rate, industry-median compensation growth rate, and cross-sectionally constant post-retirement mortality assumption of 15 years, respectively. Industry-median assumptions are determined at the two-digit SIC code level. As *underfunding*$_{NONDISC}$ can only be estimated for a smaller sample, we also provide results with *underfunding* as the dependent variable for the same sample, for comparison. Definitions of all other variables are provided in Appendix B of the manuscript.

All models use industry fixed effects based on 2-digit SIC codes and year fixed effects. Coefficient estimates on control variables, year, and industry fixed effects are not reported for brevity. All incentive variables are standardized by subtracting the sample mean and scaling by the sample standard deviation. All coefficients on incentive variables are multiplied by 1000 for ease of presentation. Robust t-statistics adjusted for firm-level clustering are reported in parentheses. ***, **, * denotes significance at the 1%, 5%, and 10% levels, respectively, based on two-tailed t-tests.

Panel A: No incentives

Dependent variable =	*underfunding*		*underfunding*$_{NONDISC}$	
Variable	Estimate	t-stat	Estimate	t-stat
distress	0.005	(4.07) ***	0.007	(3.69) ***
Controls	Included		Included	
Adjusted R^2	0.532		0.454	
N	4435		4435	

Panel B: CEO incentives only

Dependent variable =	*underfunding*		*underfunding*$_{NONDISC}$	
Variable	Estimate	t-stat	Estimate	t-stat
distress	0.005	(4.08) ***	0.006	(4.06) ***
lagceov	14.900	(0.93)	22.200	(1.16)
lagceod	-21.600	(-1.30)	-25.700	(-1.33)
lagceosd	-10.500	(-1.01)	-6.380	(-0.50)
*distress*lagceov*	1.030	(0.83)	1.380	(0.88)
*distress*lagceod*	-1.840	(-1.37)	-2.520	(-1.36)
*distress*lagceosd*	0.555	(0.43)	2.210	(0.92)
Controls	Included		Included	
Adjusted R^2	0.536		0.464	
N	4435		4435	

Table A10 (continued)

Panel C: CFO incentives only

Dependent variable =	*underfunding*			*underfunding*$_{NONDISC}$		
Variable	Estimate	t-stat		Estimate	t-stat	
distress	0.005	(4.06)	***	0.007	(3.68)	***
lagcfov	20.400	(1.31)		22.600	(1.36)	
lagcfod	-31.500	(-2.09)	**	-27.600	(-1.73)	*
lagcfosd	1.140	(0.15)		-1.240	(-0.15)	
*distress*lagcfov*	2.540	(2.21)	**	2.250	(1.76)	*
*distress*lagcfod*	-3.520	(-3.09)	***	-3.120	(-2.55)	**
*distress*lagcfosd*	1.450	(1.86)	*	1.460	(1.41)	
Controls	Included			Included		
Adjusted R^2	0.535			0.456		
N	4435			4435		

Panel D: Both CEO and CFO incentives

Dependent variable =	*underfunding*			*underfunding*$_{NONDISC}$		
Variable	Estimate	t-stat		Estimate	t-stat	
distress	0.005	(4.05)	***	0.006	(4.03)	***
lagceov	-1.830	(-0.09)		5.480	(0.23)	
lagceod	-5.270	(-0.25)		-12.700	(-0.51)	
lagceosd	-10.800	(-1.01)		-6.040	(-0.46)	
*distress*lagceov*	-1.620	(-1.08)		-1.270	(-0.70)	
*distress*lagceod*	0.255	(0.15)		-0.774	(-0.34)	
*distress*lagceosd*	0.377	(0.30)		2.130	(0.88)	
lagcfov	22.400	(1.16)		21.000	(1.01)	
lagcfod	-28.800	(-1.49)		-21.300	(-1.01)	
lagcfosd	4.420	(0.56)		1.240	(0.14)	
*distress*lagcfov*	3.880	(2.53)	**	3.710	(2.21)	**
*distress*lagcfod*	-3.880	(-2.51)	**	-3.060	(-1.80)	*
*distress*lagcfosd*	1.320	(2.05)	**	0.815	(1.13)	
Controls	Included			Included		
Adjusted R^2	0.538			0.465		
N	4435			4435		

Table A11: Funding status results controlling for the effect of the Pension Protection Act of 2006

This table presents the funding status results controlling for potential effects of the Pension Protection Act of 2006 (PPA). Related discussion is in Section 7.4 of the manuscript. The dependent variable is *underfunding*. Indicator variables are constructed for firms in the airline industry (*airline*) and for firms involved in defense contracting (*defcontract*) and are included as additional independent variables in Model 1. Firms in the airline industry are from SIC codes 4512-4513 and 4522. Defense contractors are identified from the "Top 100 Federal Government Contractors" list published by the federal government: https://www.fpds.gov/fpdsng_cms/index.php/reports. These firms are dropped in Model 2. Definitions of all other variables are provided in Appendix B of the manuscript.

All models use industry fixed effects based on 2-digit SIC codes and year fixed effects. Coefficient estimates on control variables, year, and industry fixed effects are not reported for brevity. All incentive variables are standardized by subtracting the sample mean and scaling by the sample standard deviation. All coefficients on incentive variables are multiplied by 1000 for ease of presentation. Robust t-statistics adjusted for firm-level clustering are reported in parentheses. ***, **, * denotes significance at the 1%, 5%, and 10% levels, respectively, based on two-tailed t-tests.

	(1)			(2)		
Variable	Estimate	t-stat		Estimate	t-stat	
distress	0.005	(4.20)	***	0.005	(4.23)	***
lagcfov	14.400	(1.11)		20.300	(1.44)	
lagcfod	-23.400	(-1.83)	*	-29.200	(-2.17)	**
lagcfosd	-1.700	(-0.26)		-1.010	(-0.14)	
*distress*lagcfov*	2.360	(2.35)	**	2.800	(2.64)	***
*distress*lagcfod*	-3.310	(-3.33)	***	-3.820	(-3.72)	***
*distress*lagcfosd*	1.120	(1.69)	*	1.240	(1.64)	
airline	0.047	(0.59)				
defcontract	0.017	(0.92)				
Controls	Included			Included		
Adjusted R^2	0.512			0.507		
N	5748			5450		

Table A12: Funding status and asset allocation results for sub-periods

This table presents the funding status and asset allocation results separately for sub-periods of the sample. Related discussion is in Sections 7.1 and 7.4 of the manuscript. The sub-periods are created by partitioning the sample roughly on regulatory regime shifts. Definitions of all variables are provided in Appendix B of the manuscript. All models use industry fixed effects based on 2-digit SIC codes and year fixed effects. Coefficient estimates on control variables, year, and industry fixed effects are not reported for brevity. CEO and CFO incentives are standardized by subtracting the sample mean and scaling by the sample standard deviation. All coefficients on CEO and CFO incentives are multiplied by 1000 for ease of presentation. Robust t-statistics adjusted for firm-level clustering are reported in parentheses. ***, **, * denotes significance at the 1%, 5%, and 10% levels, respectively, based on two-tailed t-tests.

Panel A1: Funding status test (dependent variable=underfunding) – 1999-2002 sub-period

	(1)		(2)		(3)	
Variable	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat
distress	0.003	(0.86)	0.004	(1.18)	0.003	(0.87)
lagceov	26.381	(0.67)			26.822	(0.54)
lagceod	-39.967	(-0.97)			-28.707	(-0.57)
lagceosd	-9.050	(-0.54)			-10.801	(-0.63)
*distress*lagceov*	4.863	(1.03)			3.445	(0.58)
*distress*lagceod*	-5.847	(-1.18)			-3.068	(-0.52)
*distress*lagceosd*	0.692	(0.35)			0.634	(0.33)
lagcfov			15.235	(0.44)	1.573	(0.04)
lagcfod			-36.159	(-0.96)	-24.961	(-0.53)
lagcfosd			12.384	(0.78)	-15.971	(0.95)
*distress*lagcfov*			4.233	(0.94)	2.767	(0.48)
*distress*lagcfod*			-6.675	(-1.41)	-5.651	(-0.99)
*distress*lagcfosd*			2.470	(1.09)	2.388	(0.97)
Controls	Included		Included		Included	
Adjusted R^2	0.591		0.590		0.592	
N	1553		1553		1553	

Panel A2: Funding status test (dependent variable=underfunding) – 2003-2005 sub-period

	(1)			(2)			(3)		
Variable	Estimate	t-stat		Estimate	t-stat		Estimate	t-stat	
distress	0.004	(2.74)	***	0.004	(2.92)	***	0.003	(2.39)	***
lagceov	-26.224	(-0.99)					-50.529	(-1.67)	*
lagceod	7.478	(0.28)					18.085	(0.59)	
lagceosd	-13.937	(-0.87)					-8.945	(-0.60)	
*distress*lagceov*	-1.917	(-0.92)					-5.019	(-2.12)	**
*distress*lagceod*	-0.412	(-0.20)					0.959	(0.41)	
*distress*lagceosd*	0.501	(0.35)					0.675	(0.51)	
lagcfov				25.447	(0.96)		35.885	(1.25)	
lagcfod				-30.109	(-1.06)		-22.311	(-0.72)	
lagcfosd				-12.706	(-1.01)		-12.096	(-1.07)	
*distress*lagcfov*				3.846	(1.86)	*	5.022	(2.25)	**
*distress*lagcfod*				-4.237	(-2.00)	**	-3.040	(-1.22)	
*distress*lagcfosd*				0.891	(0.82)		0.527	(0.61)	
Controls	Included			Included			Included		
Adjusted R^2	0.391			0.392			0.404		
N	1635			1635			1635		

Table A12 (continued)

Panel A3: Funding status test (dependent variable=underfunding) – 2006-2010 sub-period

	(1)			(2)			(3)		
Variable	Estimate	t-stat		Estimate	t-stat		Estimate	t-stat	
distress	0.004	(3.13)	***	0.004	(3.34)	***	0.004	(3.29)	***
lagceov	7.580	(0.55)					-18.929	(-1.10)	
lagceod	-14.021	(-1.07)					9.097	(0.96)	
lagceosd	-6.602	(-0.82)					-5.568	(-0.69)	
*distress*lagceov*	0.604	(0.58)					-2.181	(-1.58)	
*distress*lagceod*	-1.363	(-1.40)					1.623	(1.24)	
*distress*lagceosd*	-0.195	(-0.32)					-0.364	(-0.61)	
lagcfov				25.848	(2.06)	**	38.535	(2.37)	**
lagcfod				-25.061	(-1.95)	*	-30.426	(-1.87)	*
lagcfosd				-9.499	(-1.11)		-9.120	(-1.01)	
*distress*lagcfov*				2.549	(2.76)	***	4.136	(3.03)	***
*distress*lagcfod*				-3.152	(-3.47)	***	-4.227	(-3.18)	***
*distress*lagcfosd*				0.091	(0.14)		0.152	(0.22)	
Controls	Included			Included			Included		
Adjusted R^2	0.456			0.459			0.460		
N	2560			2560			2560		

Panel B1: Asset allocation test (dependent variable=%equity) – 1999-2002 sub-period

	(1)			(2)			(3)		
Variable	Estimate	t-stat		Estimate	t-stat		Estimate	t-stat	
distress	-0.002	(-0.51)		0.000	(-0.02)		-0.002	(-0.51)	
underfunding	-0.133	(-1.96)	*	-0.129	(-1.91)	*	-0.133	(-1.99)	**
*distress*underfunding*	-0.009	(-0.79)		-9.281	(-0.82)		-0.010	(-0.86)	
lagceov	-18.251	(-0.73)					-4.481	(-1.19)	
lagceod	-2.935	(-0.12)					25.421	(0.63)	
lagceosd	-25.238	(-1.75)	*				-33.795	(-2.29)	**
*distress*lagceov*	-0.093	(0.03)					-4.004	(-0.63)	
*distress*lagceod*	-1.793	(-0.60)					2.422	(0.38)	
*distress*lagceosd*	-0.319	(-0.42)					-0.628	(-0.84)	
lagcfov				5.861	(0.19)		48.950	(1.13)	
lagcfod				-20.604	(-0.75)		-51.060	(-1.18)	
lagcfosd				1.198	(0.06)		19.058	(0.77)	
*distress*lagcfov*				2.184	(0.61)		7.107	(1.06)	
*distress*lagcfod*				-3.910	(-1.29)		-7.444	(-1.06)	
*distress*lagcfosd*				-0.956	(-0.30)		0.732	(0.22)	
Controls	Included			Included			Included		
Adjusted R^2	0.220			0.201			0.227		
N	556			556			556		

Table A12 (continued)

Panel B2: Asset allocation test (dependent variable=%equity) – 2003-2005 sub-period

	(1)			(2)			(3)		
Variable	Estimate	t-stat		Estimate	t-stat		Estimate	t-stat	
distress	-0.002	(-1.19)		-0.002	(-1.35)		-1.651	(-1.08)	
underfunding	0.109	(1.66)	*	0.120	(1.82)	*	0.108	(1.65)	*
*distress*underfunding*	0.008	(1.66)	*	0.009	(1.89)	*	0.008	(1.62)	
lagceov	3.028	(0.17)					-12.265	(-0.59)	
lagceod	3.249	(0.18)					27.778	(1.44)	
lagceosd	-5.672	(-0.47)					-6.723	(-0.54)	
*distress*lagceov*	0.979	(0.62)					-0.688	(-0.42)	
*distress*lagceod*	-0.515	(0.33)					1.859	(1.14)	
*distress*lagceosd*	-0.885	(-0.92)					-0.894	(-0.92)	
lagcfov				33.688	(1.30)		4.150	(1.39)	
lagcfod				-35.755	(-1.46)		-5.263	(-1.87)	*
lagcfosd				1.954	(0.25)		3.476	(0.44)	
*distress*lagcfov*				3.885	(1.77)	*	4.289	(1.76)	*
*distress*lagcfod*				-3.789	(-1.93)	*	-4.898	(-2.23)	**
*distress*lagcfosd*				-0.187	(-0.38)		-0.021	(-0.05)	
Controls	Included			Included			Included		
Adjusted R^2	0.191			0.190			0.194		
N	1411			1411			1411		

Panel B3: Asset allocation test (dependent variable=%equity) – 2006-2010 sub-period

	(1)			(2)			(3)		
Variable	Estimate	t-stat		Estimate	t-stat		Estimate	t-stat	
distress	-0.003	(-2.42)	**	-0.003	(-2.47)	**	-0.003	(-2.35)	**
underfunding	0.226	(4.48)	***	0.222	(4.42)	***	0.225	(4.46)	***
*distress*underfunding*	0.019	(4.09)	***	0.019	(4.02)	***	0.019	(4.03)	***
lagceov	15.115	(1.17)					-1.362	(-0.07)	
lagceod	7.904	(0.73)					25.319	(1.75)	*
lagceosd	-12.581	(-1.45)					-13.220	(-1.48)	
*distress*lagceov*	0.936	(0.92)					-0.808	(-0.52)	
*distress*lagceod*	0.073	(0.08)					1.409	(1.00)	
*distress*lagceosd*	-1.220	(-1.60)					-1.126	(-1.36)	
lagcfov				28.564	(2.03)	**	27.648	(1.43)	
lagcfod				-19.869	(-1.55)		-31.728	(-1.93)	*
lagcfosd				0.597	(0.08)		6.106	(0.73)	
*distress*lagcfov*				2.299	(2.28)	**	2.616	(1.77)	*
*distress*lagcfod*				-1.651	(-1.78)	*	-2.195	(-1.61)	
*distress*lagcfosd*				-0.356	(-0.57)		0.011	(0.02)	
Controls	Included			Included			Included		
Adjusted R^2	0.195			0.191			0.197		
N	2421			2006			2006		

Table A13: Funding status and asset allocation results with an alternative measure of distress - Altman's (1968) Z-score

This table presents the funding status and asset allocation results with an alternative measure of distress, Altman's Z-score (*altman_z*). Related discussion is in Section 7.5 of the manuscript. *altman_z* is the Altman (1968) Z-score converted into probabilities following Hillegeist, Keating, Cram, and Lundstedt (2004). The Z-score (*score*) is first calculated with the updated coefficients from Hillegeist et al. (2004): [-4.34 - 0.08*working capital/total assets + 0.04*retained earnings/total assets - 0.1*earnings before interest and taxes/total assets - 0.22*market value of equity/book value of total liabilities + 0.06*sales/total assets], and is then transformed into probabilities using probability = e^{score} / (1 + e^{score}). Higher values of *altman_z* correspond to greater likelihood of default. Definitions of all other variables are provided in Appendix B of the manuscript.

All models use industry fixed effects based on 2-digit SIC codes and year fixed effects. Coefficient estimates on control variables, year, and industry fixed effects are not reported for brevity. All incentive variables are standardized by subtracting the sample mean and scaling by the sample standard deviation. Robust t-statistics adjusted for firm-level clustering are reported in parentheses. ***, **, * denotes significance at the 1%, 5%, and 10% levels, respectively, based on two-tailed t-tests.

Table A13 (continued)

Panel A: Funding status test (dependent variable = underfunding)

	(1)			(2)			(3)		
Variable	Estimate	t-stat		Estimate	t-stat		Estimate	t-stat	
altman_z	9.194	(3.29)	***	9.935	(3.54)	***	9.352	(3.36)	***
lagceov	-0.019	(-1.23)					0.007	(0.35)	
lagceod	0.036	(2.51)	**				0.008	(0.43)	
lagceosd	-0.020	(-0.99)					-0.013	(-0.69)	
*altman_z*lagceov*	1.889	(1.01)					-0.591	(-0.25)	
*altman_z*lagceod*	-4.242	(-2.36)	**				-1.441	(-0.61)	
*altman_z*lagceosd*	0.509	(0.27)					-0.172	(-0.09)	
lagcfov				-0.046	(-2.85)	***	-0.048	(-2.34)	**
lagcfod				0.062	(4.14)	***	0.054	(2.86)	***
lagcfosd				-0.034	(-2.49)	**	-0.029	(-2.48)	**
*altman_z*lagcfov*				4.889	(2.58)	***	4.754	(2.06)	**
*altman_z*lagcfod*				-7.205	(-4.00)	***	-5.746	(-2.60)	***
*altman_z*lagcfosd*				2.821	(2.11)	**	2.779	(2.17)	**
Controls	Included			Included			Included		
Adjusted R^2	0.521			0.520			0.523		
N	4910			4910			4910		

Panel B: Asset allocation test (dependent variable = %equity)

	(1)			(2)			(3)		
Variable	Estimate	t-stat		Estimate	t-stat		Estimate	t-stat	
altman_z	1.135	(0.42)		1.152	(0.42)		1.138	(0.42)	
underfunding	-0.078	(-1.27)		-0.076	(-1.26)		-0.076	(-1.25)	
*altman_z*underfunding*	11.970	(2.01)	**	11.968	(2.03)	**	11.818	(2.00)	**
lagceov	-0.016	(-0.85)					0.001	(0.03)	
lagceod	0.023	(1.36)					0.009	(0.43)	
lagceosd	0.007	(0.83)					0.005	(0.61)	
*altman_z*lagceov*	1.232	(0.65)					-0.698	(-0.36)	
*altman_z*lagceod*	-1.642	(-0.94)					0.265	(0.12)	
*altman_z*lagceosd*	-1.165	(-1.15)					-1.039	(-1.01)	
lagcfov				-0.029	(-1.59)		-0.027	(-1.41)	
lagcfod				0.028	(1.57)		0.022	(0.99)	
lagcfosd				0.009	(1.19)		0.009	(1.15)	
*altman_z*lagcfov*				3.084	(1.63)		3.443	(1.75)	*
*altman_z*lagcfod*				-3.088	(-1.61)		-3.235	(-1.40)	
*altman_z*lagcfosd*				-0.890	(-1.02)		-0.702	(-0.75)	
Controls	Included			Included			Included		
Adjusted R^2	0.205			0.205			0.205		
N	3740			3740			3740		

Table A14: Funding status and asset allocation results with an alternative measure of distress - Campbell, Hilscher, and Szilagyi's (2008) "best" model

This table presents the funding status and asset allocation results with an alternative measure of distress based on Campbell, Hilscher, and Szilagyi (2008) (*chs_score*). Related discussion is in Section 7.5 of the manuscript. We estimate the following logistic regression of Campbell, Hilscher, and Szilagyi (2008)'s "best" model, which is tabulated in Column 6 of Table III in their paper, using annual data for 1999-2010: $failure_{t+1} = \beta_0 + \beta_1*nimta_t + \beta_2*tlmta_t + \beta_3*cashmta_t + \beta_4*sigma_t + \beta_5*exret_t + \beta_6*rsize_t + \beta_7*mb_t + \beta_8*price_t + \varepsilon_t$, where $failure_{t+1}$ = failure indicator, which equals one if a firm files for bankruptcy, is delisted for financial reasons, or receives a D rating in year t+1, with bankruptcy data from the UCLA-LoPucki bankruptcy research database, delisting data from CRSP, and rating data from Compustat's S&P ratings; $nimta_t$ = net income (NI) divided by the sum of the market value of equity and the book value of total liabilities (LT) for year t; $tlmta_t$ = the book value of total liabilities divided by the sum of the market value of equity and the book value of total liabilities for year t; $cashmta_t$ = cash and short-term investments (CHE) divided by the sum of the market value of equity and the book value of total liabilities for year t; $sigma_t$ = the annualized standard deviation of daily stock returns for year t, set to the cross-sectional industry mean when missing; $exret_t = \log(1+R_t) - \log(1+ R\_S\&P500_t)$, where R_t is the annualized monthly returns for year t and $R\_S\&P500_t$ is the annualized monthly returns for the S&P 500 firms for year t, set to the cross-sectional industry mean when missing; $rsize_t$ = log(market value of equity for year t) – log(total S&P500 market value for year t); mb_t = the ratio of market value of equity to book value of equity for year t; and $price_t$ = an indicator variable equal to 1 if the price per share is less than $15, and 0 otherwise. Using the estimation coefficients, we construct a proxy for the risk of failure as $[-7.759 - 1.629*nimta_t + 1.418*tlmta_t - 0.904*cashmta_t + 2.64*sigma_t - 1.011*exret_t - 0.025*rsize_t - 0.061*mb_t + 0.628*price_t]$. All names in block capitals refer to Compustat fields. Higher values of *chs_score* correspond to greater likelihood of default. Definitions of all other variables are provided in Appendix B of the manuscript.

All models use industry fixed effects based on 2-digit SIC codes and year fixed effects. Coefficient estimates on control variables, year, and industry fixed effects are not reported for brevity. All incentive variables are standardized by subtracting the sample mean and scaling by the sample standard deviation. All coefficients on incentive variables are multiplied by 1000 for ease of presentation. Robust t-statistics adjusted for firm-level clustering are reported in parentheses. ***, **, * denotes significance at the 1%, 5%, and 10% levels, respectively, based on two-tailed t-tests.

Table A14 (continued)

Panel A: Funding status test (dependent variable = underfunding)

	(1)			(2)			(3)		
Variable	Estimate	t-stat		Estimate	t-stat		Estimate	t-stat	
chs_score	0.016	(3.93)	***	0.017	(4.20)	***	0.017	(4.10)	***
lagceov	30.005	(0.67)					-23.574	(-0.41)	
lagceod	-46.389	(-1.11)					-13.005	(-0.25)	
lagceosd	32.046	(0.95)					32.498	(0.95)	
*chs_score*lagceov*	5.958	(0.84)					76.431	(1.45)	
*chs_score*lagceod*	-8.399	(-1.24)					-40.565	(-0.82)	
*chs_score*lagceosd*	7.530	(1.24)					-5.203	(-0.24)	
lagcfov				57.652	(1.41)		-4.296	(-0.47)	
lagcfod				-46.903	(-1.16)		-1.443	(-0.17)	
lagcfosd				7.048	(0.31)		7.270	(1.20)	
*chs_score*lagcfov*				11.644	(1.75)	*	15.304	(1.75)	*
*chs_score*lagcfod*				-10.055	(-1.56)		-9.584	(-1.18)	
*chs_score*lagcfosd*				3.227	(0.79)		0.666	(0.18)	
Controls	Included			Included			Included		
Adjusted R^2	0.513			0.512			0.514		
N	4309			4309			4309		

Panel B: Asset allocation test (dependent variable = %equity)

	(1)			(2)			(3)		
Variable	Estimate	t-stat		Estimate	t-stat		Estimate	t-stat	
chs_score	-0.019	(-3.20)	***	-0.019	(-3.13)	***	-0.019	(-3.22)	***
underfunding	0.497	(4.61)	***	0.487	(4.59)	***	0.493	(4.61)	***
*chs_score*underfunding*	0.075	(4.25)	***	0.073	(4.21)	***	0.074	(4.23)	***
lagceov	10.707	(0.25)					-59.867	(-1.21)	
lagceod	24.661	(0.77)					82.464	(2.08)	**
lagceosd	-0.594	(-0.02)					-0.744	(-0.03)	
*chs_score*lagceov*	2.144	(0.31)					-9.252	(-1.12)	
*chs_score*lagceod*	2.480	(0.45)					11.715	(1.70)	*
*chs_score*lagceosd*	0.709	(0.17)					1.083	(0.27)	
lagcfov				96.645	(1.78)	*	142.613	(2.28)	**
lagcfod				-66.099	(-1.37)		-123.527	(-2.21)	**
lagcfosd				-4.639	(-0.21)		-5.513	(-0.22)	
*chs_score*lagcfov*				15.573	(1.79)	*	22.792	(2.24)	**
*chs_score*lagcfod*				-11.084	(-1.42)		-19.456	(-2.13)	**
*chs_score*lagcfosd*				-1.529	(-0.41)		-2.194	(-0.54)	
Controls	Included			Included			Included		
Adjusted R^2	0.186			0.186			0.188		
N	3248			3248			3248		

Table A15: Funding status and asset allocation results with an alternative measure of distress - Bharath and Shumway's (2008) naïve distance-to-default

This table presents the funding status and asset allocation results with an alternative measure of distress, Related discussion is in Section 7.5 of the manuscript. Bharath and Shumway's (2008) naïve distance-to-default multiplied by -1 (*negnaivedd*). *Negnaivedd* uses the same Merton (1974) functional form as that used by *dd,* our baseline measure, but uses a naïve estimate of asset volatility as an input into the model (as in Section 2.3 of their paper). Higher values of *negnaivedd* correspond to greater likelihood of default. Definitions of all variables are provided in Appendix B of the manuscript.

All models use industry fixed effects based on 2-digit SIC codes and year fixed effects. Coefficient estimates on control variables, year, and industry fixed effects are not reported for brevity. All incentive variables are standardized by subtracting the sample mean and scaling by the sample standard deviation. All coefficients on incentive variables are multiplied by 1000 for ease of presentation. Robust t-statistics adjusted for firm-level clustering are reported in parentheses. ***, **, * denotes significance at the 1%, 5%, and 10% levels, respectively, based on two-tailed t-tests.

Table A15 (continued)

Panel A: Funding status test (dependent variable = underfunding)

	(1)			(2)			(3)		
Variable	Estimate	t-stat		Estimate	t-stat		Estimate	t-stat	
negnaivedd	0.002	(3.63)	***	0.003	(3.90)	***	0.002	(3.65)	***
lagceov	-0.747	(-0.06)					-12.114	(-0.87)	
lagceod	-10.049	(-0.83)					-1.092	(-0.07)	
lagceosd	-13.190	(-1.75)	*				-12.531	(-1.61)	
*negnaivedd*lagceov*	0.262	(0.36)					-1.527	(-1.78)	*
*negnaivedd*lagceod*	-1.113	(-1.64)					0.265	(0.29)	
*negnaivedd*lagceosd*	0.140	(0.21)					0.064	(0.10)	
lagcfov				8.919	(0.78)		14.133	(1.06)	
lagcfod				-15.736	(-1.40)		-12.877	(-0.89)	
lagcfosd				-3.309	(-0.58)		-0.683	(-0.11)	
*negnaivedd*lagcfov*				1.729	(2.52)	**	2.667	(3.02)	***
*negnaivedd*lagcfod*				-2.257	(-3.52)	***	-2.346	(-2.52)	**
*negnaivedd*lagcfosd*				0.733	(1.62)		0.677	(1.67)	*
Controls	Included			Included			Included		
Adjusted R^2	0.510			0.510			0.512		
N	5679			5679			5679		

Panel B: Asset allocation test (dependent variable = %equity)

	(1)			(2)			(3)		
Variable	Estimate	t-stat		Estimate	t-stat		Estimate	t-stat	
negnaivedd	-0.001	(-2.08)	**	-0.001	(-2.14)	**	-0.001	(-1.99)	**
underfunding	0.115	(3.58)	***	0.118	(3.68)	***	0.115	(3.58)	***
*negnaivedd*underfunding*	0.008	(3.83)	***	0.008	(3.89)	***	0.008	(3.75)	***
lagceov	6.795	(0.78)					-0.881	(-0.09)	
lagceod	2.192	(0.29)					11.052	(1.24)	
lagceosd	-14.102	(-1.92)	*				-15.179	(-1.92)	*
*negnaivedd*lagceov*	0.782	(1.35)					0.239	(0.34)	
*negnaivedd*lagceod*	-0.556	(-1.07)					-0.028	(-0.04)	
*negnaivedd*lagceosd*	-0.873	(-1.74)	*				-0.844	(-1.62)	
lagcfov				16.527	(1.49)		15.282	(1.25)	
lagcfod				-11.968	(-1.20)		-17.015	(-1.44)	
lagcfosd				-1.493	(-0.30)		3.890	(0.68)	
*negnaivedd*lagcfov*				1.372	(2.32)	**	0.986	(1.39)	
*negnaivedd*lagcfod*				-1.108	(-2.15)	**	-0.898	(-1.35)	
*negnaivedd*lagcfosd*				-0.360	(-1.25)		-0.112	(-0.37)	
Controls	Included			Included			Included		
Adjusted R^2	0.176			0.174			0.176		
N	4350			4350			4350		