SARTHAK GUPTA

Proposal and Comment Information

Title: Request for Comment on Model Changes for the Board's 2027 Supervisory Stress Test, OP-1882

Comment ID: FR-2026-0037-01-C11

Submitter Information

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Comment on Docket No. OP-1882, Questions 49 and 50 of the PPNR model documentation (distribution-based haircut for noninterest income on sales and trading). The attached letter asks the Board to document, in the final model documentation: (1) the sampling uncertainty and effective sample size behind the 0.72 factor; (2) how firm-quarters with non-positive revenue or a non-positive trailing ratio enter Equation A126; (3) which reading of the 7 percent probability applies to a quarterly distribution held flat; and (4) the trading-asset citation to FR Y-14Q Schedule G.2. The full letter and a technical appendix are attached as PDFs.

November 12, 2026

Benjamin W. McDonough, Secretary
Board of Governors of the Federal Reserve System
20th Street and Constitution Avenue NW
Washington, DC 20551

Re: Docket No. OP-1882, Request for Comment on Model Changes for the Board's 2027 Supervisory Stress Test. Questions 49 and 50 of the PPNR model documentation: noninterest income on sales and trading

Dear Mr. McDonough:

I am an industry practitioner in quantitative risk; my public research covers the backtesting of VaR and expected shortfall models. My comment concerns the distribution-based haircut for sales and trading in the Supervisory Stress Test Model Documentation, Pre-Provision Net Revenue (PPNR) Models, Proposed Noninterest Income Model, Fall 2026 (the "documentation"): pp. 219 to 234, Equations A126 to A130, Table B3, and Questions 49 and 50 on p. 234. I think the Board chose the right kind of model; a uniform haircut is simple and hard to game. I am asking for documentation, not a different haircut.

Equations A129 and A130 reduce to a short rule: projected quarterly revenue is 0.72 times the firm's trailing four-quarter average trading revenue, in every projection quarter. On the Board's published aggregate path, each 0.01 of factor is worth about $2.9 billion of nine-quarter revenue. Y-14Q data are confidential, so I rebuilt the statistic on public proxies. On FDIC Call Report data for commercial banks, over the Board's 2016 to 2024 window, the factor is 0.546. The FR Y-9C files I used end in 2021:Q1, so the holding-company figures cover 2016:Q1 to 2021:Q1, 21 of the Board's 36 quarters: 0.545 on trading revenue and 0.665 when securities brokerage fees are added, since Y-14Q line item 18, unlike Y-9C trading revenue, includes commissions and fees. I use the proxies to show how the estimator behaves, not to argue for a level.

Sampling uncertainty. A bootstrap that resamples calendar quarters gives a 90 percent interval of 0.49 to 0.64 on FDIC data for 2016 to 2024, which excludes 0.72; on fee-inclusive Y-9C data for 2016 to 2021:Q1 it gives 0.61 to 0.72, with 0.72 at its upper edge. The tail rests on little data. On the FDIC panel, trading-asset weights cut the Kish effective sample to 128.5 of 581 firm-quarters. The 60 observations under the 7th percentile, plus the one that sets it, have an effective size of 12.0, and three calendar quarters carry 55 percent of their weight. Tables B1 and B2 give a standard error for every coefficient; Table B3 gives the factor alone.

Loss quarters. The sales and trading section does not say how a firm-quarter with non-positive trading revenue, or a non-positive trailing ratio, enters Equation A126, where the logarithm is then undefined. The outlier screening in Section IV (p. 235) is general and does not address this case. In recent data the share is small on two of my three proxies: true loss quarters, with current revenue at or below zero, hold 2.1 percent of trading-asset weight on FDIC data for 2016 to 2024 and 1.9 percent on fee-inclusive Y-9C data for 2016 to 2021:Q1. On Y-9C data without fees the share is 5.7 percent, and counting those quarters as the worst outcomes lowers the factor from 0.545 to 0.38. I am not suggesting the sample reach back into periods of substantial proprietary trading (p. 221). The issue is forward, since the Board will consider re-estimation on an extended sample each year (p. 221). In every proxy sample that includes 2008 and 2009, true loss quarters hold 7.5 to 15.7 percent of the weight, and quarters with positive revenue but a non-positive trailing ratio another 2.4 to 5.9 percent. Dropping both makes the tail milder. Counting only the true loss quarters as the worst outcomes puts the 7th percentile among them, a factor of zero. That is a bound, not a proposed rule, and in two samples the share is barely above 7 percent. A rule is needed before the next stress period enters the sample, and it should allow for trading losses projected elsewhere in the stress test.

The 7 percent probability. The documentation takes its justification from the operational risk methodology: the 7th percentile is the probability of a severe shock "unconditionally starting in any given year" (p. 224). It then holds that percentile of single-quarter growth flat for up to 13 quarters (Equation A129). In its Review of Comments and Summary of Changes to the Proposed Stress Test Models (Fall 2026), the Board kept the 93rd percentile for the Operational Risk Model because it reflects the probability of a severe recession starting in a

given year, with "no assumption of any particular duration" (p. 208). It said a commenter's 85th percentile "appears to be equivalent to using the probability of any one quarter being in a severe recession," which "could be a reasonable approach to estimating the percentile of a quarterly loss distribution" but does not fit that model's single nine-quarter distribution (p. 209). The sales and trading distribution is quarterly. The Review adds that the assumptions needed for any approach that splits the nine quarters into separate distributions "would result in a higher percentile than recommended by the commenter," that is, above the 85th percentile of losses, or below the 15th of revenue growth. It does not say whether that falls above or below the 7th, and I have not estimated it. The Board should say which reading governs here.

The p. 227 benchmark supports the flat path with "a substantial share" of tail firm-quarters whose nine-quarter average ratio is below the projected ratio. The documentation does not say which nine quarters. Taking t to t+8 on my FDIC proxy for 2016 to 2024, with the tail set at the proxy's own 7th percentile (53 tail firm-quarters with all nine inside the window), the share below a flat path at 0.72 is 43 percent counted equally and 23 percent weighted by trading assets. The weighted share is about half the other, which is why I ask for both.

In the final documentation, I ask the Board to:

1. Report beside Table B3 the Kish effective sample size, overall and below the 7th percentile, and the factor at the 5th and 10th percentiles. If practical, add an interval from a bootstrap that resamples calendar quarters and re-estimates Equation A127 in each draw.
2. State how firm-quarters with non-positive revenue, and those with positive revenue but a non-positive trailing ratio, enter Equation A126; give the weight share of each; report the factor under the treatment used and the alternative; and say which rule will apply when the sample is extended.
3. State which reading of the 7 percent probability applies to a quarterly distribution held flat for up to 13 quarters. Report the p. 227 benchmark as numbers, counted equally and by trading assets; state which nine quarters are averaged; and report the unconditional rate at which realized nine- and 13-quarter averages fell below the flat path.
4. Confirm or correct the trading-asset citation. Pages 221 and 223 and footnote 81 cite FR Y-14Q Schedule G.2 line item 30, which the reporting instructions define as the earned average rate on trading assets. Line item 13, cited in footnote 84, is the average balance. Please also state whether the weight is that balance at t, how the weighted percentile is defined, whether Equation A127 is weighted, and whether the flatline exception in Appendix A2 (pp. 240 to 241) covers Equation A129. Without it, a factor below one applied to a negative trailing ratio would raise projected revenue under stress.

Staff could produce each figure from the Y-14Q panel without changing the model. The attached appendix gives my method, sources, results and limitations.

Thank you for the opportunity to comment.

Sincerely,

Sarthak Gupta
Seattle, WA

TECHNICAL APPENDIX
Docket No. OP-1882, Questions 49 and 50: distribution-based haircut for noninterest income on sales and trading
Sarthak Gupta

A1. What the proposal specifies

Source: Supervisory Stress Test Model Documentation, Pre-Provision Net Revenue (PPNR) Models, Proposed Noninterest Income Model, Fall 2026 (cited below as "Prop."), pp. 219 to 234, Appendix A2 (pp. 240 to 241) and Appendix B (pp. 242 to 245). Questions 49 and 50 are on Prop. p. 234. The Federal Register notice for Docket No. OP-1882 (91 FR 62729, October 2, 2026) carries its own Questions 1 to 3 on reporting forms; the model questions are in the documentation.

- Ratio = trading revenue (FR Y-14Q Schedule G.1, line item 18) / trading assets. The proposal cites Schedule G.2, line item 30 for trading assets on pp. 221 and 223 and in footnote 81 (p. 228), and line item 13 in footnote 84 (p. 234); see A7. The sample is quarterly, 2016:Q1 through 2024:Q4. "The Board will evaluate and consider the addition of new data every year and determine the appropriateness of re-estimation on an extended sample" (Prop. p. 221).
- Perimeter. "Sales and trading income includes net trading gains and losses, dealer revenues, and associated fees across all trading asset classes" (Prop. p. 219). In the FR Y-14Q instructions, line item 18 is the sum of items 18A (equities), 18D (fixed income), 18H (commodities) and 18K (prime brokerage), and its sub-items include commissions and fees (18B, 18I, 18L).
- Sample period. "This sample of data excludes periods during which banks were substantially engaged in proprietary trading activities" (Prop. p. 221). The earlier windows used below test the estimator's rules under stress; they are not a proposal to extend the sample backward.
- Eq. A126: g(b,t) = log Ratio(b,t) - log of the trailing ratio, defined as the four-quarter sum of revenue over t-4..t-1 divided by the four-quarter sum of trading assets over the same quarters.
- Eq. A127: g is regressed on firm fixed effects and dummies for quarters 2, 3 and 4. The residuals are kept.
- Eq. A128: HaircutFactor = exp(7th percentile of the pooled residuals), with distributions "adjusted using weights proportional to each observation's trading assets" (Prop. p. 224). The text does not say whether trading assets are measured at t or t-1, how the weighted percentile is defined, or whether the Eq. A127 regression is weighted.
- On Y-14Q data the factor is 0.72, "a 28 percent haircut" (Prop. p. 225). Table B3 (p. 245) reports the estimate only. Tables B1 (pp. 242 to 243) and B2 (p. 244) report a standard error for every coefficient.
- Eq. A129 and A130: the projected ratio is the factor times the firm's trailing four-quarter ratio, held constant for h = 1 to 13. Dollar revenue is that ratio times trailing four-quarter average trading assets. Algebraically, projected quarterly revenue = factor x trailing four-quarter average trading revenue, in every projection quarter.
- Justification (Prop. p. 224), with reference to the operational risk methodology: "the 7th percentile is the probability estimate of a hypothetical severely adverse shock unconditionally starting in any given year."
- Benchmark (Prop. p. 227): the Board "identified all firm-specific quarterly observations with ratio growth rates under the 7th percentile," "calculated the average level of the ratio over the nine quarters," and reports that "a substantial share" have average ratios lower than "the model-projected constant ratio." The page does not say which nine quarters are averaged or how the projected ratio is computed for the comparison. The same page states that the sample lacks a stress period similar to a severely adverse scenario.
- Firm size (Prop. pp. 228 to 229): under every grouping the Board tried, smaller firms received larger haircuts than under the single haircut.
- Alternatives (Prop. p. 230): the regression alternatives showed specification sensitivity, and removing 2020 observations "resulted in the loss of significance for all the macroeconomic factors."
- The sales and trading section (Prop. pp. 219 to 234) does not state how firm-quarters with zero or negative trading revenue, or a non-positive trailing ratio, are treated in Eq. A126. Section IV (Prop. p. 235) describes a screening process the Board "is considering" for PPNR input data, under which flagged outliers could be addressed "through removal, truncation, reversal of reclassifications, or other appropriate adjustments" (Question 52). It is general to the PPNR models and does not address an undefined log in Eq. A126.
- Appendix A2 (Prop. pp. 240 to 241): "In all of the noninterest income models, projections use a four-quarter average" (p. 240). The exception handling that follows is written for the geometric-mean liftoff: if a lookback observation is zero or negative, the arithmetic mean is used, and "If the arithmetic mean is negative or zero, the projection is flatlined" (p. 241). Eq. A129 uses a ratio of four-quarter sums, not a geometric mean.
- The 2027 proposed nine-quarter path file reports "Trading losses" and "Trading and counterparty losses" as lines separate from "Sales and trading noninterest income."

What the Review of Comments says (Review of Comments and Summary of Changes to the Proposed Stress Test Models, Fall 2026, released by the Board on September 30, 2026; Operational Risk Model section, pp. 208 to 209). The Review answers comments on the Board's 2025 model proposals, not this docket; I cite it for the Board's reasoning on the 7 percent probability. Page 208: the Board retained the 93rd percentile because it matches the probability of a severe scenario starting in any given year, from four severe-recession starts in the 60 years 1956 to 2015, so "at most a 7 percent" probability, "which corresponds to the 93rd percentile at a minimum"; and "there is no assumption of any particular duration to the severe recession, whether one year or nine quarters." Page 209: a commenter

proposed the 85th percentile (four nine-quarter recession periods out of 26.7). The Board says the commenter's approach "appears to be equivalent to using the probability of any one quarter being in a severe recession," and that it "could be a reasonable approach to estimating the percentile of a quarterly loss distribution" but "is not applicable to the nine-quarter loss distribution," because the Operational Risk Model uses "one nine-quarter loss distribution rather than nine separate quarterly loss distributions." It adds that the assumptions needed for any approach that splits the nine quarters into separate distributions "would result in a higher percentile than recommended by the commenter," because the number of severe-shock quarters is substantially lower than 36 of 240. All of these percentiles are on the loss scale. Translated to the revenue-growth scale used in Eq. A128, the 93rd percentile of losses is the 7th percentile of growth, and a loss percentile above the 85th is a growth percentile below the 15th. The Review does not say whether the quarter-based figure is above or below the 93rd percentile of losses, so it does not say whether the growth percentile is above or below the 7th.

A2. Data sources (all public)

Source	Items	Level	Period used	URL
FDIC Call Report, BankFind Suite API	IGLTRDQ (quarterly trading revenue), TRADE (trading assets, period end)	Commercial bank (Call Report filer); holding-company aggregate as a variant	2002Q1-2026Q2	https://api.fdic.gov/banks/financials (field definitions: https://api.fdic.gov/banks/docs/risview_properties.yaml)
FR Y-9C, Chicago Fed bulk files	BHCKA220 (Schedule HI item 5(c), trading revenue, year to date, converted to quarters); BHCK3545 (Schedule HC item 5, trading assets, period end); BHCK3401 (Schedule HC-K item 4(a), trading assets, quarterly average; sensitivity only); variant adds BHCKC886 (HI item 5(d)(1), reported from 2007Q1)	Holding company	2003Q1-2021Q1 (the first four quarters feed the trailing ratio, so growth windows start in 2004)	https://www.chicagofed.org/~/media/others/banking/financial-institution-reports/bhc-data/bhcfYYMM.csv
FR Y-14Q instructions	Schedule G.1 line item 18 and sub-items; Schedule G.2 line items 13 and 30 (current edition, modified September 30, 2026, and the edition modified August 22, 2017)	n/a	n/a	https://www.federalreserve.gov/apps/reportingforms/Report/Index/FR_Y-14Q
FR Y-9C instructions	Schedule HI items 5(c) and 5(d)(1); Schedule HC-K item 4(a)	n/a	n/a	https://www.federalreserve.gov/apps/reportingforms/Report/Index/FR_Y-9C
Federal Reserve MDRM dictionary	Item definitions	n/a	n/a	https://www.federalreserve.gov/apps/mdrm/pdf/MDRM.zip
Federal Reserve public DFAST results	Firm list for the Y-9C sample	Firm	2026	https://www.federalreserve.gov/supervisionreg/files/public_results_DFAST_2026.csv

Source	Items	Level	Period used	URL
Federal Reserve nine-quarter paths	"Sales and trading noninterest income" and trading loss lines	Aggregate	2027 proposed; 2026 final	https://www.federalreserve.gov/supervisionreg/files/2027_proposed_nine_quarter_paths.csv ; https://www.federalreserve.gov/supervisionreg/files/2026_final_nine_quarter_paths.csv
Supervisory Stress Test Model Documentation, PPNR Models, Proposed Noninterest Income Model, Fall 2026	Prop. pp. 219-245	n/a	n/a	https://www.federalreserve.gov/supervisionreg/files/fall2026_supervisory-stress-test-model-documentation-PPNR-models.pdf
Review of Comments and Summary of Changes to the Proposed Stress Test Models, Fall 2026 (released September 30, 2026)	pp. 208-209 (Operational Risk Model)	n/a	n/a	https://www.federalreserve.gov/newsevents/pressreleases/files/bcreg20260930a6.pdf
Federal Register notice	Docket, dates, address	n/a	n/a	https://www.govinfo.gov/content/pkg/FR-2026-10-02/html/2026-20245.htm

Perimeter of the proxies. Y-9C trading revenue (HI item 5(c)) is "the net gain or loss from trading cash instruments and off-balance-sheet derivative contracts," including revaluation adjustments and incidental income and expense. Fees and commissions from securities brokerage go to HI item 5(d)(1) (BHCKC886), which also covers fees from the sale and servicing of mutual funds, agency purchases and sales of securities, and securities lending. Adding BHCKC886 therefore brings in the commission and fee income that Y-14Q line item 18 includes, along with some income it does not. The FDIC series is the bank-level counterpart of Y-9C item 5(c) and misses trading booked in non-bank broker-dealer subsidiaries.

Size floor. A firm-quarter enters only if it has at least $1 billion of trading assets. The proposal sets no such floor; I used it as a sample screen. In the FDIC data, the bank universe is the 38 banks with at least $1 billion of trading assets on at least one of ten screening dates between 2003 and 2026; 21 enter the 2016-2024 window under the floor and 34 the 2003-2026 window. The Y-9C sample is limited to holding companies that appear in the public DFAST results file. Table 3 reports the main windows without the floor.

A3. Method

1. Single-quarter statistic. I applied Eq. A126 to A128 as written, plus the $1 billion floor above: unweighted OLS with firm fixed effects and Q2 to Q4 dummies, then the 7th percentile of the residuals with weights equal to trading assets at t, and the haircut factor = exp(percentile). The baseline percentile is the step definition (the smallest residual whose cumulative weight share reaches 7 percent). In the baseline, firm-quarters with an undefined log are dropped. Variants: an interpolated weighted percentile, unweighted, without seasonal dummies, without the floor, and (Y-9C) quarterly-average trading assets. The proposal does not say whether 2016:Q1 is the first data quarter or the first growth observation. I treat it as the first growth observation, so the 2016:Q1 trailing ratios use 2015 data. If it is the first data quarter, the first growth observation is 2017:Q1; the 2017Q1-2024Q4 row of Table 1 shows that reading.
2. Loss-quarter sensitivity. The firm-quarters with an undefined log are of two kinds: true loss quarters, with current trading revenue at or below zero, and quarters with positive current revenue but a non-positive trailing four-quarter ratio. The second kind need not be a tail event; a positive quarter after a run of losses is an upward move. I report two treatments. (a) All undefined-log quarters are kept as the worst outcomes (residual set to minus infinity). (b) Only true loss quarters are kept as the worst outcomes and the others are dropped, as in the baseline. Where the kept share exceeds 7 percent of the retained weight, the 7th percentile falls among them and the factor is zero. Both are bounds on severity, not estimates and not proposed rules. I added the sensitivity after the first data pull showed these quarters carry material weight, and later split it into the two kinds (script loss_split.py).
3. Uncertainty. Three bootstraps: (a) resampling calendar quarters with replacement, re-estimating the fixed effects and dummies in each draw; (b) a moving-block bootstrap over quarters with block length 4; (c) resampling firms. B = 5,000 for the main windows and 2,000 for secondary windows and horizon statistics. I report 90 percent percentile intervals. With a tail effective sample near 12, the draws are lumpy and these intervals are approximate; I treat the effective-sample figures in Table 4 as the primary evidence of thin data.
4. Effective sample. Kish n_eff = (sum of w)^2 / (sum of w^2), overall and within the sub-7th-percentile tail, with the shares of tail weight held by the top three calendar quarters and the top three firms.

5. Horizon statistic. For each firm and first stressed quarter t, the log of the mean ratio over t..t+H-1 divided by the trailing four-quarter ratio over t-4..t-1, for H = 2, 4, 9 and 13. All H quarters are required and must fall inside the window. The statistic is residualized on firm fixed effects and seasonal dummies for the jump-off quarter, as in Eq. A127, and weighted by trading assets at t. At H = 1 it equals the Board's statistic, which I checked in code. The horizon minus single-quarter difference is compared on the same jump-off quarters, with a joint block bootstrap only where the jump-off range spans at least 2H quarters. The number of non-overlapping H-quarter windows is the whole number of H-quarter blocks in the window's span.
6. Flat-path coverage. Across all jump-offs, the share of H-quarter average ratios below (factor x trailing ratio), weighted by trading assets and counted equally, using raw log ratios because the flat path applies to each firm's own trailing ratio, at each window's own single-quarter factor. Jump-offs where the log is undefined (non-positive H-quarter average or non-positive trailing ratio) are dropped; Table 7 counts them and reports a variant that counts a positive trailing ratio followed by a non-positive average as a breach, which it must be.
7. The Board's p. 227 check, rerun. Among tail firm-quarters whose nine quarters t..t+8 all fall inside the estimation window, the share whose nine-quarter average ratio is below the flat path, counted equally and weighted by trading assets, at the proxy's own factor and at 0.72. The proposal does not say which nine quarters it averages or what the "model-projected constant ratio" is; t to t+8 and factor x trailing four-quarter ratio are my readings. Its shares are not comparable to the nominal 7 percent.
8. Dollar scale. The proposed aggregate path is 23.1 in each of PQ1 to PQ9 (207.9 over nine quarters). By Eq. A129 and A130, the implied trailing quarterly base is 23.1 / 0.72 = 32.08, so each 0.01 of factor is about 2.89 over nine quarters.

A4. Results

Table 1. The Board's statistic on public proxies (7th percentile; bootstrap over calendar quarters)

Proxy, window	Firms	Haircut factor	90% interval	Bootstrap SD
FDIC bank, 2016Q1-2024Q4	21	0.546	0.493-0.637	0.045
FDIC bank, 2017Q1-2024Q4	21	0.527	0.482-0.633	0.046
Y-9C, 2016Q1-2021Q1	33	0.545	0.490-0.641	0.045
Y-9C plus brokerage fees, 2016Q1-2021Q1	34	0.665	0.606-0.720	0.036

Other intervals for FDIC 2016-2024: four-quarter block bootstrap 0.495-0.655; firm bootstrap 0.476-0.609. The FDIC interval excludes 0.72; the fee-inclusive Y-9C interval has 0.72 at its upper edge. With other random seeds the bounds move by about 0.003, so the letter quotes them to two decimals. The Y-9C rows cover 2016Q1 to 2021Q1, 21 of the Board's 36 quarters (A5). None of the point estimates falls within 0.03 of 0.72, the band I set before running the analysis for calling a proxy "close." None is a replication in any case, since the Y-14Q data are not public. Because the proxy perimeters and asset weights differ from the Board's, these intervals describe how the estimator behaves on a comparable panel, not the width of a Y-14Q interval.

Table 2. Sensitivity, FDIC bank

Choice	Factor
5th percentile	0.515
7th percentile (baseline, 2016-2024)	0.5457
10th percentile	0.641
15th percentile	0.716
Window 2016-2019	0.630 (90%: 0.439-0.761)
Window 2021-2024	0.5459
Window 2016-2024 excluding 2020	0.537
Window 2006-2015 (loss quarters dropped)	0.410
Window 2003-2026 (loss quarters dropped)	0.452
Unweighted, 2016-2024	0.475
No seasonal dummies, 2016-2024	0.517
Interpolated percentile, 2016-2024	0.544

The 10th and 15th rows show scale only; neither is a reading the Board has proposed, and the Review of Comments' quarter-based reading is not placed relative to the 7th (A1). The 2016-2024 and 2021-2024 factors agree to three decimals by coincidence: I traced the step percentile in code, and it is set by a 2018Q4 observation at one bank in the longer window and by a 2021Q3 observation at a different bank in the shorter one, whose residuals, each from its own fixed-effects fit, happen to differ by 0.0003. The unweighted factor (0.475) is lower than the weighted one, the direction the Board reports on pp. 228 to 229. The interpolated and step percentiles differ by 0.002; weight timing and regression weighting were not varied.

Illustration, my own construction. Reading 7 percent a year as a per-quarter start rate gives 1.75 percent. On FDIC 2016-2024, the 1.75th weighted percentile gives a factor of 0.372. I show it only to illustrate how far apart readings of the probability can land. It rests on 25 observations with an effective size of 3.9, and one calendar quarter (2018Q4) carries 53 percent of its weight, so it is not an estimate of anything the Board should adopt.

Table 3. Data-definition sensitivities (7th percentile, main windows; bootstrap over calendar quarters)

Proxy, window, change	Firm-quarters (firms)	Factor (baseline)	90% interval
FDIC bank, 2016-2024, no $1bn floor	731 (23)	0.527 (0.546)	0.492-0.636
Y-9C, 2016-2021, no $1bn floor	593 (39)	0.574 (0.545)	0.508-0.637
Y-9C plus brokerage fees, 2016-2021, no $1bn floor	691 (40)	0.671 (0.665)	0.597-0.721
Y-9C, 2016-2021, quarterly-average trading assets (BHCK3401)	406 (33)	0.535 (0.545)	0.494-0.636
Y-9C plus brokerage fees, 2016-2021, quarterly-average trading assets	486 (33)	0.640 (0.665)	0.584-0.718

Dropping the floor moves the factor by 0.006 to 0.029, within the bootstrap intervals, and in both directions. Switching Y-9C to quarterly-average balances, the basis of Y-14Q G.2 line item 13, lowers the factor by 0.010 and 0.025, so the balance basis does not account for the gap to 0.72 on these data.

Table 4. Effective sample

Proxy, window	Firm-quarters	Kish n_eff	Tail observations (at or below the 7th percentile)	Tail n_eff	Concentration of tail weight
FDIC, 2016-2024 (21 firms, 36 quarters)	581	128.5 (22%)	61	12.0	2018Q4 21.5%, 2021Q3 19.3%, 2020Q3 14.4% (top three quarters 55%); top three firms 65%
Y-9C, 2016-2021 (33 firms, 21 quarters)	407	124.2	53	11.3	2020Q1 alone 34%; top three quarters 61%; top three firms 58%

On FDIC 2016-2024, 60 observations are strictly below the step 7th percentile and the 61st sets it (cumulative weight share 0.0742); the proposal's wording is "under the 7th percentile." On Y-9C 2016-2021 the counts are 52 and 53. The effective-sample figures are for the set at or below the percentile.

Table 5. Firm-quarters with an undefined log, split by kind, and the "counted as worst" bound under two treatments (weight shares in percent of trading-asset weight; 90% intervals from the calendar-quarter bootstrap, B = 5,000)

Proxy, window	True loss quarters (revenue at or below zero)	Positive revenue, non-positive trailing ratio	All undefined (total)	(a) All undefined counted as worst: factor (90% interval)	(b) True loss quarters counted as worst, others dropped: factor (90% interval)
FDIC, 2016-2024	2.1	0.1	2.2	0.503 (0.370-0.598)	0.508 (0.373-0.601)
Y-9C, 2016-2021	5.7	0.9	6.6	0.200 (0-0.528)	0.376 (0-0.551)
Y-9C plus brokerage fees, 2016-2021	1.9	0.2	2.1	0.630 (0.446-0.700)	0.630 (0.479-0.704)
FDIC, 2006-2015	15.3	5.6	20.9	0 (0-0; every draw zero)	0 (0-0; 99.4% of draws zero)
FDIC, 2003-2026	7.5	2.4	9.9	0 (0-0.096)	0 (0-0.272)
Y-9C, 2006-2015	15.7	5.9	21.5	0 (0-0; 99.98% of draws zero)	0 (0-0; 98.5% of draws zero)
Y-9C, 2004-2021	11.4	3.7	15.1	0 (0-0; 99.9% of draws zero)	0 (0-0; 96.3% of draws zero)
Y-9C plus brokerage fees, 2008-2021	7.5	3.9	11.4	0 (0-0.099)	0 (0-0.471)

Window labels are calendar-year shorthand: every FDIC window labelled 2026 ends at 2026Q2, and every Y-9C window labelled 2021 ends at 2021Q1. On FDIC data for the Board's window, and on the fee-inclusive Y-9C measure for 2016Q1 to 2021Q1, the shares are small, and treatment (b) moves the fee-inclusive factor only from 0.665 to 0.630. In every sample that includes 2008 and 2009, true loss quarters alone hold more than 7 percent of the weight retained under treatment (b), so the bound is zero under either treatment. Two samples sit near the line: in FDIC 2003-2026 and fee-inclusive Y-9C 2008-2021, true loss quarters are 7.7 and 7.8 percent of the retained weight, and the bootstrap intervals under (b) reach 0.27 and 0.47 (62.8 and 58.6 percent of draws are zero). The zero is a bound on severity, not an estimate. The point is not the pre-2016 data as such: any stress period entering a forward-extended sample will bring such quarters, and the estimator needs a rule before it does.

Table 6. Horizon-matched statistic against the single-quarter statistic on the same jump-offs (four decimals)

Proxy, window, H	Horizon factor	Single-quarter factor	Difference (90% interval)	Non-overlapping windows
FDIC, 2016-2024, H=9	0.6713	0.5063	+0.1650 (0.0795 to 0.2979)	4
FDIC, 2016-2024, H=13	0.7413	0.5245	not computed (too few quarters)	2
FDIC, 2016-2026, H=9	0.6832	0.5306	+0.1526 (0.0508 to 0.2231)	4
FDIC, 2016-2026, H=13	0.6686	0.5100	+0.1586 (0.1168 to 0.3272)	3
FDIC, 2003-2026, H=9	0.5942	0.4174	+0.1768 (0.1004 to 0.2297)	10
FDIC, 2003-2026, H=13	0.5718	0.4149	+0.1569 (-0.0246 to 0.2575)	7
Y-9C, 2004-2021, H=9	0.5866	0.4247	+0.1619 (0.0174 to 0.2942)	7
Y-9C, 2004-2021, H=13	0.4357	0.4106	+0.0251 (-0.0591 to 0.3023)	5
Y-9C plus brokerage fees, 2008-2021, H=9	0.7181	0.6027	+0.1154 (0.0856 to 0.2134)	5
Y-9C plus brokerage fees, 2008-2021, H=13	0.7337	0.5760	+0.1577 (0.1151 to 0.2469)	4

A milder horizon figure is expected from averaging unless tail shocks persist in full, and the flat path assumes they do. This table mostly shows those mechanics, and it rests on few independent windows.

Table 7. Share of realized H-quarter averages below the flat path at each window's own factor, in percent

Window (own factor), H	Weighted	Counted equally	Jump-offs dropped (weight share)	Of which non-positive trailing	Of which positive trailing, non-positive average	Weighted, those counted as breaches	Counted equally, those counted as breaches
FDIC 2016-2024 (0.5457), H=9	1.48	9.82	7 of 455 (0.1%)	7	0	1.48	9.82
FDIC 2016-2024, H=13	1.00	8.63	4 of 375 (0.04%)	4	0	1.00	8.63
FDIC 2003-2026 (0.4516), H=9	2.57	6.86	199 of 1,366 (10.2%)	136	63	6.51	11.63
FDIC 2003-2026, H=13	4.48	7.84	167 of 1,264 (8.9%)	126	41	6.80	11.16
Y-9C 2004-2021 (0.4205), H=9	2.56	7.25	181 of 1,036 (19.0%)	121	60	12.07	13.33
Y-9C 2004-2021, H=13	7.13	9.72	154 of 936 (19.4%)	96	58	16.52	15.95

I do not read this table as a test of the flat path. At a window's own single-quarter factor, a breach rate below 7 percent is what averaging produces unless tail shocks persist in full, so low rates in the first two columns say little about calibration. The table shows two other things. First, the result turns on the loss-quarter rule: in the long samples, counting the jump-offs whose nine- or 13-quarter average turned non-positive raises the weighted rate from 2.6 to 7.1 percent to 6.5 to 16.5 percent. The jump-offs with a non-positive trailing ratio (fifth column; 96 to 136 per row in the long samples) are excluded in both versions, since the flat path itself is then non-positive (A7). Second, the 2016-2024 window holds four non-overlapping nine-quarter windows and no severe stress (Prop. p. 227). The Y-14Q panel can answer the calibration question; the proxies cannot.

Table 8. The Board's p. 227 check, rerun on FDIC 2016-2024 (61 tail firm-quarters at or below the 7th percentile; 53 with all nine quarters t to t+8 inside the window)

Flat path at	Share below, counted equally	Share below, trading-asset weighted
Proxy's own factor (0.546)	28.3%	8.3%
0.72	43.4%	22.8%

The nine quarters (t to t+8) and the comparison with factor x trailing ratio are my readings of p. 227 (A3 item 7). At 0.72, the factor the Board's statement refers to, the equal-count share is 43 percent and the weighted share 23 percent; at the proxy's own factor they are 28 and 8 percent. The weighted share is about half the equal-count share, which is the reason to publish both.

Dollar scale. On the Board's aggregate path, each 0.01 of factor is about $2.89 billion of nine-quarter trading revenue. The translation assumes every firm in the aggregate is on the proposed model. The path file does not label its units; I read them as billions of dollars, which matches the file's other lines. I do not translate the proxy intervals into dollars.

A5. Limitations

- These results are not a replication. The FDIC data are bank level and miss trading booked in non-bank broker-dealer subsidiaries. Y-9C trading revenue excludes the commissions and fees that Y-14Q line item 18 includes; adding BHCKC886 moves the proxy toward 0.72 (Table 1) but also adds mutual-fund and securities-lending fees outside line item 18 and omits other prime brokerage revenue. Both proxies use period-end trading assets, while Y-14Q G.2 line item 13 is a quarterly average; on Y-9C the average-balance version is lower, not closer to 0.72 (Table 3). I have not decomposed the remaining gap; doing so conclusively would need the Y-14Q panel.
- The $1 billion floor is my choice, not the Board's. Removing it moves the main-window factors by 0.03 or less (Table 3). The FDIC universe is still the set of banks that passed the screen on at least one date.
- The Chicago Fed bulk Y-9C series I used ends at 2021Q1. Later quarters are distributed through the FFIEC National Information Center; I did not use them, so the Y-9C figures overlap the Board's 2016 to 2024 window only for 2016Q1 to 2021Q1, 21 of its 36 quarters.
- Aggregating FDIC banks to their holding companies changes the 2016-2024 factor by less than 0.0004 (0.5454 against 0.5457). In 2006-2015 the holding-company factor is 0.387 against 0.410 at bank level.
- The horizon and coverage results rest on few independent windows, depend on weighting and on the loss-quarter rule (Table 7), and the 2016-2024 window contains no severe stress period (Prop. p. 227).
- Flat-path coverage uses raw log ratios, not firm-demeaned residuals. Firms with a rising ratio will tend to sit above the path.
- The dollar translation is an approximation from the published aggregate path.
- I used only public data.

A6. Reproducibility

The analysis is a set of Python scripts covering data retrieval, panel construction, estimation and the analysis run, with fixed random seeds, so a rerun reproduces every figure. The loss-quarter split in Table 5 comes from a separate script (loss_split.py) run on the same panels. A manifest records the source URL, UTC retrieval time and SHA-256 hash of each of the 133 raw files, including the FR Y-14Q and FR Y-9C instructions cited here. I can provide the code and manifest to Board staff on request. Because the estimator follows Eq. A126 to A128 as written, staff can run the same steps on the Y-14Q G.1/G.2 panel.

A7. Two drafting points

- Trading-asset line item. Pages 221 and 223 and footnote 81 (p. 228) cite FR Y-14Q Schedule G.2, line item 30 for trading assets. In the FR Y-14Q instructions (current edition, modified September 30, 2026, and the edition modified August 22, 2017), G.2 line item 30 is "the earned average rate of trading assets," a yield. Line item 13, which footnote 84 (p. 234) cites, is "the average balance of trading assets as defined in the FR Y-9C, Schedule HC-K, item 4.a." The ratio needs a balance, so the citations on pp. 221, 223 and 228 appear intended to read line item 13, the only trading-asset balance the proposal cites (fn 84, where it sources quarterly trading assets for the Volcker volume proxy). The proposal does not itself say which balance the ratio uses. Line item 13 is a quarterly average balance, while both public proxies use period-end balances (Call Report and Y-9C Schedule HC item 5). That is one more difference between my proxies and the Board's data; on Y-9C, using the quarterly average instead lowers the factor (Table 3).
- Flatline scope. Appendix A2 (Prop. pp. 240 to 241) applies a four-quarter average "in all of the noninterest income models," and its exception rule flatlines a projection when the arithmetic mean is zero or negative. That rule is written around the geometric-mean liftoff, while Eq. A129 uses a ratio of four-quarter sums. Please confirm whether the flatline covers Eq. A129. Without it, a factor below one applied to a negative trailing ratio would raise projected trading revenue under stress. On my proxies a negative trailing ratio is rare by weight in the Board's window (FDIC 2016-2024: 8 of 600 firm-quarters, 0.08 percent of trading-asset weight; fee-inclusive Y-9C 2016-2021: 8 of 511, 0.27 percent; Y-9C without fees 2016-2021: 59 of 511, 1.8 percent) and common in samples with stress (FDIC 2003-2026: 153 of 1,582, 5.8 percent; fee-inclusive Y-9C 2008-2021: 49 of 1,104, 8.5 percent).