

The Anatomy of Repatriation

Investor Heterogeneity in Japan's Overseas Portfolio Adjustment

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Abstract

Claims that Japanese capital is ‘coming home’ are usually made from aggregate cross-border flows. I ask whether that aggregate sign is a sufficient statistic for repatriation. Using monthly Ministry of Finance transactions in foreign securities from January 2014 through July 2026, I separate banks, trust accounts, life insurers, and investment trusts and condition their purchases on public-data measures of short-end and long-duration Japanese government bond repricing. The internally locked primary tests compare investor-specific responses of foreign long-term-debt purchases at zero-, one-, and three-month horizons, with date-score Newey–West inference and Holm adjustment. None of the primary long-duration tests rejects equality across investors; parallel short-end tests also do not reject. The more robust fact is aggregation failure: 79.5 percent of months contain both buyers and sellers, and roughly one-third of gross core-group activity cancels within the aggregate. Protocol-designated asset-class gates locate heterogeneity elsewhere. Trust accounts differ from investment trusts in short debt after positive long-duration shocks, while banks differ from investment trusts in equities after positive short-end shocks. These gates survive yen-return and rate-differential controls, but the global-rate placebo results imply that the design cannot sharply distinguish a Japan-specific mechanism from common global-rate variation. Life insurers show an exploratory post-2022 decline in foreign-long-debt purchases that is not shared by trust accounts. I interpret the combined evidence as institution-specific asset substitution rather than synchronized repatriation. Because it comes from one official monthly transaction system and the longer-horizon tests have limited power, the design does not identify institutional motives or structural effects. Repatriation is better treated as an investor–asset–horizon classification than inferred from the sign of an aggregate flow.

Keywords: Japan; repatriation; portfolio flows; institutional investors; JGB yield curve; foreign bonds; asset substitution

JEL classification: F21; F31; G11; G15; G23

1. Introduction

A familiar interpretation accompanies rising Japanese government bond yields: higher domestic returns should induce Japanese investors to sell foreign securities and bring capital home. The intuition is plausible. Japan owns a large stock of foreign assets, its institutional investors operated for years under unusually low domestic yields, and the normalization of monetary policy changes both the cost of yen funding and the relative attractiveness of domestic duration. Yet the empirical label ‘repatriation’ is often attached before the underlying portfolio decisions are observed.

The problem is one of aggregation. A monthly decline in Japanese purchases of foreign bonds can be generated by synchronized selling, by one large sector selling while another buys, by a shift from long- to short-term debt, or by a rotation from debt into foreign equities. Those cases have different implications for exchange rates, global bond markets, balance-sheet risk, and the persistence of the adjustment. The aggregate sign alone does not distinguish them.

I open the aggregate flow along three dimensions. First comes the investor: banks’ banking accounts, trust accounts, life insurers, and investment trusts. Second comes the asset: foreign long-term debt in the primary specification, with short-term debt and equities reserved for protocol-designated extensions. Third comes the horizon: the impact month and cumulative windows through one and three months. Taken together, these dimensions make repatriation a classification problem rather than a synonym for net selling.

The empirical design combines official monthly investor-by-asset transactions from Japan’s Ministry of Finance with an audited decomposition of daily JGB yield movements. The short-end measure is the monthly sum of two-year yield changes and is interpreted as a public-data proxy for yen funding-rate repricing. The long-duration measure is the monthly sum of the residual long-end movement after removing the two-year JGB move and observable global rate factors. Neither measure is treated as a structural monetary-policy shock. They are used to ask whether the cross section of investor flows changes differently when the location of Japanese rate repricing changes.

The primary result is deliberately a non-confirmation. For positive long-duration innovations, omnibus tests of equal foreign-long-debt response slopes across the four institutions do not reject at zero, one, or three months after Holm adjustment. The parallel short-end family also does not reject. These findings do not prove homogeneous behavior; they show that the monthly public-data design does not recover a stable cross-investor ordering in the asset class most commonly invoked by repatriation narratives.

The decomposition is more revealing than the primary regressions. In 79.5 percent of months, at least one core investor buys foreign long-term debt while another sells it. The mean internal offset ratio is 0.337, and banks and trust accounts take opposite signs in 47.0 percent of months. A national aggregate therefore routinely discards information about which balance sheet is moving.

Protocol-designated extensions show that the missing heterogeneity is not absent so much as displaced across assets. A positive long-duration innovation opens a contemporaneous short-debt gate, led by a trust-account versus investment-trust contrast. Positive short-end repricing opens a three-month equity-and-fund gate, led by a bank versus investment-trust contrast. Both omnibus gates remain open after controls for the monthly yen return and the change in the US–Japan two-year differential. Yet a nine-test positive global-rate placebo family reaches a minimum adjusted p-value of 0.084. Given the sample size, the design cannot sharply distinguish a Japan-specific mechanism from common global-rate variation.

I make three contributions. First, I show that a residence-based aggregate can conceal recurrent internal offsetting among domestic institutions, extending the gross-flow insight to heterogeneity within the resident sector. Second, I connect different balance sheets to different foreign-asset responses instead of imposing a representative Japanese investor. Third, I keep short-end funding repricing separate from long-duration repricing and ask where each is visible in realized portfolio transactions.

I keep the conclusion narrower than the market narrative. The estimates do not establish that JGB yield increases cause Japanese institutions to sell foreign bonds. They do show that aggregate foreign-bond flows are an incomplete diagnostic for synchronized repatriation, and that institution-specific substitution across foreign assets is more visible in these data than a common retreat from foreign long-term debt. A single monthly reporting system and the detectable-effect calculations reported below limit what can be learned about motives and moderate heterogeneity.

2. Related literature and contribution

The first reference point is the literature on gross international capital flows. Retrenchment and flight are conceptually distinct because residents and non-residents can change cross-border positions simultaneously and for different reasons (Milesi-Ferretti and Tille, 2011; Broner et al., 2013; Forbes and Warnock, 2012). Stocks and transactions must also be kept separate: valuation changes can move external positions without a corresponding flow (Lane and Milesi-Ferretti, 2007). I carry these distinctions inside a single residence category, where reported resident purchases can conceal offsetting transactions across institutional sectors.

A second strand studies portfolio balance, exchange rates, and international currency choice. Portfolio rebalancing can connect asset returns and exchange rates (Hau and Rey, 2006), and gross and net flows can move differently when investors rebalance portfolios in general equilibrium (Tille and van Wincoop, 2010). The currency composition of international portfolios likewise reflects institutional and currency-specific forces rather than a frictionless representative allocation (Maggiori, Neiman, and Schreger, 2020). For Japanese institutions, foreign-bond decisions also depend on whether currency exposure is hedged, because the relevant return is not simply the foreign yield. Recent work documents substantial cross-country and cross-investor variation in hedging practice and emphasizes the growing role of FX hedging demand in global markets (Huang, Krohn, and Sushko, 2025). I therefore use the monthly rate differential only as a coarse sensitivity control, not as a direct observation of an institution's hedge ratio or cross-currency basis.

The home-bias literature provides a complementary benchmark. Coeurdacier and Rey (2013) show that persistent home bias can arise from hedging motives, information frictions, non-tradable income, and institutional constraints. Van Nieuwerburgh and Veldkamp (2009) give information acquisition an endogenous role in sustaining that bias. A change in domestic yields therefore need not send every investor back toward domestic assets. In Japan, heterogeneous liabilities and currency-hedging policies make the cross-investor composition of any apparent reversal especially important.

A third strand links term premia, exchange rates, and the composition of Japanese portfolios. Katagiri and Takahashi (2023) show that long-term interest-rate differentials and term premia can affect exchange-rate dynamics when investors participate in different segments of bond markets. Greenwood, Hanson, Stein, and Sunderam (2023) likewise emphasize specialized bond investors and quantity-driven term-premium transmission across currencies. These mechanisms motivate the separation of the short end from long duration; they do not imply that every long-end JGB move should trigger observed sales of foreign long-term debt.

I also extend two companion working papers. Yang (2026a) formulates joint evidence conditions for classifying JGB yield shocks as carry unwinds or repatriation and finds that broad public-data tests do not support the shortcut from yield increases to global selling. Yang (2026b) locates a narrower carry-unwind pattern in positive short-end shocks during high-volatility states. Here I move the unit of observation from destination-market exposure to the Japanese investor's balance sheet. The object is no longer a foreign exchange return but an institution-by-asset transaction.

The increment is therefore neither a new aggregate flow series nor a new causal shock. It is a reporting architecture: a repatriation claim must name the institution, foreign asset, shock location, and persistence horizon. Once those labels are explicit, disagreement across investors becomes part of the estimand rather than residual noise.

3. Institutional setting

3.1 Why Japanese investors should differ

Banks, trust accounts, life insurers, and investment trusts do not face the same objective function. Banks manage funding liquidity, regulatory capital, loan demand, and the interest-rate risk of securities books. Trust accounts include delegated assets whose mandates and rebalancing rules need not coincide with a bank's own account. Life insurers match long-duration yen liabilities and choose among domestic duration, hedged foreign bonds, and unhedged foreign assets. Investment trusts intermediate household and institutional fund flows and can respond to subscriptions, redemptions, tax-advantaged saving programs, and benchmark demand.

These differences matter because the same JGB move changes several relative prices. A short-end increase can alter yen funding expectations and the forward cost embedded in currency hedges. A long-end increase can improve the yield available on domestic duration, but it can also reflect global rates, fiscal supply, risk premia, or changes in market absorption. The portfolio response should therefore depend on both curve location and balance-sheet type.

The Bank of Japan's financial-system reports describe material differences in the securities exposures and risk management of banks and insurers (Bank of Japan, 2026). The IMF's Japan financial-sector assessment similarly treats banks and insurers separately under foreign- and domestic-rate stress (International Monetary Fund, 2024). These institutional distinctions make a representative-investor model a substantive restriction rather than an innocuous summary.

3.2 What the official transaction data measure

The MOF International Transactions in Securities statistics record cross-border acquisitions and dispositions of debt securities and equity and investment-fund shares (Ministry of Finance Japan, n.d.a, n.d.b). The monthly tables are based on reports from designated major investors and provide investor-type detail. They are transaction statistics, not mark-to-market positions. A negative net acquisition means dispositions exceed acquisitions in the reporting month; it does not identify the motive, destination, currency denomination, hedge status, or use of proceeds.

This distinction is central. Selling foreign long-term debt is necessary for one common version of repatriation, but it is not sufficient. The seller may purchase a different foreign asset, reduce leverage, meet redemptions, or hold cash abroad. Conversely, a decline in net purchases can occur without outright sales. The empirical language below therefore concerns foreign-asset adjustment and internal offsetting unless the joint classification conditions are met.

4. Data and measurement

4.1 Sample and flow construction

The normalized archive contains 15,952 investor–asset–month observations. After the official classification change, the primary sample runs from January 2014 through July 2026, the endpoint of the audited JGB ledger. Its balanced core panel has 604 observations—four groups over 151 months—and no missing net flows. Published net acquisition matches acquisitions minus dispositions to within four units of ¥100 million, consistent with rounding.

I report net acquisitions in trillions of yen and standardize outcomes within investor group. For $h = 0, 1$, and 3 months, outcomes cumulate standardized flows from t through $t+h$.

Table 1. Data architecture and analysis roles

Component	Frequency / unit	Role
MOF total transactions	Monthly / ¥100 million	Identity and aggregation audit
Foreign equities and fund shares	Monthly / ¥100 million	Protocol-designated asset extension
Foreign long-term debt	Monthly / ¥100 million	Locked primary outcome
Foreign short-term debt	Monthly / ¥100 million	Protocol-designated liquidity extension
JGB curve and residual	Daily / basis points	Monthly short-end and duration measures

Notes: Primary sample: January 2014–July 2026. August 2026 appears only in dated flow monitoring; the audited JGB ledger ends in July.

4.2 JGB shock measures

The short-end measure is the monthly sum of daily changes in the two-year JGB yield. It is a transparent proxy for public repricing of the expected path of short rates and yen funding conditions. It is not a high-frequency monetary-policy surprise.

The long-duration measure begins with the daily 30-year JGB yield change and removes contemporaneous two-year JGB movements and global long-rate factors observable by the Japanese close, represented by US, German, and UK benchmark yields in the audited construction. The monthly innovation is the sum of those daily residuals. The procedure is statistical orthogonalization. It does not separately identify supply, term-premium, fiscal, liquidity, or central-bank-purchase shocks.

Positive and negative components enter separately. The primary family concerns positive long-duration innovations because the repatriation narrative predicts that a rise in domestic duration compensation should draw some Japanese balance sheets away from foreign long-term debt. Positive short-end repricing is a parallel mechanism check. Negative shocks are reported separately and cannot substitute for evidence about positive shocks.

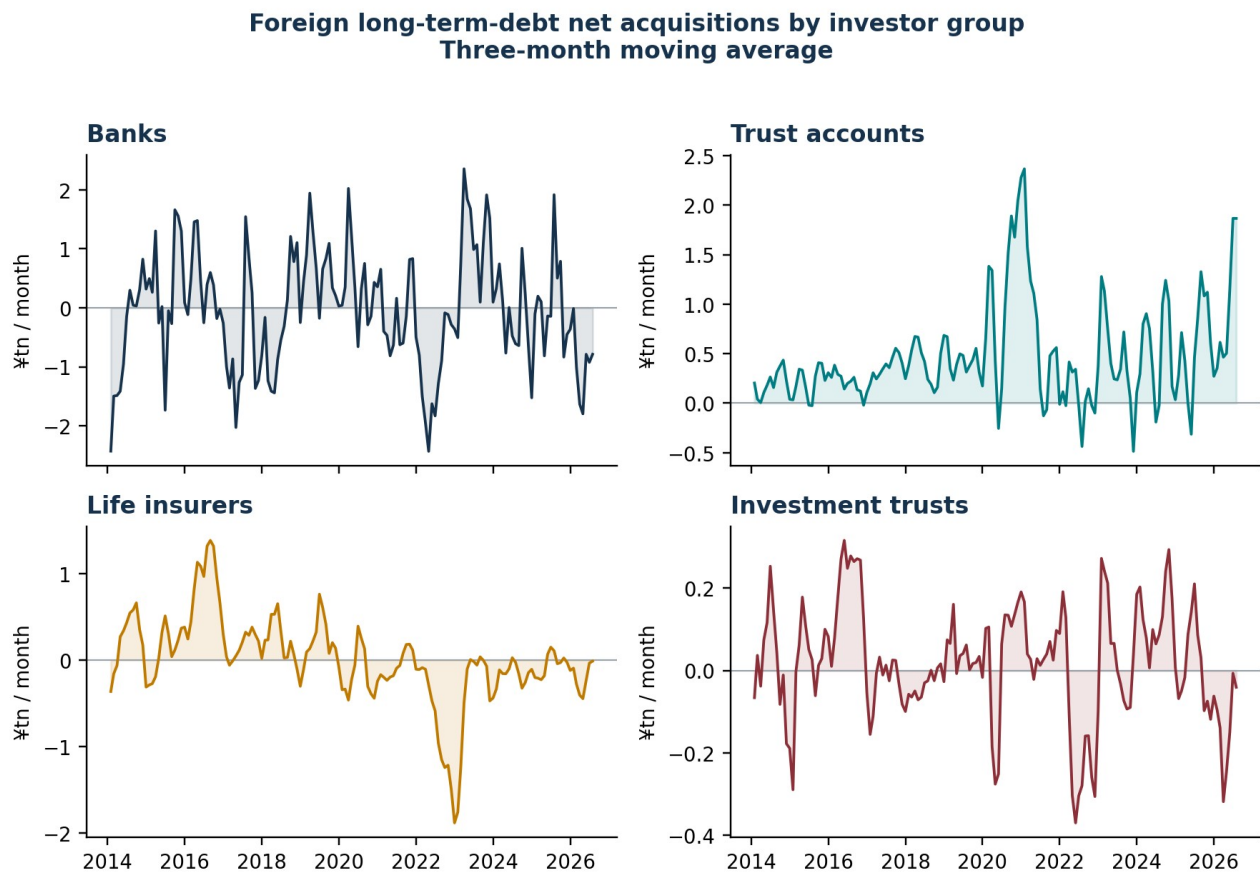


Figure 1. Foreign long-term-debt net acquisitions by investor group

Notes: Three-month moving averages of monthly net acquisitions in trillions of yen. Source: author calculations from MOF monthly International Transactions in Securities.

5. Empirical design

5.1 Investor-specific local projections

For investor i , month t , and cumulative horizon $h \in \{0,1,3\}$, the estimating equation is:

$$Y_{i,t \rightarrow t+h} = \alpha_{i,h} + \lambda_m(t)_{i,h} + \beta_{i,h} S^+_t + \gamma_{i,h} S^-_t + \rho_{i,h} Y_{i,t-1} + \varepsilon_{i,t,h}$$

Y is the cumulative standardized flow, S^+ and S^- are the positive and negative magnitudes of the relevant monthly shock, α_i are investor fixed effects, and $\lambda_m(t)$ are calendar-month seasonal effects. Investor-specific lagged flows allow persistence to differ across balance sheets. The coefficient vector β contains the four positive-shock slopes.

The confirmatory statistic is a three-degree-of-freedom Wald test of equality across the four β coefficients. Inference is based on Newey–West covariance estimation applied to monthly date scores with four lags, allowing contemporaneous dependence across investors within a month. The three horizon-level p-values in the long-duration family are adjusted by Holm’s step-down procedure.

5.2 Reporting gates

Group-specific slopes are descriptive unless the corresponding omnibus test rejects. The foreign-long-debt, positive-long-duration family is locked as primary. Short-end versions are a parallel family. Asset-class expansions were opened only after a protocol-designated omnibus test survived an eighteen-test Holm family. Pairwise investor contrasts are then adjusted across the six pairs within each opened gate.

This hierarchy prevents a single attractive coefficient from overriding a non-rejecting family. It also prevents a result in short debt or equities from being relabelled as confirmation of long-bond repatriation.

Table 2. Locked interpretation rule

Evidence pattern	Permitted interpretation
Omnibus rejects after Holm; slopes are ordered and persistent	Supported cross-investor heterogeneity
Coherent slopes; omnibus does not reject	Suggestive conditional pattern, not confirmed
Mixed signs or horizon instability	No stable shock-conditioned gradient
Aggregate selling with offsetting institutions	Institutional reallocation concealed by aggregation
Post-2022 mean difference	Exploratory regime contrast, not a shock response

5.3 Analysis sequence and evidentiary status

I did not publicly preregister the analysis on OSF, the AEA RCT Registry, or another third-party repository. In this paper, locked refers only to an internal, versioned sequence: I specified and retained the v0.1 foreign-long-debt primary family before estimating the asset-class extensions and gated pairwise contrasts. The accompanying protocol, scripts, audit workbook, and file hashes document what I implemented, but they are not independently time-stamped preregistration.

I therefore distinguish three evidentiary levels. The primary tests are protected against replacement by later specifications but are not described as preregistered. Protocol-designated extensions were named within the internal sequence and remain secondary. I estimated pairwise contrasts only after an omnibus gate opened, so they remain conditional on that gate. The multiplicity calculations are reproducible; project versioning, rather than third-party registration, supports the chronology.

5.4 Design-based detectable effects

Failure to reject slope equality can reflect either limited heterogeneity or limited precision. To quantify that distinction, I hold each realized design matrix and date-score HAC covariance fixed and calculate the slope spread required for 80 percent power in a three-degree-of-freedom noncentral chi-square test. Two transparent alternatives are considered: evenly ordered slopes spanning a common range, and an investment-trust-only deviation from the other three groups. The second shape directly addresses the comparatively large investment-trust uncertainty visible in Table A2.

At the conservative 1.67 percent family-entry size, the required response spread for a 10-basis-point positive long-duration innovation is 0.63, 0.81, and 1.10 within-investor flow standard deviations at horizons zero, one, and three months under the ordered alternative. For an investment-trust-only deviation, the corresponding values are 0.48, 0.65, and 1.01 standard deviations. These are economically substantial differences. The locked tests therefore have

useful ability to detect large, sharply ordered repatriation gradients but limited power against moderate or diffuse heterogeneity, especially at three months.

Table 3. Design-based minimum detectable response spreads

Horizon	Alternative	MDE per bp	MDE for 10bp
0	Evenly ordered slopes	0.063	0.63
0	Investment-trust-only deviation	0.048	0.48
1	Evenly ordered slopes	0.081	0.81
1	Investment-trust-only deviation	0.065	0.65
3	Evenly ordered slopes	0.110	1.10
3	Investment-trust-only deviation	0.101	1.01

Notes: Approximate 80% power calculations hold the realized design and HAC covariance fixed. Test size is $0.05/3 = 0.0167$, a conservative family-entry threshold. Values are spreads in standardized within-investor flows, not ex ante population power guarantees.

6. Results

6.1 Aggregate flows are not a sufficient statistic

The data are most decisive before any shock conditioning. Across the 151 primary-sample months, 79.5 percent contain at least one buyer and one seller among the four core groups. The mean internal offset ratio—one minus the absolute aggregate net flow divided by the sum of absolute group flows—is 0.337, with a median of 0.253. In 28.5 percent of months, more than half of gross directional activity cancels within the aggregate. Banks and trust accounts alone have opposite signs in 47.0 percent of months.

The same pattern predates the 2014 classification boundary. In the flow-only 2005–2013 legacy block, 75.9 percent of months have mixed signs, the mean offset ratio is 0.323, and banks and trust accounts differ in sign in 45.4 percent of months. I do not use that block as a comparable shock-response sample because the audited long-duration shock begins later. Its role is limited to a classification-boundary diagnostic.

The implication is mechanical but consequential. A negative aggregate can coexist with purchases by a large institutional sector. It can also be produced by selling in one foreign asset and buying in another. Any interpretation that moves directly from the national aggregate to a common portfolio motive imposes synchronization that the underlying transactions frequently violate.

Aggregation conceals recurrent disagreement across institutions

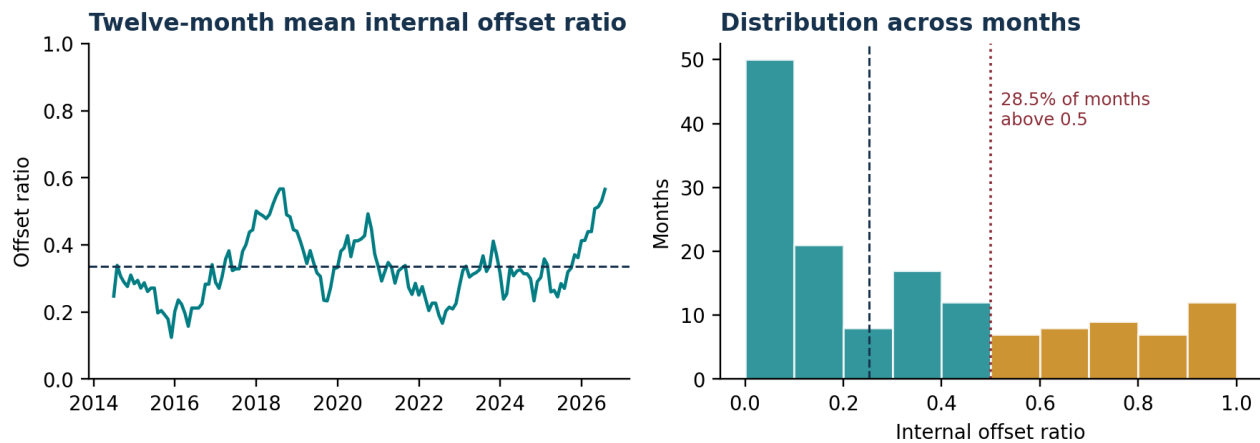


Figure 2. Internal offsetting among core investor groups

Notes: The dashed lines mark the full-sample mean in the time-series panel and the median in the histogram. The dotted threshold and amber bars identify the 28.5% of months with offset ratios above 0.5. An offset ratio of one indicates complete cancellation; zero indicates all groups move in the same direction.

Table 4. Aggregation diagnostics

Diagnostic	Estimate	Interpretation
Months with both buyers and sellers	79.5%	Opposing directions are the norm
Mean internal offset ratio	0.337	About one-third of gross activity cancels
Median internal offset ratio	0.253	Not driven only by extremes
Months with offset ratio above 0.5	28.5%	Large cancellation is recurrent
Bank/trust opposite-sign months	47.0%	Own-account and fiduciary directions diverge

6.2 Locked foreign-long-debt tests

Table 5 reports the confirmatory family. For positive long-duration innovations, the raw omnibus p-values are 0.328, 0.313, and 0.589 at zero, one, and three months. Holm-adjusted values are 0.940 at every horizon. The positive short-end family produces raw p-values of 0.252, 0.915, and 0.961, with adjusted values of 0.757, 1.000, and 1.000. The equality of investor slopes is not rejected in either family.

Figure 3 explains why this result should not be summarized as identical behavior. Some point estimates differ in sign, and uncertainty is wide. The lack of a stable ordering across horizons is the relevant result. One investment-trust coefficient in the long-duration three-month specification has a raw p-value of 0.026 in the twelve group-by-horizon slope collection, but its Holm value is 0.310. It is not promoted over the omnibus family. The detectable-effect calculations in Section 5.4 further show that moderate heterogeneity—especially a diffuse or longer-horizon pattern—can remain unresolved in this sample.

Removing the largest or five largest shocks weakens rather than strengthens the long-duration omnibus results. Leave-one-month-out runs occasionally produce an unadjusted p-value below 0.05, but fewer than 1.4 percent of omissions do so and the median p-values remain close to the full sample. The primary non-confirmation is not hiding a robust result that appears after a single influential observation is removed.

Table 5. Omnibus equality tests for foreign long-term debt

Shock	Horizon	Wald $\chi^2(3)$	Raw p	Holm p
Long duration	0	3.443	0.328	0.940
Long duration	1	3.557	0.313	0.940
Long duration	3	1.922	0.589	0.940
Short end	0	4.085	0.252	0.757
Short end	1	0.517	0.915	1.000
Short end	3	0.294	0.961	1.000

Notes: The long-duration family is primary; the short-end family is a parallel mechanism check. None rejects equality of the four investor slopes.

Locked long-term-debt slopes are imprecise and do not form a stable ordering

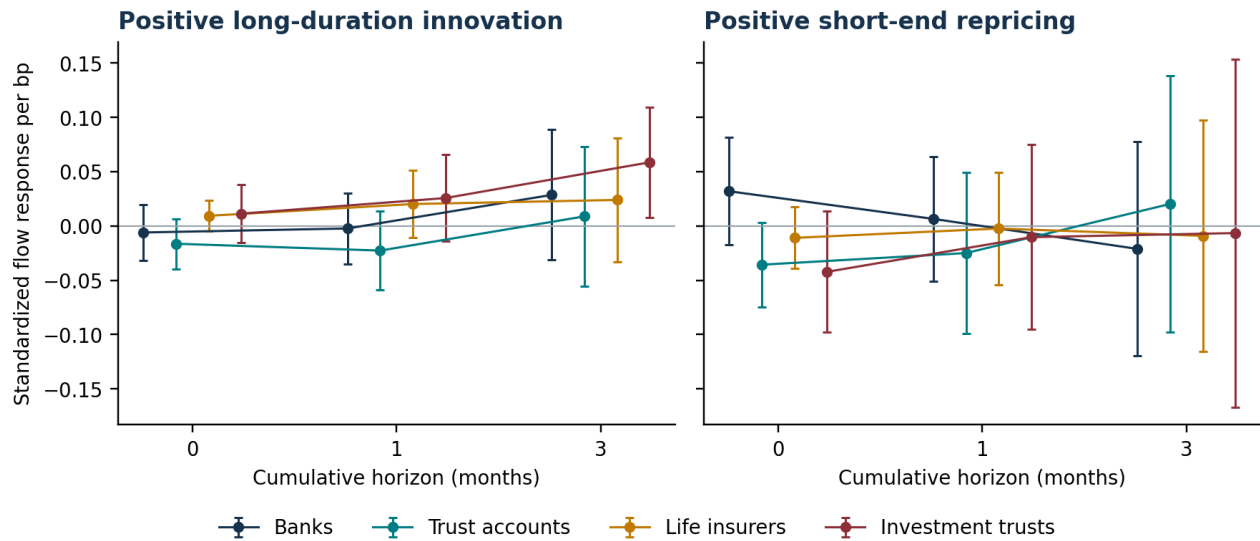


Figure 3. Investor-specific positive-shock slopes in the locked long-debt design

Notes: Points are coefficient estimates; bars are 95 percent intervals based on date-score Newey–West covariance with four monthly lags.

6.3 Gated heterogeneity appears in other assets

The protocol-designated asset expansion changes the empirical picture, but not the primary classification. Across eighteen positive-shock asset–horizon cells, two omnibus tests survive Holm adjustment. First, contemporaneous foreign short-debt responses differ across investors after a positive long-duration innovation (raw $p = 0.0007$; Holm $p = 0.013$). Second, cumulative three-month equity-and-fund responses differ after positive short-end repricing (raw $p = 0.0019$; Holm $p = 0.033$). No foreign-long-debt cell opens.

Within the short-debt gate, the clearest adjusted pair is trust accounts minus investment trusts: -0.0517 standardized flow units per basis point, with a six-pair Holm p -value of 0.043. The life-insurer minus investment-trust contrast is similar in direction but remains just above the adjusted threshold (Holm $p = 0.059$). Within the equity gate, banks differ from investment trusts by -0.3087 , with Holm $p = 0.001$. Trust-account and life-insurer contrasts with investment trusts are near but above the adjusted threshold.

The identity of the relevant institution changes with both asset and curve location. Long-duration repricing separates trust-like and pooled-fund behavior in short debt; short-end repricing separates bank and pooled-fund behavior in equities. This is the signature of asset substitution across balance sheets, not common foreign-bond liquidation.

Gated heterogeneity changes investor and asset with curve location

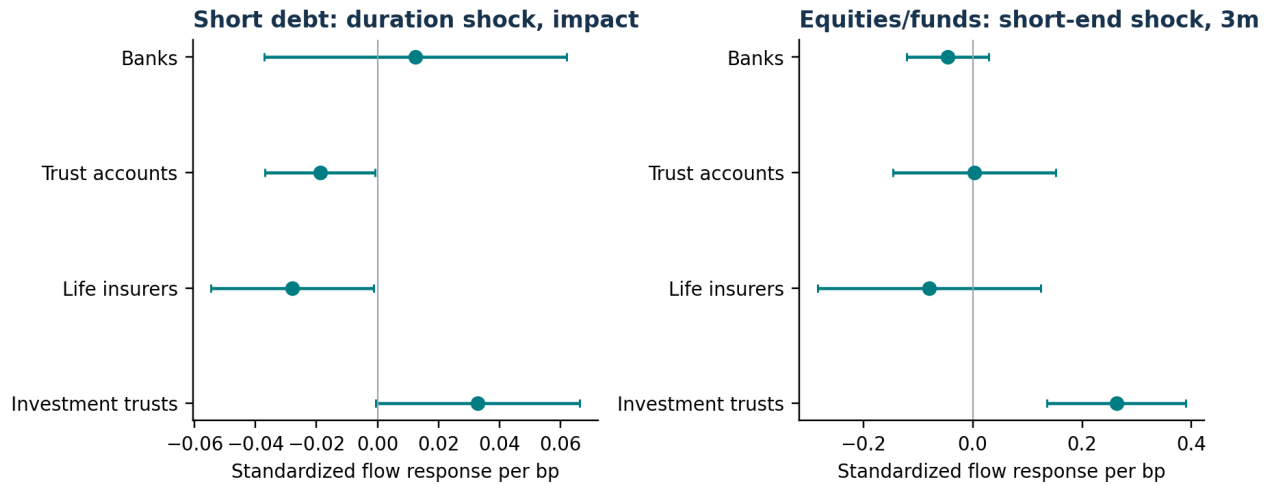


Figure 4. Group slopes in the two opened asset-class gates

Notes: These are secondary results opened by protocol-designated omnibus tests. They do not alter the status of the locked foreign-long-debt family.

Table 6. Gated pairwise contrasts

Gate	Contrast	Difference	Raw p	Holm p(6)
Short debt / duration / 0m	Trust accounts – Investment trusts	-0.0517	0.0071	0.0428
Short debt / duration / 0m	Life insurers – Investment trusts	-0.0608	0.0118	0.0588
Equities / short end / 3m	Banks – Investment trusts	-0.3087	0.0002	0.0012
Equities / short end / 3m	Trust accounts – Investment trusts	-0.2599	0.0105	0.0526
Equities / short end / 3m	Life insurers – Investment trusts	-0.3428	0.0173	0.0692

6.4 Control and placebo discipline

Adding investor-specific interactions with the monthly USD/JPY return and the monthly change in the US–Japan two-year yield differential leaves both asset-class gates open. The short-debt duration-shock omnibus p-value moves from 0.0007 to 0.0004; the equity short-end p-value moves from 0.0019 to 0.0163. The controlled long-debt families remain non-rejecting, with horizon-family adjusted p-values no lower than 0.535 for long duration and 0.235 for the short end.

These controls address two obvious alternatives but do not solve identification. USD/JPY returns can jointly respond to the same news as JGB yields and portfolio flows. The two-year differential is a coarse proxy for hedge economics, not a quoted cross-currency basis or an institution-specific hedge cost. The controlled estimates remain conditional associations.

I estimate a positive global-rate placebo across three assets and three horizons. Raw omnibus p-values include 0.009 for equities on impact and 0.031–0.042 for long debt. None survives the nine-test Holm family, but the minimum adjusted value is 0.084. In a sample of this size, I cannot sharply distinguish a Japan-specific mechanism from common global-rate variation. The opened gates remain reproducible sample associations; the placebo offers no support for their Japanese specificity.

Table 7. Control sensitivities and global-rate placebo

Test	Baseline p	Controlled / placebo p	Adjusted reading
Short debt / duration / 0m	0.0007	0.0004	Gate remains open
Equities / short end / 3m	0.0019	0.0163	Gate remains open
Long debt / duration / h=0,1,3	Holm ≥ 0.940	Holm ≥ 0.535	Still non-rejecting
Long debt / short end / h=0,1,3	Holm ≥ 0.757	Holm ≥ 0.235	Still non-rejecting
Positive global-rate family	—	Minimum raw 0.0094	Unresolved; Holm(9) min. 0.084

6.5 Sign asymmetry and the post-2022 contrast

Negative shocks are a parallel diagnostic. The only adjusted sign-family result is the one-month response to a negative short-end shock (raw $p = 0.009$; Holm $p = 0.026$). Banks, life insurers, and investment trusts have positive point estimates for foreign-long-debt purchases, while trust accounts are slightly negative. This suggests that some institutions add foreign debt when yen funding reprices downward. It does not provide the positive-shock selling evidence required for a repatriation claim.

The unconditional post-2022 comparison is institutionally sharper. Life insurers move from mean monthly foreign-long-debt purchases of approximately ¥0.199 trillion before 2022 to net sales of ¥0.327 trillion afterward. The estimated shift is -¥0.154 trillion per month with a four-group Holm p -value of 0.033. Banks and investment trusts also have negative point estimates, but neither is confirmed; trust accounts shift slightly upward.

The life-insurer result is economically consistent with several possible changes in liability-driven allocation, domestic duration availability, or hedge economics, but it does not distinguish among them. It is not a structural-break estimate, the 2022 cutoff is not estimated, and the comparison is not conditioned on a single JGB shock. It therefore should not be summarized as confirmation that Japanese life insurers are repatriating. Most importantly, the offset from trust accounts prevents the result from being generalized into a synchronized national retreat.

Table 8. Exploratory post-2022 mean shifts in foreign long-term debt

Investor	Pre-2022 mean	Post-2022 mean	Estimated shift	Holm $p(4)$
Banks	+0.037	-0.155	-0.221	0.864
Trust accounts	+0.456	+0.501	+0.046	0.864
Life insurers	+0.199	-0.327	-0.154	0.033
Investment trusts	+0.037	-0.016	-0.038	0.779

Notes: Trillions of yen per month. This block was not part of the locked shock-response family. The cutoff is descriptive and was not estimated as a structural break.

6.6 Dated out-of-sample monitoring

I exclude August 2026 from every shock-response estimate because the audited daily JGB ledger ends in July. Its flow record nevertheless illustrates the classification problem. Core investors purchase ¥1.414 trillion of foreign equities and funds and ¥0.850 trillion of long-term debt, while selling ¥1.021 trillion of short-term debt. Every asset aggregate contains mixed investor signs. Across the three asset classes, the net purchase is ¥1.243 trillion and the internal offset ratio is 0.831.

Calling that month repatriation because one debt category is negative would ignore simultaneous purchases elsewhere. Without an aligned JGB shock, it would also violate the timing rule used here. I describe it instead as asset rotation with unusually large internal offsetting.

Table 9. August 2026 flow-only monitoring

Asset	Core net flow (¥tn)	Mixed signs	Offset ratio	Classification
Equities and funds	+1.414	Yes	0.426	Net buying with disagreement
Long-term debt	+0.850	Yes	0.777	Heavy offsetting
Short-term debt	-1.021	Yes	0.134	Selling confined to short debt
Total securities	+1.243	Yes	0.831	Aggregate masks rotation

7. Discussion

7.1 What counts as repatriation?

I therefore use a stricter vocabulary. At minimum, a repatriation claim should identify: (i) a resident investor or clearly defined sector; (ii) a foreign asset that is actually sold rather than merely purchased more slowly; (iii) a domestic relative-return or balance-sheet channel consistent with that investor; and (iv) persistence beyond one

reporting observation. A stronger claim should additionally show where the proceeds go. The MOF transaction tables observe the foreign leg, not the domestic destination of funds.

Under this standard, a decline in aggregate foreign-bond purchases is a screening signal, not a classification. It becomes persuasive only when disaggregated flows align rather than cancel, the affected asset matches the proposed channel, and the response survives the relevant horizon and multiplicity discipline.

The primary non-confirmation is informative on this narrower scale. If a broad synchronized long-bond return were the dominant response to positive Japanese duration shocks, the four institutional slopes should form a more stable ordering than observed. Instead, clearer separation appears in short debt and equities, with different institutions leading each gate.

7.2 Why the null and positive results fit together

There is no contradiction between a non-rejecting long-debt family and confirmed asset-class gates. A long-duration JGB move can change the relative value of liquidity, duration, and currency exposure without producing common foreign-long-bond sales. Trust accounts may adjust short debt while investment trusts express the same environment through equity allocations. Banks may absorb a short-end repricing through funding and securities-book decisions that differ from the subscription-driven behavior of investment trusts.

This interpretation is consistent with specialized-intermediary models in which market segmentation determines how term-premium or funding shocks propagate. It is also consistent with international-flow research that emphasizes gross positions and heterogeneous balance sheets. What the data reject is not portfolio adjustment; it is the convenience of summarizing all adjustment as one representative flow.

7.3 Limits

Four limits are important. First, monthly frequency is coarse relative to daily rate movements. The design can study persistent transaction patterns, not immediate execution around announcements. Second, the long-duration innovation is not structural. Fiscal news, supply expectations, liquidity, and risk premia may remain in the residual. Third, investor categories are still aggregates. Trust accounts combine mandates, and investment trusts combine products with different end investors. Fourth, the data do not identify destination country, currency denomination, hedge ratio, or the domestic use of sale proceeds at the same investor–asset–month level.

These limits push in the direction of restraint. They do not invalidate the aggregation result, which follows directly from reported group flows. They do mean that causal or motive-based statements require richer microdata, quoted hedging costs, or holdings matched to transactions.

8. Conclusion

Japan's monetary normalization has renewed interest in whether domestic investors will liquidate foreign assets and bring capital home. My results show why the aggregate sign cannot answer that question by itself. Banks, trust accounts, life insurers, and investment trusts frequently trade foreign long-term debt in opposite directions within the same month. The primary shock-conditioned tests do not recover stable cross-investor differences in long-term-debt responses to positive long-duration or short-end JGB repricing.

The more informative differences occur across assets. Trust accounts and investment trusts separate in short debt after long-duration innovations; banks and investment trusts separate in equities after short-end repricing. Life insurers display an exploratory post-2022 decline in foreign-long-debt purchases, but trust accounts do not share it. Because the cutoff is descriptive, motives are unobserved, and proceeds cannot be traced into domestic assets, this result is not confirmation that life insurers are repatriating. August 2026 likewise combines short-debt sales with long-debt and equity purchases.

I do not conclude that repatriation cannot occur. I conclude that it has an empirical anatomy: the investor, asset, shock location, and horizon must line up. When they do not, institutional reallocation or asset rotation is the more accurate description. For research and market commentary alike, the burden of proof should move from a compelling national story to observable joint conditions.

Declarations

Conflict of interest. The author declares no competing interests.

Funding. This research received no external funding.

Data availability. The analysis uses publicly available Ministry of Finance and government-bond yield data. A structured empirical audit workbook accompanies the working-paper materials.

Ethics approval. Not applicable.

Declaration of generative AI and AI-assisted technologies. During preparation of this work, the author used OpenAI tools to assist with language editing, document organization, and code review. The author reviewed and edited the resulting material and takes full responsibility for the content.

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Appendix A. Complete regression audit

This appendix reports the complete locked omnibus family and the protocol-designated extensions used in the manuscript. It is an audit appendix, not a second search over specifications. Locked denotes the internal analysis sequence described in Section 5.3, not public preregistration.

Table A1. Primary and parallel omnibus tests

Shock	h	N	Months	Wald χ^2	Raw p	Holm p
Long duration	0	588	147	3.4426	0.3283	0.9404
Long duration	1	584	146	3.5568	0.3135	0.9404
Long duration	3	576	144	1.9220	0.5887	0.9404
Short end	0	588	147	4.0846	0.2525	0.7574
Short end	1	584	146	0.5174	0.9151	1.0000
Short end	3	576	144	0.2939	0.9612	1.0000

Table A2. Investor-specific positive-shock slopes for foreign long-term debt

Shock	h	Investor	Slope	HAC SE	Raw p	Holm p(12)
Duration	0	Banks	-0.0060	0.0130	0.6464	1.0000
Duration	0	Trust accounts	-0.0164	0.0118	0.1664	1.0000
Duration	0	Life insurers	+0.0094	0.0073	0.2011	1.0000
Duration	0	Investment trusts	+0.0114	0.0137	0.4070	1.0000
Duration	1	Banks	-0.0023	0.0167	0.8910	1.0000
Duration	1	Trust accounts	-0.0227	0.0185	0.2232	1.0000
Duration	1	Life insurers	+0.0202	0.0158	0.2018	1.0000
Duration	1	Investment trusts	+0.0257	0.0204	0.2083	1.0000
Duration	3	Banks	+0.0286	0.0306	0.3518	1.0000
Duration	3	Trust accounts	+0.0088	0.0330	0.7890	1.0000
Duration	3	Life insurers	+0.0240	0.0290	0.4098	1.0000
Duration	3	Investment trusts	+0.0587	0.0260	0.0258	0.3098
Short	0	Banks	+0.0320	0.0253	0.2081	1.0000
Short	0	Trust accounts	-0.0357	0.0197	0.0729	0.8751
Short	0	Life insurers	-0.0110	0.0144	0.4494	1.0000
Short	0	Investment trusts	-0.0422	0.0284	0.1397	1.0000
Short	1	Banks	+0.0065	0.0293	0.8237	1.0000
Short	1	Trust accounts	-0.0250	0.0380	0.5118	1.0000
Short	1	Life insurers	-0.0023	0.0265	0.9299	1.0000
Short	1	Investment trusts	-0.0103	0.0434	0.8129	1.0000
Short	3	Banks	-0.0211	0.0504	0.6758	1.0000
Short	3	Trust accounts	+0.0203	0.0602	0.7368	1.0000
Short	3	Life insurers	-0.0091	0.0543	0.8672	1.0000
Short	3	Investment trusts	-0.0065	0.0818	0.9365	1.0000

Appendix B. Secondary and diagnostic tests

Table B1. Positive-shock omnibus tests across assets

Asset	Shock	h	Raw p	Holm p(18)
long debt	Duration	0	0.3283	1.0000
long debt	Duration	1	0.3135	1.0000
long debt	Duration	3	0.5887	1.0000
long debt	Short	0	0.2525	1.0000
long debt	Short	1	0.9151	1.0000
long debt	Short	3	0.9612	1.0000
equity funds	Duration	0	0.2105	1.0000
equity funds	Duration	1	0.7080	1.0000
equity funds	Duration	3	0.1801	1.0000
equity funds	Short	0	0.2178	1.0000
equity funds	Short	1	0.0251	0.3515
equity funds	Short	3	0.0019	0.0326
short debt	Duration	0	0.0007	0.0130
short debt	Duration	1	0.0663	0.7290
short debt	Duration	3	0.0314	0.4077
short debt	Short	0	0.0196	0.3137
short debt	Short	1	0.0224	0.3360
short debt	Short	3	0.0536	0.6428

Table B2. Negative-shock omnibus tests for foreign long-term debt

Shock	h	Wald χ^2	Raw p	Holm p(3)
Duration	0	1.415	0.7021	0.7021
Duration	1	3.337	0.3425	0.6850
Duration	3	7.836	0.0495	0.1486
Short	0	4.399	0.2215	0.2215
Short	1	11.693	0.0085	0.0255
Short	3	6.713	0.0816	0.1632

Table B3. Global-rate placebo family

Asset	h	Wald χ^2	Raw p	Holm p(9)
long debt	0	8.295	0.0403	0.2820
long debt	1	8.215	0.0418	0.2820
long debt	3	8.854	0.0313	0.2504
short debt	0	1.246	0.7419	0.7419
short debt	1	5.629	0.1311	0.5245
short debt	3	6.947	0.0736	0.3680
equity funds	0	11.486	0.0094	0.0843
equity funds	1	4.810	0.1862	0.5587
equity funds	3	4.315	0.2294	0.5587

Appendix C. Reproducibility and classification boundaries

All estimates are reproduced in the accompanying empirical audit workbook. The workbook retains normalized MOF rows, monthly shock construction, the core panel, primary tests, aggregation diagnostics, asset-class gates, controls, placebos, influence checks, dated monitoring, and SHA-256 file hashes.

The analysis does not pool the 2005–2013 legacy classifications with the modern sample. It does not use August 2026 in any shock-conditioned estimate. It does not replace the rate-differential control with a claimed cross-currency-basis measure. It does not interpret failure to reject as equivalence.

A future revision can add a continuously quoted hedge-cost series if a reproducible source becomes available and can extend the dated monitoring after the JGB shock ledger is audited. Neither addition should alter the locked primary family.

C.1 Implementation of the detectable-effect calculation

The calculation in Section 5.4 is analytic rather than simulation based. At each horizon, the primary regression is re-estimated exactly as in Section 5.1. Let V be the date-score Newey–West covariance matrix of the four positive-

shock slopes, including the four-lag kernel and the finite-cluster correction, and let R compare the slopes of trust accounts, life insurers, and investment trusts with the bank slope. For a specified alternative slope vector $b(d)$, indexed by total spread d , the Wald statistic has a noncentral chi-square distribution with three degrees of freedom and noncentrality parameter $\lambda(d) = [R \ b(d)]' [R \ V \ R']^{-1} [R \ b(d)]$.

The critical value is the $1 - \alpha$ quantile of the central chi-square distribution with three degrees of freedom. Power is therefore $\Pr\{\chi^2_3[\lambda(d)] > \chi^2_{3,1-\alpha}\}$. The reported MDE is the positive value of d that sets this probability to 0.80, solved numerically by a bracketed scalar root search. The conservative family-entry calculation uses $\alpha = 0.05/3 = 0.0167$; this Bonferroni threshold does not claim to reproduce the path-dependent Holm rejection boundary.

The evenly ordered alternative assigns relative slopes $(-1/2, -1/6, 1/6, 1/2)d$ to banks, trust accounts, life insurers, and investment trusts. The investment-trust-only alternative assigns $(0, 0, 0, 1)d$. Because outcomes are standardized within investor group, d is expressed in within-investor flow standard deviations per basis point. Multiplying by ten gives the response spread for a 10-basis-point innovation reported in Table 3. The companion script `run_primary_power_analysis.py` writes the horizon-by-alternative calculations to `primary_power_mde.csv`. These are conditional design diagnostics, not retrospective power estimates for the observed coefficients or population power guarantees.