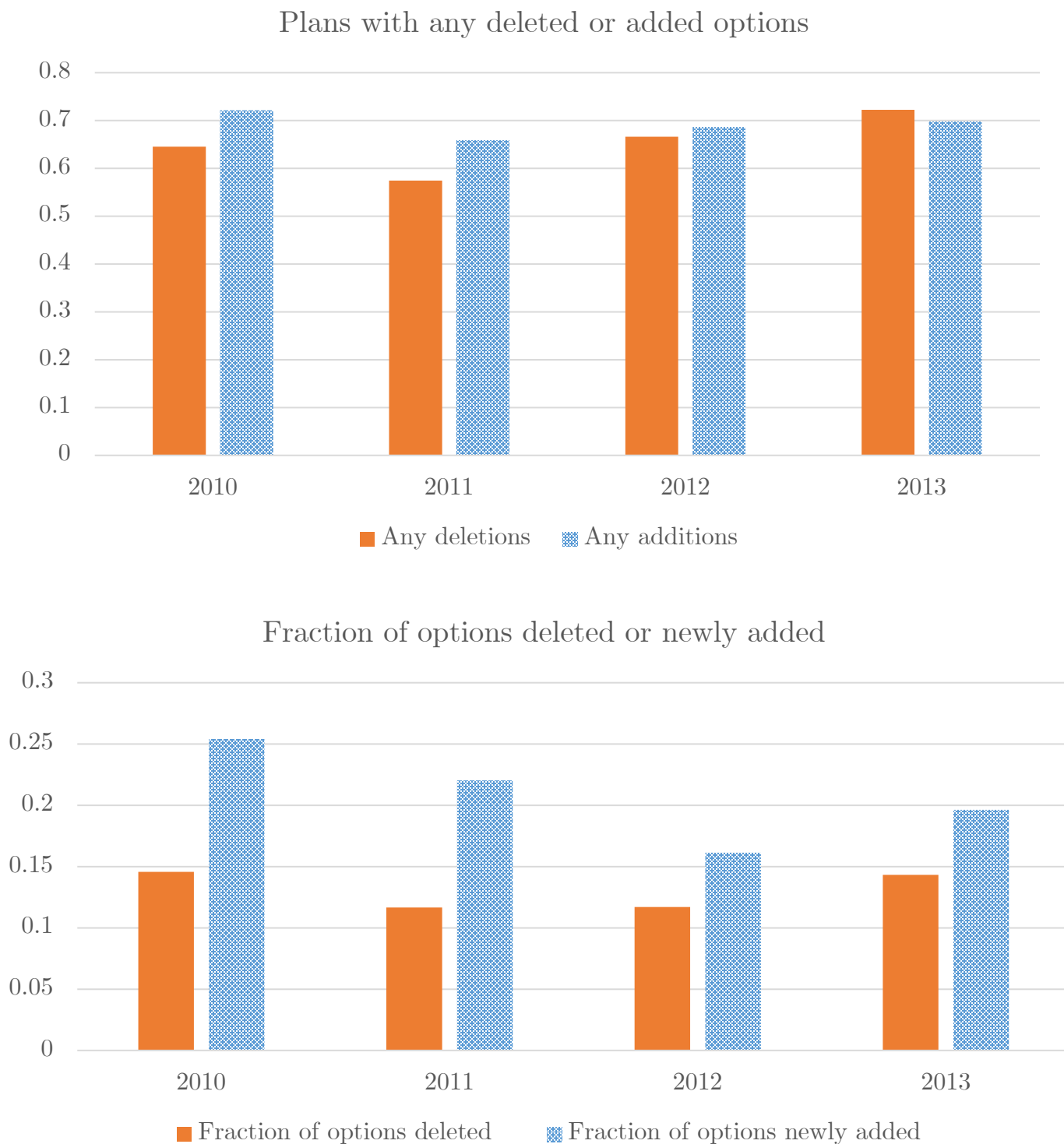


INTERNET APPENDIX FOR “OUT OF SIGHT NO MORE? THE EFFECT OF FEE DISCLOSURES ON 401(K) INVESTMENT ALLOCATIONS”

Figure A.1 **Reshuffling of funds within plans**

This figure plots the fraction of plans that have any deletions or additions of funds (top panel), as well as the number of deletions and deletions scaled by the lagged number of available funds (bottom panel). We limit the sample to plan-years that have between three and 100 funds.



**Table A.1 Summary statistics for target-date funds**

This table describes summary statistics like those in Table 2, but for target-date funds, which were not included in Table 2.

	mean	sd	p1	p25	p50	p75	p99	N
Fund value (\$1,000)	11,100	23,800	2	633	2,852	9,931	142,000	32,256
Fund plan share	1.87	2.28	0.00	0.37	1.07	2.50	11.47	32,097
Expense ratio (%)	0.49	0.27	0.16	0.18	0.57	0.73	1.07	31,405
Flow (to plan assets) (%)	0.42	1.38	-2.54	0.01	0.20	0.55	7.89	30,731
Flow (change in plan share) (%)	0.218	0.714	-1.842	-0.002	0.154	0.402	3.027	30,731
Flow (to option size) (%)	23.07	45.89	-100	1.53	15.58	36.14	188.44	30,731
Flow positive (indicator)	0.774	0.418	0	0	1	1	1	30,731
Return 1-year (%)	13.1	10.8	-5.0	5.2	13.9	16.7	39.0	31,596
Return 5-year (%)	2.3	1.4	-0.9	1.3	2.5	3.4	5.0	22,477
Return 10-year (%)	4.4	2.2	0.0	2.7	3.7	6.5	8.4	4,633

Table A.2 **Fees and fund flows, alternative measurement of fees**

This table is similar to Panel A of Table 3, but uses different definition of fees. In Panel A we replace the expense ratio with the fund's fee in 2009, and in Panel B we use the value-weighted fee across all share classes of a fund.

A. Fees measured as of 2009

	Flow (to plan assets)	Flow (change in plan share)	Flow (to option size)	Flow positive (indicator)
	(1)	(2)	(3)	(4)
Expense ratio (2009) × Post	-0.511*** (-4.43)	-0.408*** (-4.77)	-4.208** (-2.23)	-0.215*** (-6.24)
Plan × Fund FE	Yes	Yes	Yes	Yes
Size × Year controls	Yes	Yes	Yes	Yes
Plan × Style × Year FE	Yes	Yes	Yes	Yes
Fund Family × Year FE	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.821	0.697	0.765	0.702
N	47,462	47,462	47,462	47,462

B. Value-weighted fee for the fund

	Flow (to plan assets)	Flow (change in plan share)	Flow (to option size)	Flow positive (indicator)
	(1)	(2)	(3)	(4)
Expense ratio (value-weighted across share classes) × Post	-0.513*** (-4.83)	-0.431*** (-5.35)	-5.510*** (-2.84)	-0.208*** (-6.21)
Expense ratio (value-weighted across share classes)	0.412 (1.59)	0.196 (0.95)	2.694 (0.40)	0.128 (1.34)
Plan × Fund FE	Yes	Yes	Yes	Yes
Size × Year controls	Yes	Yes	Yes	Yes
Plan × Style × Year FE	Yes	Yes	Yes	Yes
Fund Family × Year FE	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.821	0.697	0.765	0.702
N	47,627	47,627	47,627	47,627

Table A.3 **Fees and fund flows, 11-K vs. top-1000 samples**

This table is similar to Panel A of Table 3, but limited to the sample based on form 11-K filers (Panel A) or top 1000 largest plans from Form 5500 (Panel B), respectively. These samples overlap for around 15% of plans.

A. 11-K sample only

	Flow (to plan assets)	Flow (change in plan share)	Flow (to option size)	Flow positive (indicator)
	(1)	(2)	(3)	(4)
Expense ratio × Post	-0.572*** (-4.16)	-0.477*** (-4.81)	-4.434* (-1.82)	-0.202*** (-4.81)
Expense ratio	0.313* (1.66)	0.317** (2.01)	5.517 (1.34)	0.188*** (2.87)
Plan × Fund FE	Yes	Yes	Yes	Yes
Size × Year controls	Yes	Yes	Yes	Yes
Plan × Style × Year FE	Yes	Yes	Yes	Yes
Fund Family × Year FE	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.821	0.703	0.775	0.705
N	30,801	30,801	30,801	30,801

B. Top-1000 sample only

	Flow (to plan assets)	Flow (change in plan share)	Flow (to option size)	Flow positive (indicator)
	(1)	(2)	(3)	(4)
Expense ratio × Post	-0.604*** (-4.19)	-0.508*** (-4.36)	-8.749*** (-3.00)	-0.305*** (-6.98)
Expense ratio	0.207 (1.05)	0.055 (0.32)	8.516 (1.15)	0.227** (2.12)
Plan × Fund FE	Yes	Yes	Yes	Yes
Size × Year controls	Yes	Yes	Yes	Yes
Plan × Style × Year FE	Yes	Yes	Yes	Yes
Fund Family × Year FE	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.827	0.692	0.762	0.711
N	24,001	24,001	24,001	24,001

Table A.4 **Fees and fund flows, shorter window (2011-2012)**

This table is similar to Table 3, but limited to the 2011-2012 sample period.

A. All funds

	Flow (to plan assets)	Flow (change in plan share)	Flow (to option size)	Flow positive (indicator)
	(1)	(2)	(3)	(4)
Expense ratio × Post	-0.490*** (-4.88)	-0.411*** (-4.51)	-4.749** (-2.08)	-0.209*** (-4.38)
Expense ratio	0.526** (1.99)	0.731*** (3.11)	12.687* (1.84)	0.152 (1.17)
Plan × Fund FE	Yes	Yes	Yes	Yes
Size × Year controls	Yes	Yes	Yes	Yes
Plan × Style × Year FE	Yes	Yes	Yes	Yes
Fund Family × Year FE	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.883	0.794	0.826	0.786
N	22,198	22,198	22,198	22,198

B. Domestic equity funds only

	Flow (to plan assets)	Flow (change in plan share)	Flow (to option size)	Flow positive (indicator)
	(1)	(2)	(3)	(4)
Expense ratio × Post	-0.561*** (-4.31)	-0.472*** (-4.12)	-7.931*** (-2.87)	-0.246*** (-4.14)
Expense ratio	0.562* (1.67)	1.017*** (3.59)	15.100** (2.33)	0.099 (0.67)
Plan × Fund FE	Yes	Yes	Yes	Yes
Size × Year controls	Yes	Yes	Yes	Yes
Plan × Year FE	Yes	Yes	Yes	Yes
Fund Family × Year FE	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.883	0.779	0.830	0.776
N	13,722	13,722	13,722	13,722

Table A.5 **Fees and fund flows, longer window (2000-2013)**

This table is similar to Table 3, but for a longer sample period between 2000 and 2013.

A. All funds

	Flow (to plan assets)	Flow (change in plan share)	Flow (to option size)	Flow positive (indicator )
	(1)	(2)	(3)	(4)
Expense ratio × Post	-0.484*** (-4.58)	-0.398*** (-4.61)	-4.276** (-2.10)	-0.211*** (-6.12)
Expense ratio	0.375*** (3.18)	0.347*** (2.96)	7.489*** (3.34)	0.078*** (2.60)
Plan × Fund FE	Yes	Yes	Yes	Yes
Size × Year controls	Yes	Yes	Yes	Yes
Plan × Style × Year FE	Yes	Yes	Yes	Yes
Fund Family × Year FE	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.782	0.647	0.736	0.680
N	110,714	110,714	110,714	110,714

B. Domestic equity funds only

	Flow (to plan assets)	Flow (change in plan share)	Flow (to option size)	Flow positive (indicator)
	(1)	(2)	(3)	(4)
Expense ratio × Post	-0.477*** (-3.68)	-0.427*** (-4.25)	-3.842 (-1.49)	-0.202*** (-4.50)
Expense ratio	0.223 (1.52)	0.293* (1.93)	8.590*** (3.26)	0.088** (2.42)
Plan × Fund FE	Yes	Yes	Yes	Yes
Size × Year controls	Yes	Yes	Yes	Yes
Plan × Year FE	Yes	Yes	Yes	Yes
Fund Family × Year FE	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.784	0.634	0.743	0.668
N	72,850	72,850	72,850	72,850

Table A.6 **Alternative levels of clustering standard errors**

This table is similar to Panel A of Table 3 using the first flow measure but employs different levels of clustering. The dependent variable throughout is the flow to plan assets.

---

Clustering level:	Plan-Fund	Fund-time	Plan-time	Plan-time & Fund- time	Fund	Plan	Fund family	Family & Plan	Family, Plan, Time	Fund, Plan, Time	Base Case: Fund & Plan
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Expense ratio × Post	-0.56*** (-8.11)	-0.56*** (-5.07)	-0.56*** (-8.15)	-0.56*** (-5.50)	-0.56*** (-4.18)	-0.56*** (-7.99)	-0.56*** (-4.36)	-0.56*** (-5.86)	-0.56*** (-6.03)	-0.56*** (-4.92)	-0.56*** (-4.58)
Expense ratio	0.20 (1.63)	0.20 (1.41)	0.20 (1.61)	0.20 (1.44)	0.20 (1.29)	0.20 (1.59)	0.20 (1.39)	0.20 (1.64)	0.20 (1.72)	0.20 (1.34)	0.20 (1.33)
Plan × Fund FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Size × Year controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Plan × Style × Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fund Family × Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.821	0.821	0.821	0.821	0.821	0.821	0.821	0.821	0.821	0.821	0.821
N	47,634	47,634	47,634	47,634	47,634	47,634	47,634	47,634	47,634	47,634	47,634

---

Table A.7 **Alternative flow measures for extreme fee regressions**

This table is similar to Table 5, but using alternative dependent variables.

	Flow (change in plan share)			Flow (to option size)			Flow positive (indicator)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Minimum fee × Post	0.316*** (4.72)	0.315*** (4.71)	0.213*** (3.23)	4.630*** (3.07)	4.611*** (3.06)	3.631** (2.07)	0.107*** (4.08)	0.106*** (4.06)	0.053** (2.04)
Minimum fee	-0.065 (-1.06)	-0.064 (-1.05)	0.006 (0.09)	-1.505 (-0.92)	-1.479 (-0.90)	-0.694 (-0.41)	-0.064** (-2.51)	-0.063** (-2.48)	-0.024 (-0.96)
Maximum fee × Post		-0.073* (-1.76)	0.009 (0.20)		-2.395** (-2.03)	-1.592 (-1.34)		-0.082*** (-3.62)	-0.039* (-1.74)
Maximum fee		-0.021 (-0.46)	-0.061 (-1.30)		0.295 (0.23)	-0.328 (-0.25)		0.032 (1.55)	0.006 (0.30)
Expense ratio × Post			-0.364*** (-4.18)			-3.382 (-1.44)			-0.188*** (-5.15)
Expense ratio			0.172 (1.29)			5.173 (1.18)			0.166** (2.56)
Plan × Fund FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Size × Year controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Plan × Style × Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fund family × Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.697	0.697	0.697	0.765	0.765	0.766	0.701	0.701	0.702
N	47,634	47,634	47,634	47,634	47,634	47,634	47,634	47,634	47,634



**Table A.8 Fee-flow sensitivities for active funds, depending on allocations to index fund**

This table reports results on fee-flow sensitivities around the disclosure reform for active funds, similar to columns 1-2 of Panel B of Table 6, for split samples based on the lagged plan-level allocation to index funds. In columns 1-2, we report results for plan-years where the allocation to index funds in the previous year was above median, and in columns 3-4, we report results for plan-years where the allocation to index funds in the previous year was below median. The standard errors are robust to heteroskedasticity and two-way clustered by fund and plan. \*, \*\*, and \*\*\* represent statistical significance at the 10%, 5%, and 1% levels, respectively.

---

Dependent variable: Flow (to plan assets)				
	Above-median allocation to index funds, $t-1$		Below-median allocation to index funds, $t-1$	
	(1)	(2)	(3)	(4)
Expense ratio $\times$ Post	0.004	-0.042	-0.252*	-0.398**
	(0.02)	(-0.22)	(-1.79)	(-2.20)
Expense ratio	-0.447	-0.249	0.179	0.192
	(-1.55)	(-0.70)	(1.01)	(0.89)
Sample	All fund styles	Domestic equity only	All fund styles	Domestic equity only
Plan $\times$ Fund FE	Yes	Yes	Yes	Yes
Size $\times$ Year controls	Yes	Yes	Yes	Yes
Plan $\times$ Style $\times$ Year FE	Yes	Yes	Yes	Yes
Fund Family $\times$ Year FE	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.848	0.845	0.848	0.857
N	14,226	8,692	20,061	12,389

---

Table A.9 **Fee-flow sensitivities of target-date vs. non-target date funds around the reform**

This table reports results on fee-flow sensitivities around the disclosure reform for target-date funds relative to non-target date funds. Target-date funds often are default choices and the choice of which target-date fund is likely driven by reasons other than fees.  $t$ -statistics are reported in parentheses below the coefficient estimates. The standard errors are robust to heteroskedasticity and two-way clustered by fund and plan. \*, \*\*, and \*\*\* represent statistical significance at the 10%, 5%, and 1% levels, respectively.

	Flow (to plan assets) (1)	Flow (change in plan share) (2)	Flow (to option size) (3)	Flow positive (indicator) (4)
Expense ratio	0.136 (1.05)	0.138 (1.20)	5.820 (1.39)	0.158*** (2.61)
Expense ratio $\times$ Post	-0.397*** (-3.39)	-0.352*** (-3.79)	-4.518** (-2.13)	-0.190*** (-5.18)
Expense ratio $\times$ Target-date fund	-0.233 (-0.81)	-0.197 (-0.83)	-8.131 (-0.91)	-0.029 (-0.27)
Target-date fund $\times$ Post	0.084 (0.77)	0.050 (0.55)	3.363 (1.08)	-0.004 (-0.16)
Expense ratio $\times$ Post $\times$ Target-date fund	0.271 (1.31)	0.244 (1.49)	-0.490 (-0.09)	0.118** (2.38)
Plan $\times$ Fund FE	Yes	Yes	Yes	Yes
Size $\times$ Year controls	Yes	Yes	Yes	Yes
Plan $\times$ Style $\times$ Year FE	Yes	Yes	Yes	Yes
Fund Family $\times$ Year FE	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.822	0.676	0.765	0.701
N	75,814	75,814	75,814	75,814
$p$ -value for sum of coefficients on: Expense ratio $\times$ Post + Expense ratio $\times$ Post $\times$ Target-date fund = 0	0.5937	0.5580	0.3876	0.2394

Table A.10 **Extreme performance**

This table reports results on the change in the flow sensitivities to extreme performance (defined as the maximum or minimum 1-year return within the plan-year) following the 2012 disclosure reform. Columns (1)-(2) report results using all fund styles, and Columns (3)-(4) limit the sample to domestic equity funds only. *Maximum 1-year return* and *Minimum 1-year return* are indicators for whether the fund is the best or worst-performance option based on the one-year return in the plan.

Dependent variable: Flow (to plan assets)				
	All Funds		Domestic equity only	
	(1)	(2)	(3)	(4)
Maximum 1-year return × Post	0.033 (0.60)	-0.075 (-1.30)	-0.007 (-0.14)	-0.063 (-1.07)
Maximum 1-year return	0.138*** (3.94)	0.087** (2.37)	0.127*** (3.37)	0.073* (1.73)
Minimum 1-year return × Post	-0.228*** (-3.23)	-0.056 (-0.76)	0.005 (0.08)	0.075 (1.21)
Minimum 1-year return	0.277*** (3.85)	0.254*** (3.94)	-0.126*** (-3.05)	-0.081* (-1.91)
Return 1-year × Post		2.709*** (6.81)		2.042*** (3.34)
Return 1-year		0.133 (0.79)		0.365 (1.29)
Minimum fee × Post		0.303*** (3.80)		0.332*** (4.37)
Minimum fee		-0.088 (-1.24)		-0.059 (-0.56)
Maximum fee × Post		0.009 (0.16)		-0.017 (-0.32)
Maximum fee		-0.051 (-1.00)		-0.020 (-0.40)
Expense ratio × Post		-0.384*** (-3.77)		-0.237* (-1.85)
Expense ratio		0.060 (0.39)		0.045 (0.25)
Plan × Fund FE	Yes	Yes	Yes	Yes
Size × Year controls	Yes	Yes	Yes	Yes
Plan × Style × Year FE	Yes	Yes	Yes	Yes
Fund Family × Year FE	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.820	0.822	0.815	0.816
N	47,575	47,575	29,533	29,533

Table A.11 **Robustness: Excluding plans with fund deletions or additions**

This table replicates Table 3 but excludes any plan-years where funds were deleted or added during the year. The observations are at the plan-fund-year level. In column (1), we delete all observations where there are deletions of any kind in the plan-year. In column (2), we only delete observations where a deletion takes place in the same fund style (where styles are defined as described in Table 1). Columns (3) and (4) are similar but exclude plans with additions.

---

	No deleted funds in plan (1)	No deleted funds within style (2)	No added funds (3)	No added funds within style (4)
Expense ratio × Post	-0.699*** (-4.19)	-0.549*** (-4.61)	-0.659*** (-5.13)	-0.610*** (-4.90)
Expense ratio	0.125 (0.41)	0.109 (0.52)	-0.160 (-0.70)	0.345* (1.82)
Plan × Fund FE	Yes	Yes	Yes	Yes
Size × Year controls	Yes	Yes	Yes	Yes
Plan × Style × Year FE	Yes	Yes	Yes	Yes
Fund Family × Year FE	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.872	0.852	0.887	0.847
N	11,058	25,430	8,640	23,047

---

Table A.12 **Sensitivity of deletions to fees around disclosure reform**

This table shows results for the sensitivity of plan deletions to expenses. The dependent variable is an indicator for whether a fund is deleted from a plan (i.e., the fund disappeared between the end of the last fiscal year and the current fiscal year). The explanatory variable is the fund's lagged expense ratio interacted with *Post* (the years after the reform). The estimates are based on an OLS regression model. Control variables are the fraction of plan assets invested in the fund, and Plan  $\times$  Style  $\times$  Year fixed effects. The standard errors are robust to heteroskedasticity and two-way clustered by fund and plan. \*, \*\*, and \*\*\* represent statistical significance at the 10%, 5%, and 1% levels, respectively.

Dependent variable: Fund deleted (indicator)	All fund styles	Domestic equity
	(1)	(2)
Expense ratio $\times$ Post	0.001 (0.08)	0.004 (0.19)
Expense ratio	0.063*** (4.84)	0.052*** (3.54)
Option plan share (lag)	-0.541*** (-4.22)	-0.371** (-2.52)
Plan $\times$ Style $\times$ Year FE	Yes	Yes
R <sup>2</sup>	0.443	0.389
N	64,026	39,123