

A Holdings-Based Commitment Proxy and Reported Portfolio Rebalancing: Evidence from Form 13F Managers

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Abstract

Form 13F filings are often invoked in behavioural arguments, yet they document delayed long positions rather than beliefs or executed trades. We examine whether reported additions to already material holdings, captured by a commitment proxy, are related to portfolio rebalancing during the following non-overlapping quarter. The analysis draws on official SEC records for 2022Q1 to 2025Q4: 2,332 manager-quarter observations from 261 large Form 13F reporting managers and 14 outcome quarters. In the primary model with manager and quarter effects, the coefficient is -0.0100 (standard error 0.0111; p value 0.364; 95 percent confidence interval [-0.0317, 0.0116]). Moving the proxy across its interquartile range is associated with -0.00190 in reported rebalancing, equal to -1.32 percent of the mean. The manager-effects result is also small (-0.0122, standard error 0.0112; p value 0.275). By contrast, the controlled pooled estimate is -0.2046 (standard error 0.0394; p value below 0.001; ordinary R-squared 0.1311), and the quarter-effects estimate is -0.1465 (standard error 0.0322; p value below 0.001). The specifications therefore separate a pronounced cross-manager association from a weak relation within managers. The non-overlapping construction makes clear that, in Form 13F data, the commitment–rebalancing pattern is chiefly cross-sectional.

Keywords

form 13F, reporting managers, institutional holdings, commitment proxy, portfolio rebalancing

1. Introduction

Portfolio disclosures are often read as traces of investor conviction. Behavioural-finance research gives that interpretation a plausible foundation: investors may hold losses differently from gains, update beliefs asymmetrically, or extrapolate past performance [1–4]. Institutional evidence also shows that buying and selling decisions can follow different heuristics [5]. Yet none of these mechanisms makes a quarter-end holdings table a direct record of belief.

The distinction is especially important for Form 13F. A filing reports selected long positions at a reporting date, with a delay, but omits execution timing, motives, short positions, derivatives, cash, and other portfolio components. Restatements further show that the initial disclosure need not be the final record [6]. Consequently,

a change in reported shares can reflect information, flows, mandates, corporate actions, or reporting mechanics. It cannot by itself establish psychological commitment or realised trading.

We study a narrower and testable question. Does repeated addition to positions that were already material in a manager's disclosed portfolio predict less rebalancing in the following, non-overlapping reporting interval? The proposed quantity is a holdings-based commitment proxy. It measures a pattern in delayed reported long holdings, not latent belief. Reported portfolio rebalancing is likewise a change in quarter-end weights, not dollar turnover.

Three design choices make the analysis transparent. First, each report quarter uses the 200 unique eligible reporting-manager CIKs attached to the largest non-amended filings. Second, the proxy uses the transition from $t - 2$ to $t - 1$, whereas the outcome uses $t - 1$ to t . Third, manager and quarter effects separate persistent cross-manager composition from within-manager changes and common reporting-quarter conditions. These choices turn a suggestive cross-section into a direct test of whether the relation survives within-manager conditioning.

The estimates differ according to the variation used. Pooled and quarter-effects specifications are negative, whereas the manager-effects estimate is small and imprecise. With manager and quarter effects included, the 95% confidence interval covers economically modest negative and positive values. Threshold and influence checks leave the same conclusion: the pre-specified proxy does not provide a stable within-manager signal.

The analysis specifies a measure for delayed public disclosures and contrasts evidence across reporting managers with evidence within a manager. The sensitivity checks retain that distinction. This framing limits the interpretation to what Form 13F data can support.

2. Related Work

One literature connects investor decisions to disposition, attention, extrapolation, and disagreement. Classic work documents reluctance to realise losses and provides models of under- and overreaction [1–3]. More recent studies relate disposition behaviour to transparency and trading responses to disagreement [7, 8]. These studies motivate a commitment interpretation, but their observables and identification do not license treating a Form 13F share increase as a belief measurement.

A second literature examines institutional portfolio construction and trading. Evidence on asymmetric institutional buying and selling, herding, and heuristic portfolio formation shows that recorded positions can contain systematic patterns [5, 9, 10]. Those patterns also admit non-behavioural explanations, including mandates, flows, information, and benchmark exposure. Our proxy is therefore defined mechanically before it is interpreted.

Holdings studies based on independently classified manager samples have analysed technology-bubble positioning, crisis trading, stock-selection ability, and strategy heterogeneity [11–14]. Their population labels should not be transferred to the present sample. This study selects large Form 13F reporting managers by filing value and makes no independent manager-type classification. Its closest distinction is the combination of a non-overlapping lag structure, explicit corporate-action screen, and four specifications that reveal how the association changes once manager heterogeneity is absorbed.

3. Method

3.1 Data and Sample

The data come from the official SEC Form 13F bulk archives [15]. We use report quarters 2022Q1–2025Q4. Because archive names before March 2024 describe filing windows rather than the desired report quarter, every archive is checked against its period-of-report field. Within each report quarter, we rank the largest non-amended 13F-HR filing for each reporting-manager CIK by reported table value and retain the top 200 unique eligible CIKs.

We retain SH rows with an empty Put/Call field and positive reported values and share counts. When accepted records describe the same CIK, report quarter, and CUSIP, they are consolidated. After this screen,

the panel contains 2,332 manager-quarter observations from 261 reporting managers, and the outcome window runs from 2022Q3 through 2025Q4 (14 quarters).

Corporate actions can make an unchanged economic position resemble a large share increase. We therefore exclude a relevant CUSIP transition pair when an issuer-confirmed split is pre-specified or when a conservative common-ratio screen flags it. For a CUSIP held by the same managers in two adjacent quarters, the screen requires at least 10 shared-manager pairs and at least 60% of their share ratios to lie within $\log(1.05)$ of one pre-specified split or reverse-split factor (0.02, 0.05, 0.10, 0.20, 0.25, 1/3, 0.50, 2, 3, 4, 5, 10, 20, or 50). The exclusions are NVIDIA's 10-for-1 split and Chipotle Mexican Grill's 50-for-1 split from 2024Q1 to 2024Q2, and Broadcom's 10-for-1 split from 2024Q2 to 2024Q3. This procedure is a screen for conspicuous transitions, not an exhaustive corporate-action adjustment.

3.2 Proxy and Outcome

For manager i , security j , and report quarter t , let $v_{i,j,t}$ be the reported position value field in the filtered Form 13F information table, where k denotes any filtered security reported by that manager in the quarter. The reported portfolio weight is

$$w_{i,j,t} = \frac{v_{i,j,t}}{\sum_k v_{i,k,t}}. \quad (1)$$

Let $s_{i,j,t}$ denote reported shares. The set of positions at or above the manager-specific median lagged weight is

$$\mathcal{B}_{i,t-2} = \{j: w_{i,j,t-2} \geq \text{median}_k(w_{i,k,t-2})\}. \quad (2)$$

The primary holdings-based commitment proxy is

$$C_{i,t-1} = \frac{|\{j \in \mathcal{B}_{i,t-2} : s_{i,j,t-1} > s_{i,j,t-2}\}|}{|\mathcal{B}_{i,t-2}|}. \quad (3)$$

Thus $C_{i,t-1}$ is the fraction of previously material positions whose reported shares increased over $t - 2$ to $t - 1$.

Let $\mathcal{U}_{i,t}$ be the union of securities reported at $t - 1$ and t , with an absent security assigned weight zero. Reported rebalancing is half the absolute change in weights,

$$R_{i,t} = \frac{1}{2} \sum_{j \in \mathcal{U}_{i,t}} |w_{i,j,t} - w_{i,j,t-1}|. \quad (4)$$

Because it is derived from reported portfolio weights, $R_{i,t}$ measures disclosed-weight drift rather than transaction turnover. It can move with valuation changes as well as with changes in reported shares. The predictor interval ends where the outcome interval begins, so the two measures do not share the same holding transition.

3.3 Estimation and Diagnostics

The controlled model is

$$R_{i,t} = \beta C_{i,t-1} + \gamma' \mathbf{X}_{i,t-1} + \alpha_i + \delta_t + \varepsilon_{i,t}, \quad (5)$$

where $\mathbf{X}_{i,t-1}$ contains lagged log reported portfolio value, lagged log number of positions, and lagged Herfindahl–Hirschman index (HHI). The terms α_i and δ_t denote manager and quarter effects. HHI is an alternative portfolio-structure diagnostic and control, never an alternative commitment proxy. All standard errors are clustered by reporting manager.

We report pooled ordinary least squares, manager fixed effects, quarter fixed effects, and manager-plus-quarter fixed effects. The last specification is primary because it uses within-manager variation after removing common quarter conditions. Diagnostics replace the median threshold with top-quartile and top-decile position sets, winsorise the outcome at 1%, omit the corporate-action screen, estimate quarter-specific and leave-one-quarter models, and re-estimate the primary model after omitting each manager.

4. Results

The estimates reveal a pronounced contrast between the pooled association and the within-manager relation. The commitment proxy has mean 0.4262 and standard deviation 0.1595, while reported rebalancing has mean 0.1440 and standard deviation 0.1356. Lagged HHI averages 0.0230. Table 1 provides the distributional context for these three quantities.

Table 1: Descriptive statistics for the screened panel

Variable	Mean	SD	P25	Median	P75	Range
Commitment proxy	.4262	.1595	.3333	.4184	.5227	[0.,993]
Reported rebalancing	.1440	.1356	.0691	.0943	.1427	[0.,992]
Lagged HHI	.0230	.0447	.0076	.0117	.0199	[.001,.973]

Table 2 shows why pooled evidence is insufficient. Pooled OLS gives $\beta = -0.2046$ (clustered SE 0.0394, $p < 0.001$) with ordinary $R^2 = 0.1311$. The manager-fixed-effects estimate is -0.0122 (SE 0.0112, $p = 0.275$) and within-manager $R^2 = 0.0155$. Quarter effects retain a larger negative association, -0.1465 (SE 0.0322, $p < 0.001$), with within-quarter $R^2 = 0.3170$. This pattern indicates that persistent differences across managers account for most of the pooled relation.

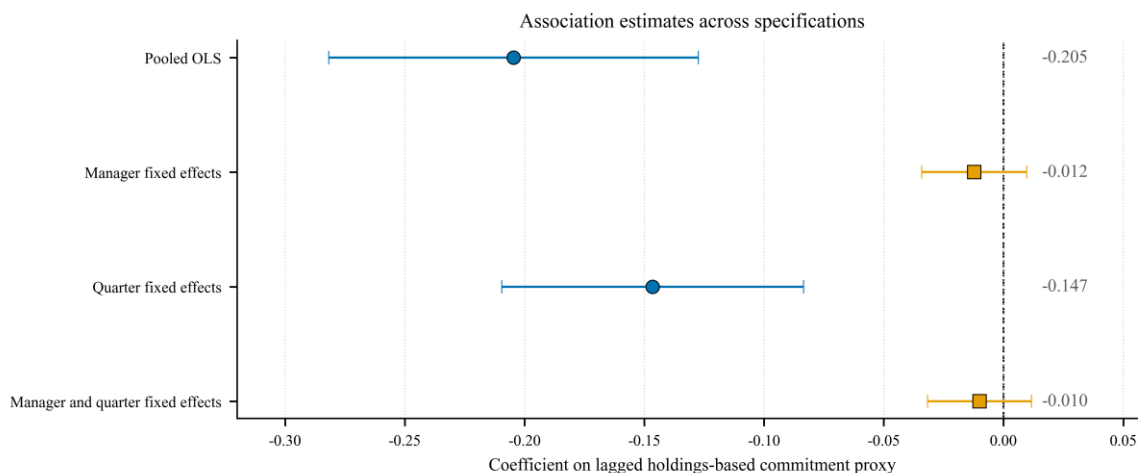
Table 2: Controlled association estimates for reported rebalancing

Specification	β	SE	p	R^2	R^2 basis
Pooled OLS	-.2046	.0394	<.001	.1311	Ordinary
Manager FE	-.0122	.0112	.275	.0155	Within manager
Quarter FE	-.1465	.0322	<.001	.3170	Within quarter
Two-way FE	-.0100	.0111	.364	.0238	Within two-way

Notes: $N = 2,332$ observations and 261 reporting-manager clusters. Every model includes lagged log portfolio value, lagged log positions, and lagged HHI. FE denotes fixed effects.

The controlled two-way estimate is -0.0100 (SE 0.0111, $p = 0.364$), with within-two-way $R^2 = 0.0238$. Its 95% confidence interval is $[-0.0317, 0.0116]$. An interquartile-range increase in commitment, 0.1894, corresponds to a -0.00190 change in reported rebalancing. This is -1.32% of mean rebalancing. Figure 1 displays the specification comparison and shows the sharp attenuation once manager effects are included.

Figure 1: Controlled commitment-proxy estimates across specifications. Bars indicate reporting-manager-clustered 95% confidence intervals

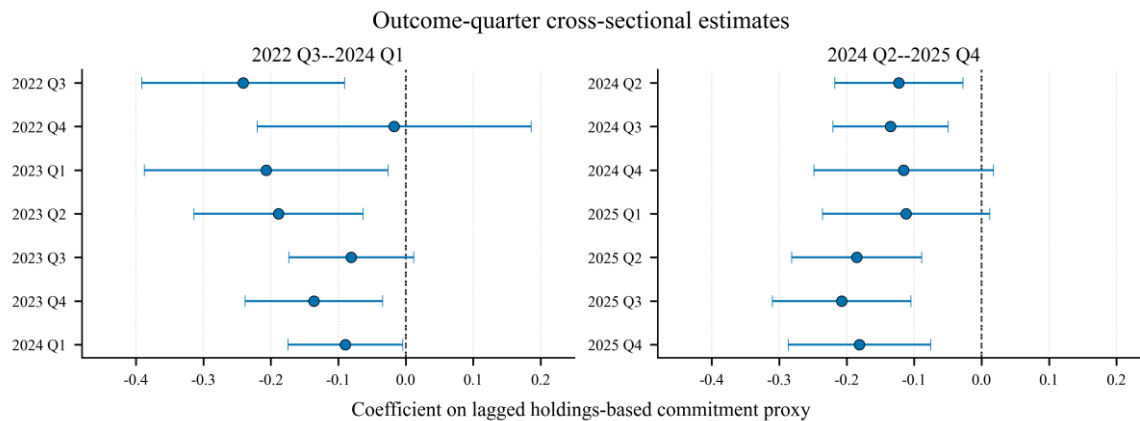


The robustness results in Table 3 do not overturn the primary interpretation. Restricting the proxy to the top quartile of positions gives -0.0153 , with $p = 0.111$. The top-decile estimate is -0.0195 , with $p = 0.035$, but it is a threshold sensitivity result rather than a replacement for the pre-specified above-median definition. This result is sensitivity-only and non-confirmatory; we make no multiple-testing claim. Winsorising rebalancing at 1% gives -0.0085 , with $p = 0.334$; omitting the corporate-action screen gives -0.0103 , with $p = 0.347$.

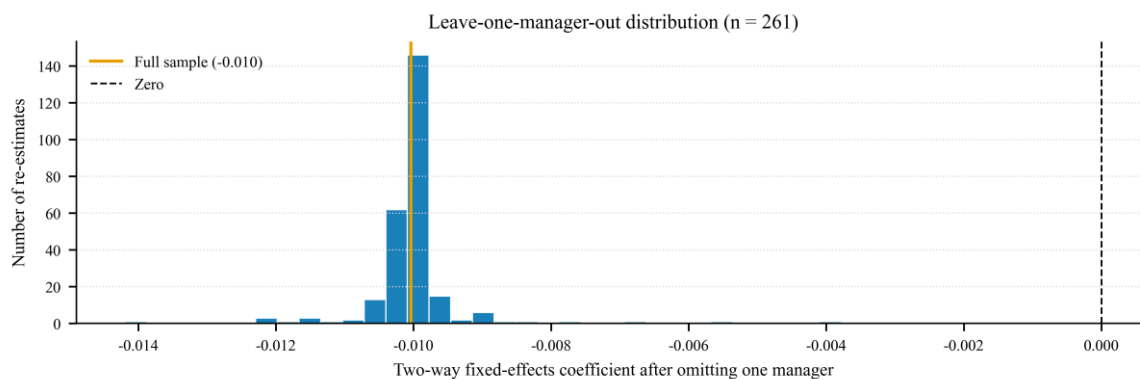
Table 3: Two-way fixed-effects sensitivity estimates

Check	β	SE	p
Above-median primary	-.0100	.0111	.364
Top quartile	-.0153	.0096	.111
Top decile	-.0195	.0092	.035
1% winsorised outcome	-.0085	.0089	.334
No action screen	-.0103	.0110	.347

Figure 2 reports separate pooled cross-sectional associations for each outcome quarter under the same non-overlapping measurement method. The coefficients are predominantly negative but vary in magnitude and precision; leave-one-outcome-quarter estimates of the primary two-way model also remain negative and non-significant. Because the plotted models pool managers within each quarter, they do not establish stable within-manager prediction or replace the primary two-way estimate.

Figure 2: Quarter-specific pooled estimates using non-overlapping predictor and outcome windows. Bars indicate reporting-manager-clustered 95% confidence intervals

The 261 leave-one-manager estimates range from -0.0142 to -0.0038 , with median -0.0100 . Every estimate is negative, and none has $p < 0.05$. Figure 3 shows the full omission distribution and the full-sample estimate. No single selected reporting manager determines the sign, but manager omission does not validate the proxy or establish predictive value.

Figure 3: Leave-one-manager-out distribution of the two-way fixed-effects estimates. The vertical line marks the full-sample coefficient

5. Discussion

The contrast across specifications is more informative than the pooled coefficient alone. Managers with higher average commitment-proxy values also tend to exhibit lower reported rebalancing, and that between-manager pattern remains visible after conditioning on quarters. Once persistent manager differences are

removed, however, quarter-to-quarter changes in the proxy have little association with subsequent rebalancing. The primary estimate is small, imprecise, and economically modest over the proxy's interquartile range.

Several explanations fit this attenuation. Stable mandates, portfolio breadth, benchmark exposure, and reporting conventions can differ across managers while changing little within a manager. Investor flows, private information, and valuation changes can also move reported weights without being captured by the proxy. The design has no instrument, quasi-experiment, or exogenous shock that could separate these accounts. It therefore cannot turn the pooled correlation into a causal or psychological mechanism.

The threshold results reinforce the need for a fixed primary definition. A nominally significant top-decile estimate could arise because the most concentrated slice captures a different exposure or because its measurement is less noisy. The $p = 0.035$ estimate is sensitivity-only and non-confirmatory; we make no multiple-testing claim. The winsorised and unscreened estimates, together with the quarter and manager omission diagnostics, leave the above-median primary conclusion unchanged.

Form 13F is a partial and delayed disclosure. It omits short positions, derivatives, cash, execution dates, and complete portfolios, while reported rebalancing also incorporates valuation effects. A CIK identifies the filing manager administratively, not a verified fund type. Choosing the largest filings therefore neither yields a representative population nor identifies a population of independently verified funds.

Our corporate-action treatment is intentionally limited. The screen removes three issuer-confirmed split transitions, yet full adjustment would require an independent security-level action database. The close agreement between screened and unscreened estimates lessens concern about these events, but cannot establish that every relevant action was identified.

The study contributes a transparent decomposition of between-manager and within-manager evidence. A plausible holdings-based commitment proxy produces a strong pooled pattern, yet that pattern weakens in the primary within-manager design. Longer panels, independently audited manager classifications, richer security identifiers, and pre-registered proxy thresholds would be needed to assess whether any relation generalises beyond this selected public-disclosure sample.

6. Conclusion

Across specifications, the negative association between the commitment proxy and rebalancing arises mainly across reporting managers, not from quarter-to-quarter changes within a manager. In the primary model, the estimate is -0.0100 and is imprecise after manager and quarter effects and lagged portfolio controls. This Form 13F analysis offers no evidence of stable within-manager prediction. Form 13F does not observe beliefs or executed trades; the design also cannot establish causal effects, exhaustively adjust corporate actions, or describe population-wide behaviour.

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Conflicts of Interest

The authors declare no conflict of interest.

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