

NCREIF Research Committee

Market, Product, or Asset?

What drives asset-level returns in the NPI
1990–2026

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Summary of the working paper - Fall 2026



How much does each component of the investment decision actually drive returns?

How investors organize the decision

Sector selection/allocation

how much to office, industrial, apartments...

Market selection

which metros

Product / submarket selection

garden vs high-rise, CBD vs suburban, warehouse vs flex

Asset selection

which asset — and how it is run

Each layer has a research apparatus behind it — house views, market rankings, product strategies, acquisition committees

What we set out to measure

- Take the annual total return of every asset in the NPI and split its variation across those layers — an asset-level analog of Brinson–Hood–Beebower attribution
- **The predecessor:** Chervachidze, Fisher & Wheaton (2012), office only, 1989–2011 — asset quality, market rent growth and the national cycle together explained 47%; **53% was idiosyncratic**
- **This study:** all sectors, 1990–2026, and the layers made **time-varying** — because a market matters as an exposure to its cycle, not as a permanent premium
- The residual is the arena where underwriting, operating skill and execution earn their keep — so its size matters as much as the pieces

Data, and the original study replicated on the full panel

Data

- NCREIF Property Index, current universe applied historically, 1990Q1–2026Q2
- Annual asset total return = the four quarters chain-linked (all four required), unleveraged, winsorized 1/99
- **≈193,000** asset-years; **32,618** assets; **474** CBSAs
- Layers from NCREIF's own classifications: sector (8 types), sub-type (the product), CBSA, location class
- Appraisal-based returns, so common factors are damped relative to transaction prices — the residual share is conservative

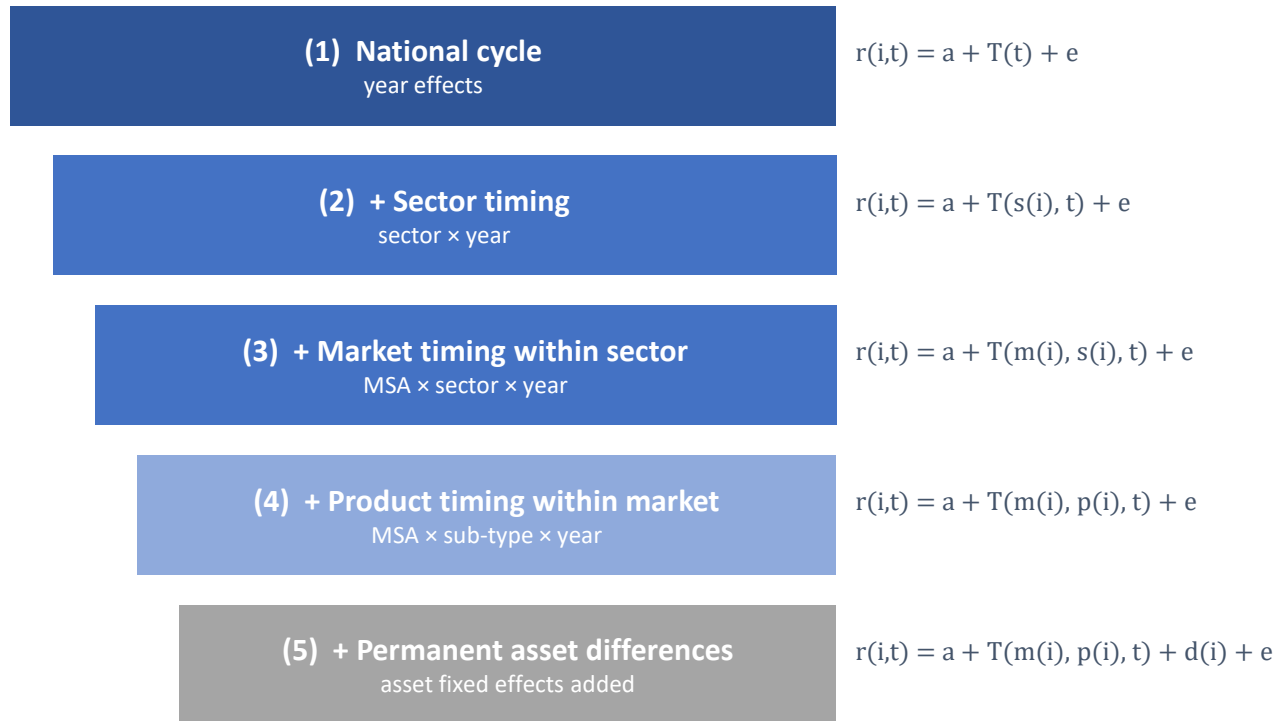
Backdrop: the two-stage attribution of the original paper, re-run

Share of total-return variation (R^2)	Original 1990–2011	Updated 1990–2011	Updated 1990–2026
Asset fixed effects only (permanent quality)	20%	25%	22%
Market rent growth only (proxy in the update)	13%	2%	2%
Year effects only (national cycle)	31%	40%	29%
All three combined	47%	59%	49%
Unexplained — dynamic, local, idiosyncratic ($100 - R^2$)	53%	41%	51%

- **The headline reproduces:** about half of asset-year return variation is unexplained in every sector (42–52% by type); income is more asset-specific than appreciation
- **Stage 2 reproduces:** observable characteristics (size, type, fund type, renovation) explain under 9% of the asset fixed effects — permanent quality is mostly latent
- The market-rent layer is the weak link — the external MSA rent series is not in the data — which is what motivated the time-varying design

Method: a nested ladder of time-varying effects, read by the increment in adjusted R^2

Each rung refines the partition of the previous one



increments in adjusted R^2 attribute variation to sector timing, market timing, product timing and permanent asset differences

Two things that matter

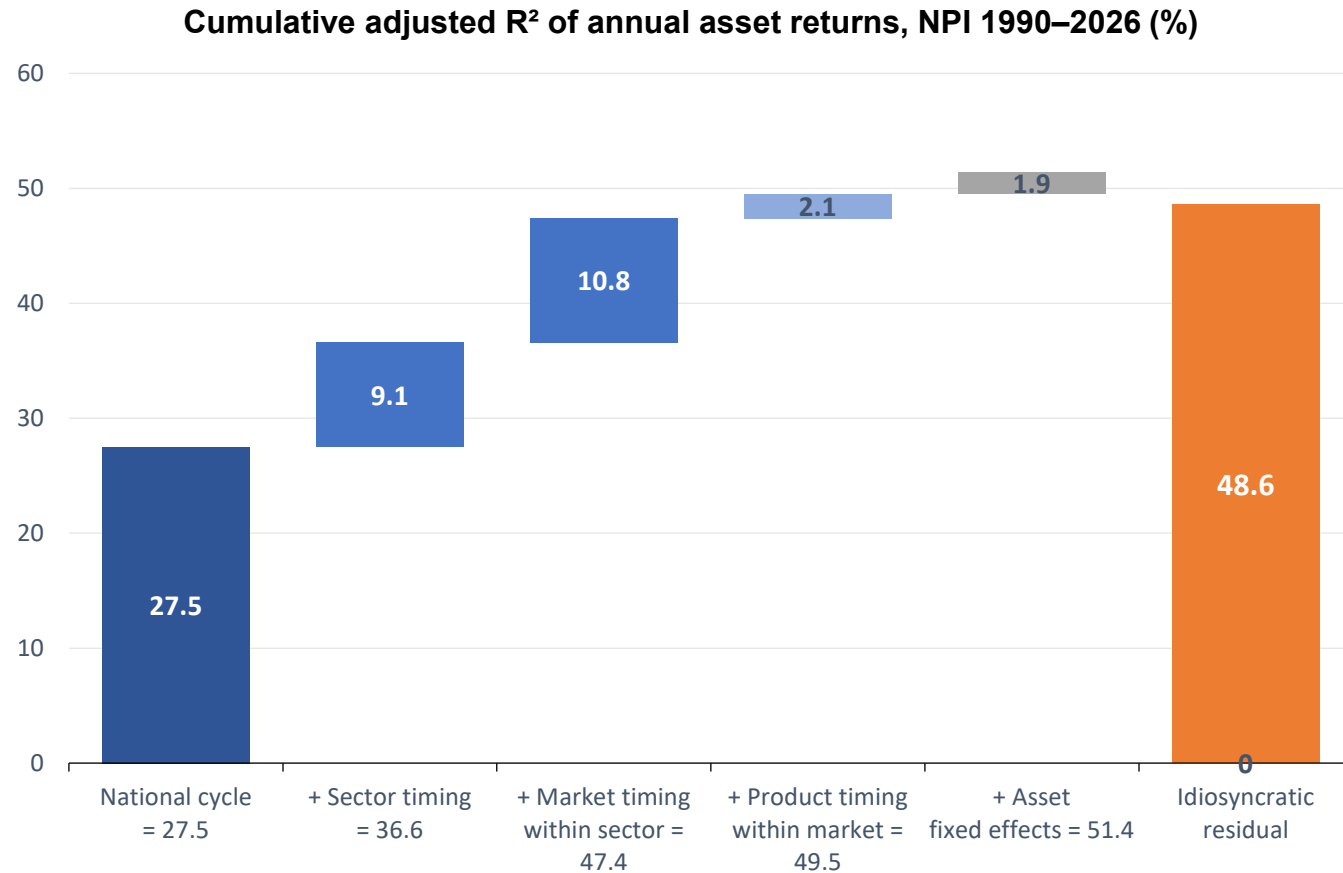
- **Nesting.** Any static classification — an MSA dummy, a submarket dummy — is constant within an asset, so asset fixed effects already contain it. Static market selection adds nothing to a model with asset effects; selection can only matter as time-varying exposure. That is why every rung is interacted with year
- **Degrees of freedom.** The finest cells average about six assets, so raw R^2 absorbs noise. All attribution uses adjusted R^2 :

$$\text{adj } R^2 = 1 - (1 - R^2) \cdot (N - 1) / (N - k)$$

Estimated by within-transformation (absorbing least squares). Order matters where partitions are not nested; the ladder is the primary ordering.

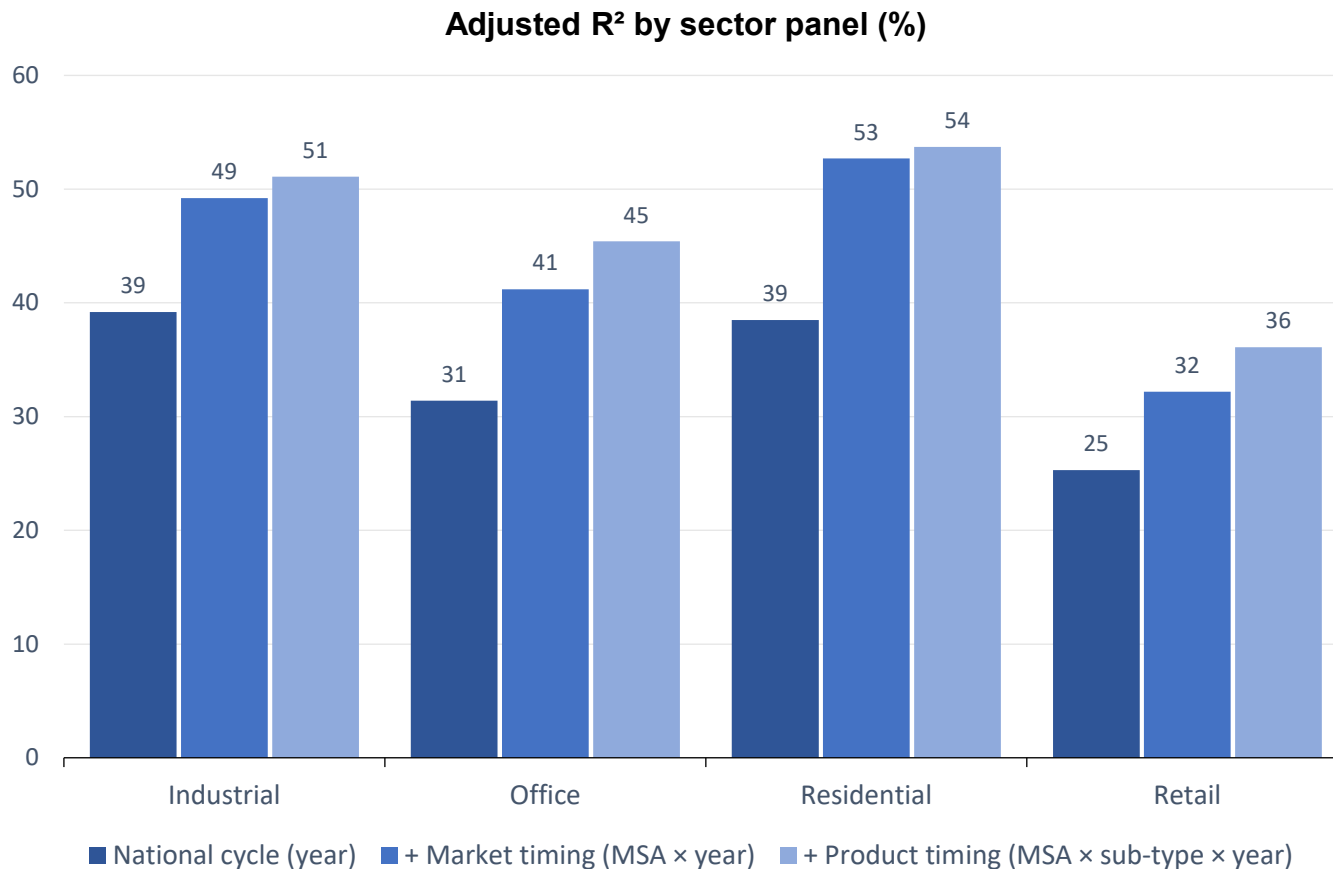
Headline: timing explains half; static selection explains almost nothing

Reading the ladder



- **The national cycle is the largest single piece** (27.5 points)
- **Sector timing (+9) and market timing within sector (+11) are comparable and substantial**
- Product timing within market adds about 2; permanent asset differences about 2 more
- **Static selection $\approx$ nothing:** MSA dummies alone explain 1.1%; only 2.6% of the variance of asset fixed effects is between markets
- **Just over half explained (51.4%);** nearly half of what happens to an asset in a year is its own story
- *Preliminary panel — figures within about a point of the archived panel; to be re-estimated before publication*

The same ladder within each sector: market timing adds 10–13 points, product 1–4

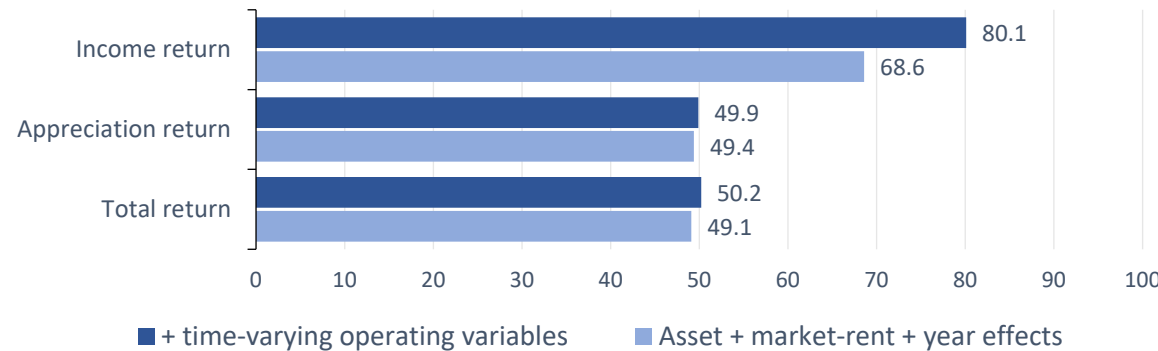


What differs by sector

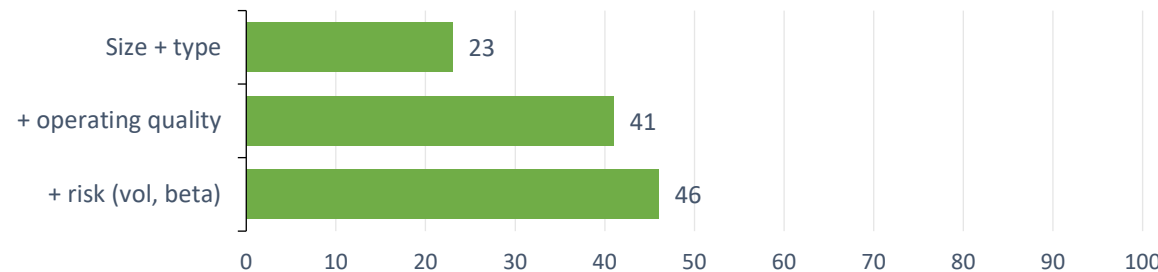
- **Residential and Industrial** have the strongest common cycle — apartment markets move together, and the national cycle alone explains 38–39%
- **Retail** is the least explained at every rung (36% with everything in) — the most asset-level heterogeneity
- **Office** is where product timing matters most (+4 points): CBD and suburban cycles genuinely diverge
- Market timing within sector is worth 10–13 points everywhere — the one layer that is large and consistent across sectors
- **Order matters:** put product before market and product looks as big as market — because sub-types nest within sectors. Granting sector its own rung first is what puts product at ~2

What is in the other half? Mostly idiosyncratic revaluation — Not operating performance

R² of the combined model before and after adding operating variables (%)



Permanent cross-asset differences ARE explainable: R² on the fixed effects (%)



Three things the residual analysis showed

- **Appreciation is 88% of total-return variance** (σ 13.8% vs 2.8% for income). NOI growth, expense ratios, occupancy change, capex intensity and momentum lift the income R² by 11.5 points but total by 1 — the residual is idiosyncratic revaluation
- **Risk is priced, but weakly:** an asset's mean return correlates +0.16 with its own volatility and +0.14 with its beta; together they explain about 3% of cross-asset differences in mean return
- **Who is good on average is explainable; why an asset deviates in a given year is not.** Size and type explain 23% of the permanent effects, operating quality takes it to 41%, risk to 46%

What it means, and what to keep in mind

Implications for investment organizations

- **Market research earns its keep as cycle research.** There are no permanently better markets in the data; there are markets at the right point in their cycle
- **Sector timing and market timing are comparable levers** — each worth about ten points of explained variation on top of the national cycle
- **Product strategy matters where product cycles genuinely diverge** (office CBD vs suburban); elsewhere it adds little once sector and market are set
- **The largest single "factor" is the asset's own story.** Underwriting, lease outcomes, capital projects and execution differentiate realized performance more than allocation policy alone

Caveats and next steps

- **Preliminary panel:** the ladder was run on a quick rebuild within about a point of the archived panel; publication numbers will be re-estimated with the folder's scripts
- Appraisal smoothing damps the common factors, so the idiosyncratic share is conservative; a transaction-based replication is a natural extension
- Sub-type definitions have drifted (data centers, life science, SFR), which flatters the product layer recently; the ordering of layers survives restricting to stable classes
- Fine cells absorb noise — only adjusted R^2 is quoted; the decomposition is order-dependent where partitions are not nested
- **Next:** persistence of asset effects out of sample (do past winners keep winning?); an external MSA rent series to restore the market-rent layer; pre/post-GFC split