Rating Without Market Discipline

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ABSTRACT

The rise of private markets has placed a growing volume of opaque debt securities onto the balance sheets of regulated financial institutions. The risk assessment of these assets is increasingly outsourced through private ratings, which are disclosed only to the issuer and select investors rather than disseminated publicly. We show that private ratings systematically understate credit risk and depress required capital. Focusing on the U.S. life insurance sector, we document a ten-fold increase in the use of private ratings since 2018, predominantly in opaque securities and concentrated among large and PE-affiliated insurers. Within the same rating, privately rated bonds are twice as likely to impair than publicly rated bonds, yet are downgraded less often, not more. A counterfactual calculation implies that eliminating this gap would increase the required capital charges on insurers' bond holdings by $4.5 billion per year. However, the gap disappears for bonds that also carry a public rating. Exploiting a 2021 regulatory reform, we provide evidence consistent with insurers strategically using private ratings for capital relief. We also show that regulation cannot fully substitute for market discipline: the regulator's own internal assessment is more conservative but capacity-constrained, and disclosure reforms do not close the gap. Our results suggest that while regulation can require that credit be rated, it cannot provide the market discipline that makes a rating informative.

Keywords: Private markets, private ratings, credit ratings, insurance regulation

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Private markets have expanded rapidly over the past decade, with private credit assets under management rising roughly threefold to nearly $2 trillion (IMF, 2024). A growing share of this credit now sits on the balance sheets of regulated financial institutions, and of life insurers in particular. Given the central role of risk assessment for financial stability, this shift has raised concerns about how investors and regulators can assess the risk of opaque and illiquid securities. Historically, this task has been delegated to credit rating agencies, and most regulatory ratings were also publicly disseminated and priced by the market. As such, a credit rating traditionally served two related functions: it informed investors by compressing a complex credit assessment into a single comparable signal, and it determined regulatory capital by mapping each asset to the equity buffer its holder must carry against it.

More recently, the rise of private markets has been accompanied by a shift in the rating channel, with a growing share now in the form of private letter ratings. Unlike public ratings, private ratings are disclosed only to the issuer and a limited set of investors, typically subject to confidentiality restrictions (SEC, 2025). This separation breaks the traditional link between the two functions of a rating. While the rating still determines its holder's regulatory capital, whether it accurately conveys information about credit risk becomes less clear in the absence of market discipline. The answer to this question is economically important because privately rated holdings now account for a large share of insurer capital and have attracted increasing regulatory scrutiny (FSOC, 2024; NAIC, 2025a). At the same time, it is empirically difficult to answer because neither the ratings themselves nor contemporaneous public benchmarks are typically observable.

In this paper, we use the U.S. life insurance sector to study the information content of private ratings and their regulatory implications. This setting offers three key advantages for our analysis. First, life insurers rank among the largest holders of corporate bonds and structured credit, so their portfolios are large enough for private ratings to matter economically. Second, they are among the fast growing users of private ratings, so differences in the informational content of these ratings can directly affect the regulatory capital governing the sector. Third, and most important for our analysis, insurers' regulatory filings disclose, for each bond, both the rating and the channel through which it was obtained. This feature allows us to compare bonds carrying the same rating designation but certified through different channels. Using this empirical setting, we establish four sets of findings.

First, we provide the first large-scale stylized facts on the market for private ratings. Privately rated holdings of U.S. life insurers have grown roughly ten-fold since 2018, rising from $46 billion to $481 billion in carrying value and from 1.5 percent to 12 percent of insurers' bond portfolios. Moreover, these assets tend to be structured credit and bank syndicate loans,

rely on unobservable valuation inputs, and are often priced either by brokers or by the holding insurers themselves. These features suggest that the private rating market is growing in segments where credit risk is ex ante difficult to measure.

Moving to market structure, on the demand side the growth in private ratings is concentrated among the largest insurers, those most tilted toward high yield, and those affiliated with private equity (PE). This is precisely the segment in which mismeasured credit risk matters most for regulatory capital and ultimately for policyholders. On the supply side, despite no regulatory restriction requiring it, the market exhibits a striking segmentation. The vast majority of privately rated bonds certified by three smaller agencies: KBRA, DBRS Morningstar, and Egan-Jones. Because these providers have a smaller footprint in public rating markets, they are subject to less cross-investor scrutiny and weaker market discipline. We further show that their analysts have less experience and lower rates of advanced educational attainment than analysts at the larger agencies. The market therefore pairs the insurers most exposed to credit risk mismeasurement with raters facing weaker external discipline and potentially less capacity to assess credit risk accurately.

We also demonstrate that the lack of market discipline is a defining feature of the private rating market. Because ratings are assigned at the insurer-security level, the same bond can technically carry a private rating for one insurer and a public rating for another. Yet even this indirect form of market discipline, with the public rating serving as a benchmark, is rare. More than 96% of privately rated bonds in our data lack a contemporaneous public rating for any insurer in the same year, operating almost entirely outside public scrutiny.

This lack of market discipline motivates the second set of results, which focus on the information content of private ratings. Our main empirical design holds the rating fixed: if public and private ratings convey comparable information, then two bonds with the same NAIC designation should face similar subsequent credit deterioration, regardless of the rating channel. Measuring deterioration is challenging because privately rated bonds are often illiquid and infrequently traded. Following prior work, we use other-than-temporary impairments (OTTIs), the write-downs an insurer must record once a security's credit loss is judged no longer temporary, as a proxy for realized credit losses (Khan, Ryan, and Varma, 2019). Because an OTTI is recorded by the insurer, we validate it against outcomes produced outside the firm, showing that impaired bonds are far more likely than unimpaired ones to be downgraded and to default. A systematic gap in forward impairment between equally rated public and private bonds therefore reveals differences in the information content of the ratings rather than in the regulatory designation itself.

We show that conditional on the same credit rating, privately rated bonds are more likely

to be impaired in the future than equally rated public bonds. At a one-year horizon the gap is about 0.13 to 0.16 percentage points, implying that privately rated bonds are roughly twice as likely to impair as publicly rated bonds. The gap is wider at two years. We then provide a ballpark estimate of the capital consequences of the private-rating gap. The excess impairment risk of privately rated bonds corresponds to roughly 2.5–3.2 rating notches under the public-rating benchmark. Applying a conservative two-notch adjustment would have increased the required capital charges on insurers' bond holdings by roughly $4.5 billion per year on average from 2021 to 2025. The gap is not an artifact of the kinds of issuers the two channels face: it persists even when we compare bonds from the same issuer within a given year. This within-issuer comparison exhibits even larger differences in future impairment rates in the high-yield segment, alongside more favorable initial ratings assigned through the private rating channel.

Despite this higher impairment, however, we also find that privately rated bonds are downgraded less often, not more. They are downgraded about 0.5–0.7 percentage points less within one year and 0.8–1.1 percentage points less within two years, against average downgrade rates of 3.5 and 6.2 percent. The private rating thus both predicts worse outcomes and moves less, lagging the deterioration it is meant to capture. The staleness gap is also not explained by smaller impairment losses. If anything, conditional on impairment, privately rated bonds lose 5.7 to 11.4 percentage points more of carrying value than equally rated publicly rated bonds, against an average loss severity of about 19 percent.

We further turn to dual-rated bonds to examine the role of market discipline for rating accuracy and staleness. We find that while a public benchmark for a privately rated bond is rare, when one exists the private and public ratings almost always fall in the same NAIC bucket. Furthermore, using the same empirical design as before, we find that the impairment gap disappears for these bonds: where a public rating coexists as a benchmark, the private rating behaves much like the public one. These results thus point to market discipline as playing an important role in preserving the information content of credit ratings.

We also ask whether the impairment gap reflects factors other than the informational content of private ratings. Although privately rated bonds tilt toward more complex and opaque assets, the gap is no larger among the most opaque securities than elsewhere: interacting the private rating indicator with asset opacity leaves its coefficient essentially unchanged and the interaction itself insignificant. Furthermore, when comparing bonds within the same asset category, the impairment gap if anything widens. Nor does the gap appear to reflect differences in how credit losses are recognized: restricting the sample to bonds that are never disposed of leaves the results largely unchanged. Privately rated bonds are also more likely to realize losses through disposal, contrary to the hypothesis that publicly rated bonds simply recognize

credit losses through sale rather than impairment.

Our third main finding is that insurers use private ratings strategically in ways consistent with minimizing regulatory capital. Because higher ratings carry lower capital charges, insurers have incentives both to obtain more favorable ratings and to avoid subsequent downgrades. Private ratings can meet both objectives, particularly in segments where regulatory capital is most sensitive to credit risk. We provide evidence consistent with strategic use of private ratings by examining bonds that switch rating channels. When a bond moves from the regulator's in-house channel into the private channel, it is upgraded more than four times as often as it is downgraded. By contrast, in-house-rated bonds exhibit no such tendency when they transition into the public channel. Moreover, bonds that already carry a publicly observable rating are no more likely to be upgraded than downgraded when they enter the private channel, consistent with the disciplining role of a public benchmark. The tendency toward favorable re-grading is therefore concentrated in transitions out of the regulator's own assessment.

The previous evidence is admittedly correlational because the decision to re-channel a bond is an endogenous insurer choice and channel-switching events are relatively rare. To identify the strategic use of private ratings more robustly, we instead exploit a 2021 reform of the NAIC's risk-based-capital framework. Under the prior rules, granular credit ratings were first grouped into broad NAIC buckets and then shared the same capital charge assigned to that bucket. The reform instead introduced a finer capital schedule that redistributed charges within each bucket, increasing required capital for bonds near the bottom of a category while reducing it for those near the top. As a result, the reform generated heterogeneous changes in required capital even across insurers that previously appeared similar under the broader NAIC buckets. The net effect depended both on the detailed composition of insurers' pre-reform portfolios and on the gradient of the new capital schedule across fine rating categories, providing plausibly exogenous variation in regulatory capital pressure.

For each insurer, we calculate the change in capital charges that its pre-reform portfolio would have faced under the new schedule, holding the portfolio fixed at its pre-reform composition. This exposure measure captures the sudden change in capital pressure generated by the reform. Constructed using pre-reform holdings, the measure is predetermined with respect to insurers' subsequent portfolio and rating-channel choices, in the spirit of a Bartik-style exposure design. Exposure is also economically meaningful: the average insurer experiences roughly a 20 percent increase in implied capital charges under the reform, with substantial cross-sectional dispersion across firms.

We find that insurers more exposed to the mechanical charge increase raised the private rating share of their portfolios after 2021. Comparing insurers at the 75th and 25th percentiles

of the exposure distribution, the estimates imply a differential increase of roughly 0.32 percentage points in the private rating share overall, about 9.4% of the unconditional mean. The effect is substantially larger among high-yield holdings. Event-study estimates show no differential pre-trend before the reform, supporting the assumptions of the empirical design. The same shift also appears in insurers' newly acquired bonds, indicating an active portfolio response rather than the passive revaluation of existing holdings. Together with the accuracy and staleness evidence, this result points to a strategic use of private ratings: insurers tilt toward them precisely where doing so relieves the most regulatory capital.

Our last set of results asks whether the regulator can restore what the private channel does not provide. One option is for the regulator to certify credit itself. In the insurance sector, this task falls on the Securities Valuation Office (SVO), a unit whose analysts assign ratings in-house for bonds that lack an eligible public or private rating. Comparing these in-house designations with public ratings on equivalent bonds, we find the SVO produces ratings at least as conservatively as the rating agencies and downgrades it more frequently. However, we also provide evidence that this office may be capacity constrained. The volume of privately rated securities the office must review has grown over ten-fold since 2018, while its analyst headcount has held roughly flat. As the workload has outpaced staffing, the number of insurer filings the office fails to clear by its year-end deadline has risen sharply.

A second option for the regulator is to recreate market discipline through disclosure rules rather than direct certification. In particular, we study the 2020 reform to granular subcategory reporting, which provided more precise information about private ratings. We find that this mandated disclosure, like in-house production of credit information, fails to substitute for the market discipline that private ratings lack. In other words, while disclosure may be necessary, it is not sufficient. Market discipline also requires a liquid market where investors observe, price, and react to the rating, thereby imposing reputational costs on inaccurate certification. And such discipline is largely absent in private credit markets.

Related Literature

First, the paper contributes to the literature on insurance regulation and its financial stability implications. A large body of work shows that insurers respond to capital regulation, accounting rules, and liability frictions in ways that shape their asset demand with implications for financial stability (Becker and Ivashina, 2015; Ellul et al., 2015; Koijen and Yogo, 2016).[1]

[1]See also: Ellul, Jotikasthira, and Lundblad (2011); Koijen and Yogo (2015); Foley-Fisher, Narajabad, and Verani (2020); Sen and Sharma (2020); Chodorow-Reich, Ghent, and Haddad (2021); Ge and Weisbach (2021); Becker, Opp, and Saidi (2022); Ellul et al. (2022); Koijen and Yogo (2022); Sen (2023).

Within this literature, we connect most directly to a growing strand on the intersection of private markets and insurance. For example, Kirti and Sarin (2024) show that insurers affiliated with PE firms tilt toward higher-yielding and less liquid assets, and Carlino et al. (2025) document the central place life insurers now occupy in the intermediation chain that channels public and private credit to riskier firms. More recently, Meisenzahl, Overpeck, and Polacek (2025) link insurers' private credit investments to their capture of annuity market share. This literature takes the regulatory risk measure as given and studies how insurers respond to it; we instead study the informational content of the risk measure itself.

Closest to our work is contemporaneous research by Gschossmann et al. (2026). Like us, they find that insurers increased their use of private ratings in response to the 2021 capital reform and quantify the implications for regulatory capital. Motivated by their additional finding that privately rated bonds carry higher yields within rating categories, they focus on the reform's effects on insurers' demand for privately rated credit and on firms' private debt issuance. By contrast, we focus on the ratings themselves. We examine the informational content of private ratings directly, document their impairment and downgrade performance, and identify the role of market discipline in sustaining the rating accuracy.

Second, this paper contributes to understanding the role of market discipline in sustaining the informational content of credit ratings. While prior work documents that ratings contain information complementary to market-based measures of default risk (Gredil, Kapadia, and Lee, 2022), a large literature also shows how conflicts of interest arising from compensation structures (e.g., Jiang, Stanford, and Xie, 2012; Bonsall et al., 2024), analyst career concerns (Cornaggia, Cornaggia, and Xia, 2016), and issuer market power (Efing and Hau, 2015; Baghai and Becker, 2018) can distort ratings and reduce their informativeness. Yet conflicts alone cannot sustain rating inflation in equilibrium: as Opp, Opp, and Harris (2013) emphasize, rational investors discount ratings from agencies known for biased assessments, so market discipline shapes whether conflicts translate into distortions. Direct evidence on this disciplining role remains limited. Studies relying on rating-agency entry (e.g., Becker and Milbourn, 2011; Cornaggia and Cornaggia, 2013; Xia, 2014) or regulatory designation changes (e.g., Bruno, Cornaggia, and Cornaggia, 2016) cannot isolate the effect of market discipline itself, as these events also trigger changes in competition and certification incentives. In contrast, our empirical setting provides a direct test by comparing ratings that perform the same regulatory function but differ in their exposure to market discipline.

Our findings are also closely connected to the theoretical literature on the incentives and accuracy of credit ratings, which identifies several features of the private rating setting as particularly vulnerable to rating inflation. First, classic theories predict that rating quality is coun-

tercyclical and may deteriorate when issuance booms (Bar-Isaac and Shapiro, 2013; Bolton, Freixas, and Shapiro, 2012), the conditions under which private ratings grew ten-fold over our sample. Second, both rating shopping (Skreta and Veldkamp, 2009; Sangiorgi and Spatt, 2017) and catering (Opp, Opp, and Harris, 2013) are argued to be more likely in structured-finance settings because of their complexity and opacity. Empirically, post-crisis evidence from structured finance shows that rating agencies continued to understate tail risk and that tranche ratings responded sluggishly to deterioration in underlying collateral (Nickerson and Griffin, 2017; Griffin and Nickerson, 2023). These forces are especially relevant in our setting because privately rated bonds are prominent in structured credit and are often valued using unobservable, self-supplied inputs whose non-disclosure further weakens market scrutiny. Third, our evidence that the NAIC's transparency reforms had limited success in improving informativeness complements Goel and Thakor (2015), who show that greater rating precision need not improve outcomes when the underlying incentive problem remains. In light of this literature, our contribution is to provide direct empirical evidence for these predictions, drawing on a setting where the theoretical conditions are saliently present.

More broadly, our paper also speaks to the implications of the secular shift from public to private markets and the accompanying growth of private credit. One strand studies how securities deregulation expanded the supply of private capital, letting firms grow large while remaining private and forgo the disclosure and scrutiny that public-market status imposes (Ewens and Farre-Mensa, 2022). A second strand documents the migration of corporate lending out of public bond and syndicated-loan markets into private debt held by nonbank lenders (Ivashina, 2025), a market with its own underwriting technology (Jang, Kim, and Sufi, 2025), distinctive balance-sheet structure (Matvos, Piskorski, and Seru, 2026), and growing interdependencies with banks (Acharya, Cetorelli, and Tuckman, 2026). Both trends move financing toward arrangements that fewer outside parties observe or price. Private ratings are the certification counterpart of this shift, and our contribution is to show what is lost when the assessment of credit moves into a private channel. In this sense, we also do not weigh in on the debate over the absolute risk of private credit but instead focus on whether conditional on a security's underlying risk, the credit rating accurately reflects it.

1 Data and Institutional Background

We first lay out the institutional setting and describe the data used to study private ratings. Section 1.1 describes how private ratings work and how they enter insurer capital regulation through the NAIC's bond-level designation system; Section 1.2 describes the data and reports

summary statistics.

1.1 Institutional Background

A private letter rating (henceforth referred to as private rating) is a credit assessment communicated only to the issuer or to a specified group of investors rather than disseminated publicly (SEC, 2025). The rating is documented in a private letter from a credit rating provider (CRP) to the recipient and is typically circulated under non-disclosure agreements. The providers eligible to issue private ratings are the same Nationally Recognized Statistical Rating Organizations (NRSROs) recognized by the SEC that issue public ratings; in principle, any such provider may rate a security through either channel (NAIC, 2025a).

Ratings enter the U.S. insurance sector through the NAIC's bond-level designation system. Each bond an insurer holds receives an NAIC designation, an integer from 1 (highest credit quality) to 6 (in or near default) and, from year-end 2020, a finer twenty-category sub-category, which is a direct function of the rating assigned by a credit rating provider and maps directly into a risk-based capital (RBC) charge. We refer to this NAIC designation, and its sub-category, as the bond's credit rating throughout, distinguishing it from the underlying provider rating only where the difference matters.[2]

The insurer obtains the rating through one of three main channels. Under the Filing Exempt (FE) channel, the designation is derived mechanically from a publicly disclosed rating issued by an NAIC-eligible CRP; we refer to such bonds as *publicly* rated. Under the Private Letter (PL) channel, it is derived from a private letter rating issued by an NAIC-eligible CRP but disclosed only to the insurer and the regulator; we refer to such bonds as *privately* rated. Finally, under the SVO channel, the NAIC's in-house staff assigns the designation directly without relying on a CRP; we refer to such bonds as *in-house* rated. We use the public, private, and in-house terminology throughout in place of these regulatory labels.

Importantly, the three channels are interchangeable from the perspective of capital regulation: a given designation carries the same charge regardless of how it was obtained. They differ, however, in the degree of market discipline applied to the underlying assessment. A publicly rated bond carries a rating that the issuing CRP also disseminates publicly and that bond-market participants observe and price. A privately rated bond carries a rating that circulates only among the CRP, the insurer, and the regulator, with no public benchmark against

[2]When relevant, we also convert the NAIC sub-category to a standard credit letter scale from S&P (e.g., 1.A as AAA, 2.C as BBB—) using the NAIC's published mapping; the choice is a labeling convention, as the mapping is one-to-one across all eligible rating providers.

which outside parties can challenge it. An in-house designation, by contrast, is produced directly inside the regulator and therefore does not rely on market discipline in the same way, instead reflecting the regulator's own incentives and analytical capacity.

1.2 Data and Summary Statistics

Our analysis draws primarily on NAIC Schedule D Part 1, the annual filing in which insurers report their bond holdings. We follow NAIC statutory terminology in referring to these holdings as "bonds" throughout. Under the NAIC's Statements of Statutory Accounting Principles (SSAPs), long-term bonds reported on Schedule D Part 1 comprise two parallel categories: issuer credit obligations (governed under SSAP No. 26R) and asset-backed securities (governed under SSAP No. 43R), the latter including qualifying CLOs and other structured-credit securities. Instruments that do not meet the bond definition are reported elsewhere, such as on Schedule BA, and lie outside our sample.

For each bond-insurer-year, Schedule D reports the security identifier (CUSIP), par value, book-adjusted carrying value, fair value, the NAIC designation, and, crucial for our purposes, the channel that produced it: Filing Exempt (public), Private Letter (private), or the Securities Valuation Office (in-house). The NAIC has required insurers to disclose privately rated holdings on Schedule D since 2018, flagging each with the Private Letter administrative symbol; this requirement is what makes the private channel observable in our data and fixes the start of our sample. The granular twenty-bucket sub-category that maps one-to-one with the credit rating is reported only from year-end 2020. It is important to note that the identity of the issuing CRP and the rationale behind each rating are not observed in our data. Nonetheless, as the channel is observed on every bond-insurer-year, we can identify securities that one insurer reports as publicly rated and another reports as privately rated. We restrict attention to U.S. life insurers, the segment with the largest credit-portfolio footprint and the deepest exposure to private ratings.

Table I reports summary statistics for the two panels we construct. Panel (a) reports statistics for the bond-insurer-year panel, which we use for the rating-accuracy and staleness tests. It treats each bond-insurer-year as one observation, identifies a security by its CUSIP, maturity, and interest, and spans reporting years 2020 through 2024, the years for which both the granular sub-category and a forward outcome are available. Holdings are overwhelmingly investment grade: the median position carries an NAIC 1 designation, and even the 95th percentile reaches only NAIC 3.

Panel (b) reports statistics for the insurer-year panel. It covers the 650 U.S. life insurers

that we later study when we examine the strategic use of private ratings (Section 4), over 2018 through 2024, with each insurer's year-end size, portfolio composition, capital position, and an indicator for PE affiliation. Private ratings are concentrated in a minority of insurers: the median insurer-year holds none, while the mean private rating share is 3.39 percent and the 95th percentile is 16.14 percent. PE-affiliated insurers account for about 6 percent of insurer-years.

2 Private Ratings in the U.S. Life Insurance Sector

This section documents the use of private ratings in the U.S. life insurance sector: which insurers use private ratings, what kinds of securities carry them, which providers supply them, and how rarely they carry a public rating.

2.1 Growth and Composition

Figure 1 plots the use of private ratings in the U.S. life insurance sector, illustrating how they have grown from a marginal to a material share of insurer credit portfolios. Measured at carrying value, privately rated bonds grew from $46 billion in 2018 to $481 billion in 2025, roughly a tenfold increase over seven years (Panel (a)). The increase is not a mechanical consequence of balance-sheet growth: as a share of bond carrying value, private ratings rose from 1.5 percent of the portfolio to 12 percent over the same period (Panel (b)).

We next describe the composition of these securities, beginning with where they sit in the credit-quality distribution. Figure 2 plots the share of publicly and privately rated holdings in each of the twenty NAIC sub-categories, each of which corresponds to a credit rating.[3] Broadly, the two channels span a similar range of the credit rating distribution. Like publicly rated bonds, privately rated bonds are overwhelmingly investment grade, and both distributions fall off sharply at the investment-grade–high-yield cutoff, the threshold at which capital charges rise most steeply.

Table II next reports the asset category composition of privately rated holdings alongside publicly rated holdings. Corporate bonds remain the single largest category in both channels, but their share is markedly smaller in the private channel: about 59 percent of privately rated carrying value, against 73 percent for publicly rated. The shortfall is taken up along two dimensions. CLOs and structured credit account for roughly 29 percent of privately rated holdings,

[3] We report the distribution since the move to granular disclosure in 2020.

more than twice their share of publicly rated holdings (about 13 percent). Bank loans account for about 11 percent of privately rated holdings, against under 1 percent of publicly rated holdings. Privately rated portfolios are thus tilted away from straight corporate debt and toward structured credit and bank loans, the two segments least present in the public bond market.

Figure 3 turns to how these holdings are valued. Statutory accounting requires insurers to report each security's fair value along with the inputs used to derive it, following the ASC 820 hierarchy: level 1 for a security marked at a quoted market price, level 2 for one valued from observable inputs such as comparable trades, and level 3 for one valued from unobservable, model-based inputs. Each security is also tagged by who supplied the price, whether a third party such as a pricing service or the holding insurer itself. The pricing source is recorded by a letter: a pricing service (A), a stock exchange (B), a broker or dealer quote (C), the holding insurer itself (D), or the price published in the NAIC's Valuation of Securities (E) (NAIC, 2025b).[4] The figure plots the distribution of publicly and privately rated holdings across this grid. Publicly rated holdings concentrate in cells priced from observable market inputs, whereas privately rated holdings tilt toward level-3, model-based valuations and toward securities priced by the holding insurer itself. Privately rated bonds are therefore not only different in asset type but also harder to value, an opacity whose role in the accuracy gap we examine directly in Section 3.

2.2 Market Structure

We next examine which insurer characteristics measured at the end of year t predict the share of privately rated bonds in year $t + 1$. The results are summarized in Table III. Across all specifications, insurer size, the high-yield share of the portfolio, and PE affiliation are positively associated with private rating use. The coefficient on insurer size increases substantially and becomes significant once insurer fixed effects are included, suggesting that the within-insurer relation between growth and private rating use dominates the corresponding cross-sectional variation. This pattern is consistent with insurer fixed effects absorbing persistent cross-sectional heterogeneity that otherwise attenuates the estimated size effect. On the other hand, the coefficients on the high-yield share are stable across specifications, remaining near 0.2 in every specification. PE-affiliated insurers exhibit private rating shares roughly 9 to 11 percentage points higher than other insurers, relative to a sample mean of 3.9 percent. Private

[4]The fair-value code that records both the level and the pricing source (for example, 3D for a level-3, holder-priced security) is carried only in the raw Schedule D CSV files through 2023; the spreadsheet extracts used for the rest of the panel retain only the level. We recover the source letter by merging the CSV-based code into the panel by security, insurer, and year.

ratings thus concentrate among the insurers where a mismeasured rating matters most: the largest, the most exposed to high yield, and those affiliated with PE.

We next examine the supply side of private ratings. Although all NRSROs are technically eligible to issue both public and private ratings, the market exhibits a striking segmentation. The "Big Three," S&P Global, Moody's, and Fitch, dominate the market for publicly disseminated ratings, while a separate group of smaller agencies ("Small Three"), KBRA, DBRS Morningstar, and Egan-Jones, accounts for the majority of insurers' private-letter-rating exposure. Figure IA.4 illustrates this contrast.[5] While public ratings expose agencies to broad investor scrutiny and repeated interactions in capital markets, these constraints do not bind for private letter ratings. The fact that this segment is dominated by smaller agencies with a limited public-market footprint further weakens reputational constraints and amplifies concerns about rating accuracy.

The dominance of smaller agencies raises a second concern about the analytical capacity to provide informative ratings. To examine whether these rating providers are as well staffed as the major agencies, we draw on Revelio Labs, a workforce-data provider, from which we obtain the career records of credit analysts (occupation code 13-2041.00) employed at the six NAIC-eligible rating providers and compare their tenure, seniority, and education across the two groups. Table IV compares credit analysts at the Small Three and the Big Three. Relative to analysts at the Big Three, analysts at the Small Three are less experienced, with roughly two fewer years at their current firm and about 1.4 fewer years since college. They are also less likely to hold an advanced degree, with the share holding a master's, MBA, or PhD lower by 9.6 percentage points. At the same time, analysts at the Small Three earn modestly higher salaries and total compensation than their Big-Three counterparts. Taken together, these results suggest that the agencies supplying most private ratings operate with both weaker public scrutiny and a less experienced analyst workforce.

2.3 The Absence of Market Discipline

Private ratings operate in a setting that lacks market discipline. By market discipline, we refer to economic forces that make an inaccurate rating costly to the agency that issues it, so that an agency which systematically inflates its assessments forfeits the franchise value of its certification. For market discipline to operate, investors must be able to verify an agency's accuracy, observing enough of its ratings and the credit outcomes that follow, to establish its track

[5]The count of outstanding NRSRO ratings is from the SEC's annual report on NRSROs (SEC, 2025); the private-letter-rating exposure shares are from NAIC (2024b).

record (Mathis, McAndrews, and Rochet, 2009). However, for private ratings, investors cannot assemble the realized performance of a particular rating agency's ratings due to two frictions. First, it is difficult to identify the issuing rating provider. Even in the insurer's statutory filings, we observe whether a rating is through the public or private channel but not the identity of the provider or the individual analyst responsible for the assessment. Second, investors must observe the subsequent performance of the rated securities to evaluate accuracy. This is particularly difficult in private markets because the underlying assets are often opaque, illiquid, and bespoke, making ex-post credit outcomes hard to aggregate into a representative track record. Therefore, its accuracy is difficult to establish from its history, and the reputational mechanism that disciplines public ratings is missing by design.

Even without a verifiable track record for the agency, a weaker form of market discipline could in principle still operate. If the same security also carried a contemporaneous public rating, that public rating would provide a benchmark against which the private rating could be checked, disciplining the assessment even absent any history for the agency itself. This is a second-best form of discipline relative to a verifiable track record, and, importantly, it is one we can test directly in the data. Because ratings are assigned at the insurer-security level, the same bond can carry a private rating for one insurer and a public rating for another, so we can measure how often a privately rated bond is accompanied by such a public benchmark. We define a privately rated bond as dual rated if the same security is also publicly rated by at least one insurer in the same year, and Figure 4 plots this share over time. We find that this second-best discipline is also largely absent: only about 1.7 to 3.4 percent of privately rated bonds carry a contemporaneous public rating in a given year, so the overwhelming majority operate with no public benchmark at all. Where a benchmark does exist, the private and public ratings fall in the same NAIC designation in the large majority of cases, with only a small share of disagreement, a pattern we return to in Section 3.2.

The lack of overlap also highlights a central measurement problem in studying private ratings. Without a contemporaneous public rating, regulators and outside investors have limited ability to benchmark the informational content of a private rating against an externally observable assessment. Moreover, many privately rated bonds are privately placed securities that trade infrequently and outside transparent public markets, limiting the availability of market prices as a consistent benchmark. These features shape our empirical strategy: rather than benchmarking private ratings to market prices, we compare privately rated bonds with publicly rated bonds carrying the same credit rating.

3 The Information Content of Private Ratings

In this section, we examine the information content of private ratings, using public ratings as a benchmark. We first examine the accuracy and staleness of private ratings, and then whether they look different in a setting with market discipline.

3.1 Accuracy and Staleness of Private Ratings

If ratings obtained through different channels convey comparable information about credit risk, bonds assigned the same rating should exhibit similar subsequent deterioration regardless of whether the rating is public or private. We measure subsequent credit deterioration using other-than-temporary impairments (OTTIs). Under statutory accounting, an insurer must write an impaired security down once a credit event renders the loss other than temporary (Becker, Opp, and Saidi, 2022). OTTIs are reported at the bond-insurer-year level, are reviewed by the insurer's auditor, and have served in prior work as a proxy for realized credit losses (Khan, Ryan, and Varma, 2019).

To confirm that an OTTI reflects genuine credit deterioration rather than discretionary bookkeeping, we validate it as a measure of realized credit losses by comparing it to external credit events. We examine two outcomes. First, bonds that record an OTTI are subsequently downgraded by rating agencies far more often than bonds that do not, at roughly three times the one-year rate and the gap widening steadily over horizons out to four years. Second, bonds that record an OTTI are more likely to default in the future than bonds that do not, at roughly thirty times the one-year rate. Because neither outcome is produced by the insurer nor the NAIC, the evidence indicates that an OTTI tracks genuine credit deterioration, supporting its use as a proxy for realized credit losses. Internet Appendix B provides further details.

Our empirical design compares bonds assigned the same rating notch at the end of year t, where one rating is public and the other private, and examines whether the two subsequently experience similar impairment rates over the following one- or two-year horizon. If the rating system is internally consistent, two bonds carrying the same designation should face the same forward credit risk regardless of the channel through which the designation is obtained. Any subsequent difference in impairment rates between the two groups therefore reflects differences in the informational content of the ratings rather than differences in regulatory treatment. This design parallels the standard approach in the credit rating literature, which examines whether the identity of the rating agency predicts future defaults conditional on the same rating notch (e.g., Becker and Milbourn, 2011; Griffin, Nickerson, and Tang, 2013;

Baghai and Becker, 2018; Bonsall et al., 2024). Because our outcome measures are forward looking, we truncate the sample at 2024 for the one-year horizon and at 2023 for the two-year horizon. Moreover, because our empirical design benchmarks private ratings against public ratings, we restrict the sample to bonds rated through either the public or private rating channel and exclude bonds with ratings assigned by other channels.

We begin by plotting in Figure 5 the forward impairment rates by rating category for publicly and privately rated bonds. The figure plots the one-year-ahead OTTI rate on the vertical axis against the NAIC credit-rating category on the horizontal axis, ordered from the safest ratings on the left to the riskiest on the right. Blue hollow markers denote publicly rated bonds and red filled markers denote privately rated bonds. The two-year-ahead horizon, which shows the same pattern, is reported in Figure IA.3. For publicly rated bonds, impairment rates remain near zero throughout investment grade and rise smoothly as credit quality deteriorates. Privately rated bonds exhibit a broadly similar pattern, but relative to publicly rated bonds they display higher forward impairment rates across most rating categories, including much of the investment-grade spectrum below AA. The divergence becomes larger, though also noisier, within speculative-grade ratings: impairment rates are initially comparable at safer high-yield notches but rise substantially for privately rated bonds in the single-B categories. Overall, the evidence suggests that privately rated bonds tend to experience higher subsequent credit deterioration than publicly rated bonds carrying the same rating designation, consistent with systematic rating inflation.

To put a magnitude on the within-rating gap and to confirm it is not an artifact of insurer-specific reporting or common time shocks, we estimate the following regression:

$$\text{OTTI}_{ij,t+h} = \beta \, \text{Private}_{ijt} + \theta' X_{ijt} + \alpha_{c(ijt)} + \varepsilon_{ijt}, \tag{1}$$

where $\text{OTTI}_{ij,t+h}$ is an indicator (multiplied by 100) for whether bond j held by insurer i experiences an impairment within $h \in \{1, 2\}$ years, and Private_{ijt} is an indicator equal to one if the bond's rating is obtained through the private rating channel. The vector X_{ijt} includes bond- and insurer-level controls, including log carrying value, years to maturity, coupon rate, and insurer size, which account for potential selection of different bonds or insurers into the two rating channels.

The term $\alpha_{c(ijt)}$ denotes various combinations of fixed effects. In the baseline specification, we include separate fixed effects for rating notch and calendar year. We additionally consider specifications with insurer fixed effects, so that the coefficient β is identified from variation in rating channel within the same insurer. Our most saturated specification includes insurer

fixed effects together with rating-notch-by-year fixed effects. These fixed effects absorb any common variation in impairment rates among bonds carrying the same rating in a given year, as well as persistent differences across insurers.

Table V reports the regression estimates. Columns (1) through (4) measure impairment one year ahead and Columns (5) through (8) two years ahead. Across all eight specifications the coefficient on Private is positive and statistically significant, indicating that within the same credit rating privately rated bonds are more likely to be impaired than publicly rated ones. For the one-year horizon, private ratings are associated with an increase in impairment rates of roughly 0.13 to 0.16 percentage points. For the two-year horizon, the estimated increase ranges from 0.22 to 0.25 percentage points. These magnitudes are economically meaningful relative to the unconditional impairment rates in the sample, which average 0.16% over the one-year horizon and 0.28% over the two-year horizon. Against a one-year rate of 0.15 percentage points among publicly rated bonds, this gap implies that privately rated bonds are about twice as likely to impair. The estimates remain stable across specifications with insurer fixed effects and with rating-notch-by-year fixed effects, indicating that the result is not driven by differences in insurer composition or by common time variation within rating categories. Overall, the evidence suggests that privately rated bonds carrying the same regulatory designation subsequently impair more often than their publicly rated counterparts, consistent with lower informational content or systematic rating inflation in the private rating channel. Table IA.2 allows the impairment gap to vary between investment-grade and high-yield bonds and finds no statistically significant difference across the two groups.

If private ratings understate credit risk relative to publicly rated bonds carrying the same designation, the corresponding regulatory capital charges are also likely understated. We therefore conduct a counterfactual exercise that asks how much additional capital insurers would be required to hold if privately rated bonds were assigned ratings consistent with the credit risk implied by the public-rating benchmark.

In Columns (1) and (3) of Table IA.3, we first estimate the public-rating benchmark that maps rating notches into future impairment risk. Specifically, we regress forward impairment rates on the NAIC sub-category transformed into a continuous integer scale using publicly rated bonds only. Because the counterfactual ultimately evaluates aggregate capital requirements, which are proportional to carrying value, we weight the regressions by carrying value so that the estimated gradients reflect the pricing of credit risk per dollar invested. A one-notch downgrade is associated with an increase in future impairment rates of 0.031 percentage points at the one-year horizon and 0.054 percentage points at the two-year horizon.

In Columns (2) and (4), we re-estimate equation (1) using the same carrying-value weights.

The results remain economically and statistically significant: privately rated bonds exhibit excess impairment rates of 0.076 percentage points at the one-year horizon and 0.176 percentage points at the two-year horizon, conditional on the same reported rating. Normalizing these excess impairments by the corresponding public-rating gradients implies that the private-rating gap corresponds to approximately 2.5 (0.076/0.031) rating notches at the one-year horizon and 3.2 (0.170/0.053) rating notches at the two-year horizon under the public-rating benchmark.

We conservatively adopt the smaller estimate and apply a two-notch downgrade to all privately rated bonds in the counterfactual exercise, then recompute capital charges using the post-2021 RBC schedule. The two-notch adjustment is also conservative relative to the rating discrepancies the NAIC has documented for privately rated securities (NAIC, 2021).[6] Under this counterfactual, the bond capital charges on insurers' bond holdings would have risen by an additional $3.2 billion in 2021, rising to $5.9 billion by 2025, for a cumulative increase of $22.6 billion over the five-year period. This increase reflects not only the growing footprint of privately rated bonds but also changes in the rating composition of the private channel. Measured relative to the realized capital charge of privately rated bonds, the implied capital shortfall rises from 9.4% in 2021 to 16.6% in 2025. The capital charge also translates into a large increase in required capital. Applying the formula for risk-based capital calculation using industry-aggregate component values in 2024 (NAIC, 2024a), the counterfactual capital charge increase of $5.26 billion for the year 2024 increases the aggregate industry risk-based capital by about $4 billion.

The within-rating comparison pools bonds across issuers, so the estimated gap could reflect unobserved differences between issuers selecting into the two rating channels rather than differences in the ratings themselves. To address this concern, we restrict the sample to issuer-years (defined by the six-digit CUSIP) containing at least one publicly rated bond and one privately rated bond. We then re-estimate equation (1) on this matched-issuer sample and report the results in Table IA.4.

Within the same issuer, privately rated bonds continue to exhibit higher subsequent impairment rates. At the one-year horizon, the pooled private rating effect remains positive and statistically significant, ranging from roughly 0.25 to 0.30 percentage points across specifications. The estimates remain economically similar at the two-year horizon, although they become less precisely estimated. Because this sample is substantially smaller and more selec-

[6] In a 2021 review of select privately rated securities flagged for examination, the NAIC found designations that exceeded its own analysis, and that of NRSRO peers, by three or more notches. Therefore, the two-notch adjustment we apply is also conservative in the sense that it is smaller than the discrepancies documented in that review.

tive, roughly 1.3% of the full sample, the confidence intervals are naturally wider. The rarity of issuers that simultaneously use both rating channels stands in sharp contrast to the public-rating literature. For example, Griffin, Nickerson, and Tang (2013) document that 84.7% of CDO AAA tranches rated by Moody's or S&P between 1997 and 2007 were dual rated. As such, the within-issuer sample should therefore be viewed as a robustness test rather than as representative of the broader population of privately rated bonds. Consistent with this selection, baseline impairment rates are also higher in the matched-issuer sample, averaging 0.31% at the one-year horizon and 0.58% at the two-year horizon. Splitting the sample by credit quality shows that the excess impairment is concentrated in high-yield bonds. The investment-grade effect is small and statistically insignificant, whereas the interaction between private ratings and high-yield status is economically large, between 4.2 and 6.6 percentage points, and statistically significant across specifications and horizons. The excess impairment associated with private ratings therefore persists even within the same issuer and is concentrated in speculative-grade securities, precisely the segment where the two rating channels diverge most strongly in Figure 5.

We also apply the within-issuer design to the assigned rating itself rather than to subsequent impairment. Table IA.5 reports regressions of a bond's assigned rating on the private rating indicator within the matched-issuer sample, controlling for issuer or issuer-year fixed effects. Privately rated bonds receive ratings roughly 0.3 sub-categories better than publicly rated bonds issued by the same issuer (Columns (1) and (2)) and are more likely to carry an investment-grade designation (Columns (3) and (4)), with both differences statistically significant across specifications. Read together with the impairment results, this pattern is difficult to reconcile with private ratings that are merely noisier. Within the same issuer-year, the private channel assigns more favorable ratings to bonds that subsequently impair more often, precisely the pattern one would expect if private ratings are systematically inflated.

Higher subsequent impairment among privately rated bonds does not necessarily imply that the ratings are always uninformative. One possibility is that privately rated bonds are exposed to risks that are slower to emerge or recognize. In that case, the ratings may eventually adjust through more frequent downgrades as credit conditions deteriorate. The resulting higher impairment rates would then reflect slow risk recognition rather than persistent rating inflation, although such delayed downgrades would still imply incomplete ex ante detection of credit risk. The concern becomes more severe if privately rated bonds experience higher impairment without corresponding rating adjustments. We therefore ask whether privately rated bonds are in fact downgraded more often, replacing the outcome with a forward-downgrade indicator equal to one if insurer i assigns bond j a worse NAIC credit rating within h years and

otherwise keeping the specification, controls, and clustering of equation (1). As the NAIC subcategory maps one-to-one to the rating agencies' letter-rating notches, we define a downgrade throughout as a worsening of the bond's NAIC designation, that is, a move to a worse rating notch.

Table VI reports the estimates for the downgrade outcome. Privately rated bonds are downgraded less often, not more: privately rated bonds are 0.5–0.7 percentage points less likely to be downgraded within one year and 0.8–1.1 percentage points less likely within two years, against average downgrade rates of 3.5 and 6.2 percent. Read together with the accuracy results, this indicates staleness: privately rated bonds impair more yet are downgraded less, so the rating does not move as the underlying credit deteriorates. Taken together with the impairment evidence, this joint pattern is difficult to reconcile with explanations based solely on asset composition, capital structure, or industry exposure. Such factors may generate higher future impairments, but they do not naturally predict fewer downgrades at the same time. The evidence instead points to ratings that lag underlying credit deterioration. The direction of this staleness matters for capital. A rating that lags deterioration keeps the credit rating, and therefore the capital charge, at its pre-deterioration level for longer than the bond's credit warrants. Required capital is thus held too low exactly as the bond approaches impairment, the point at which a loss buffer is most needed.

An alternative explanation for the lower downgrade frequency despite the higher impairment rate is that Table V captures only the probability of impairment, not its severity. Expected credit losses depend on both the probability of impairment and the loss given impairment, so it is possible that privately rated bonds experience smaller losses conditional on impairment. To address this concern, we replace the forward-impairment indicator in equation (1) with OTTI severity, defined as the realized impairment amount divided by the bond's pre-impairment carrying value, conditional on the bond impairing. The results, reported in Table IA.6, reject this explanation. Privately rated bonds experience significantly larger losses given impairment than equally rated publicly rated bonds, by approximately 5.7 to 11.4 percentage points of carrying value. Given an average loss severity of roughly 19 percent in the sample, this difference represents about 30 to 60 percent of the unconditional mean. Privately rated bonds therefore not only impair more frequently, but also suffer more severe losses when impairment occurs, further supporting the conclusion that private ratings understate credit risk relative to public ratings.

3.2 Role of Market Discipline

The preceding results suggest that private ratings are less accurate, but not why. A large literature shows that once ratings are embedded in regulation, they affect financing frictions, investment eligibility, and regulatory capital requirements (Kisgen and Strahan, 2010; Baghai, Becker, and Pitschner, 2020). This regulatory reliance creates incentives for ratings inflation because more favorable ratings relax economically meaningful constraints (Opp, Opp, and Harris, 2013). For publicly observable ratings, the classic disciplining forces are reputational capital and market scrutiny (Becker and Milbourn, 2011; Baghai and Becker, 2020). These forces are substantially weaker for private ratings because they are not publicly disseminated, generate little market-price feedback, and are concentrated among smaller agencies with more limited reputational exposure and less cross-investor scrutiny.

How can we test whether the absence of market discipline is what makes private ratings less informative? We hypothesize that the accuracy gap should shrink when a contemporaneous public rating exists for the same bond, because the latter provides an observable benchmark against which the private rating can be evaluated. To investigate this hypothesis, we focus on the dual-rated subsample illustrated in Figure 4: bonds that at least one insurer reports as publicly rated and at least one other insurer reports as privately rated in the same year. Descripitvely, Figure 4 already suggests an important role for market discipline. When public and private assessments can be placed side by side directly on the same security, they overwhelmingly map into the same NAIC designation, with very little disagreement across regulatory buckets. So when a publicly observable benchmark exists for the same security, private ratings rarely diverge from it.

To further investigate this mechanism, we re-estimate equation (1) on the dual-rated sample, retaining the sub-category, year, and insurer fixed effects together with the high-yield interaction, so that variation comes from differences in forward impairment between public and private assessments *within* the same bond. Table VII reports the estimates. Within the dual-rated sample, the positive private rating impairment gap disappears entirely. Across specifications, the coefficient on the private rating indicator is economically small, statistically insignificant, and uniformly negative. In the high-yield segment, where the within-issuer impairment gap was previously largest, the interaction terms are also negative, with some specifications suggesting lower subsequent impairment for privately rated bonds. Where a public rating coexists for the same bond, the private rating behaves much like it, which points to the discipline of an observable benchmark, rather than the rating technology itself, as the source of the gap.

Admittedly, these estimates are imprecise given the small size of the dual-rated sample, as

shown in Figure 4. Nonetheless, the small size of the overlap also highlights a key feature of the private rating market. If the gap closes among dual-rated bonds because an observable public benchmark disciplines the private rating, then such discipline is present for only a small share of the privately rated universe, as most privately rated bonds carry no contemporaneous public benchmark.

3.3 Robustness

We next examine the robustness of our findings on the impairment gap. Two concerns are particularly important. First, privately and publicly rated bonds may differ systematically in their asset composition, so the gap could reflect what the two channels hold rather than how they rate. Second, the gap may reflect differences in the timing or mechanism through which credit losses are recognized rather than differences in underlying credit deterioration.

Section 2.1 showed earlier that privately rated bonds are disproportionately valued from unobservable inputs, which raises a mechanical alternative: private ratings may simply be attached to assets that are intrinsically harder to assess, so the gap would reflect asset complexity rather than the rating channel. This explanation is plausible given evidence that rating agencies apply different methodologies and criteria across asset classes (Griffin and Tang, 2012; Cornaggia, Cornaggia, and Hund, 2017), so we formally test it below. However, the opacity of privately rated bonds need not mechanically predict higher impairment conditional on rating. Greater opacity may make future outcomes noisier and ratings less informative overall, but it does not naturally imply a directional bias toward higher subsequent impairment. If anything, a prudent rater facing greater uncertainty should incorporate that uncertainty into the assigned rating and rate such securities more conservatively, which would predict a negative gap rather than the positive gap we find. Moreover, if the concern is that the impairment gap reflects differences in accounting treatment rather than rating quality, such discretion should be greatest precisely among the most opaque securities. In that case, our estimates would likely be biased toward zero.

We nevertheless examine directly whether the private rating gap is concentrated among the hardest-to-value securities. We do so by adding to equation (1) an interaction between the private rating indicator and an indicator of asset opacity. We consider two proxies for opacity in turn: securities valued using unobservable inputs (fair-value level 3) and securities priced by the holder itself (NAIC pricing source D). The interaction therefore tests whether the private rating impairment gap is larger among opaque securities than among otherwise comparable bonds. We additionally include granular fixed effects for each fair-value cell defined jointly by

the ASC 820 valuation level and pricing source. If asset complexity were driving the results, the interaction should be positive and should absorb the main private rating effect. Table IA.7 and Table IA.8 report the results for the two opacity measures, respectively. Across specifications, the private rating coefficient remains positive and close to its baseline magnitude, while its interaction with the opacity indicator is small and statistically insignificant in every column. Put differently, the impairment gap is no larger among the most opaque securities than elsewhere, suggesting that asset complexity alone does not explain the results. The gap survives within narrow fair-value cells and therefore points back to the rating channel itself. We reach the same conclusion when we instead absorb asset-category fixed effects, comparing privately and publicly rated bonds of the same broad asset type, such as corporate bonds, structured credit, or bank loans, within the same rating, insurer, and year. The gap is, if anything, larger under this comparison, at 0.25 percentage points at one year and 0.38 at two years (Table IA.9), so differences in the mix of asset types across channels do not account for the result.

Our analysis so far draws impairments from bonds that insurers continue to hold on their balance sheets. An alternative interpretation is that the higher impairment rate of privately rated bonds reflects differences in how credit losses are recognized rather than differences in the frequency of underlying credit losses. Because publicly rated bonds are generally more liquid, an insurer whose public bond deteriorates may dispose of it and realize the loss upon sale rather than recognize it through impairment while continuing to hold the security. We therefore ask whether the impairment gap persists among bonds that the insurer never disposes of in Table IA.10. Re-estimating equation (1) on bond-insurer-years whose security is never disposed of during the sample period, the gap remains positive and significant: privately rated bonds impair roughly 0.09 to 0.12 percentage points more at the one-year horizon and 0.17 to 0.22 percentage points more at the two-year horizon. While these magnitudes are somewhat smaller than the baseline coefficients in Table V, the unconditional impairment rates are also substantially lower in this subsample, at only 0.07 percent and 0.12 percent at the one- and two-year horizons, respectively. Relative to these benchmarks, the private-rating gap remains economically large, exceeding the unconditional impairment rate itself at both horizons.

A complementary implication of the loss-recognition hypothesis concerns disposal outcomes. If publicly rated bonds realize credit losses through sale rather than impairment, then among otherwise similar bonds, publicly rated securities should be more likely to exit the balance sheet at a loss. We test this prediction directly. For each bond-insurer-year, we construct an indicator equal to one if the security is disposed of within one or two years at proceeds below its prior-year carrying value. The results, reported in Table IA.11, reject the prediction that publicly rated bonds are more likely to be disposed of at a loss. Privately rated bonds are

11.6 percentage points more likely to be disposed of at a loss within one year and 9.8 percentage points more likely within two years than publicly rated bonds carrying the same NAIC designation. Thus, privately rated bonds are more likely to realize losses through disposal as well as through impairment. Consistent with this finding, Table IA.12 shows that privately rated bonds are also less likely to be disposed of at a gain. The disposal evidence is therefore inconsistent with the hypothesis that publicly rated bonds are more likely to recognize credit losses through sale rather than impairment.

Overall, these robustness tests suggest that the private rating impairment gap is robust to the leading alternatives to a credit interpretation. It is not concentrated among the most opaque or hardest-to-value securities, and it is, if anything, larger within the same broad asset category, so it does not stem from differences in asset composition. Nor does it reflect where losses are recorded: the gap persists among bonds that are never sold and the disposal records show that privately rated bonds are more likely to exit at a loss. The evidence therefore points back to the rating channel itself, consistent with the weaker market discipline documented in Section 3.2.

4 The Strategic Use of Private Ratings

Because a bond's credit rating sets the capital its holder must carry, the previous results leave room for regulatory arbitrage: an insurer that routes a bond through the private channel may secure a more favorable and stickier capital treatment than its credit risk warrants. We ask whether insurers use private ratings this way. We first document that when an insurer reassigns a bond from the regulator's in-house channel into the private channel, its rating tends to improve, a pattern consistent with strategic use. Because such reassignments are themselves endogenous, we then exploit a 2021 reform of the NAIC's capital framework to generate variation in regulatory capital pressure that is independent of insurers' channel choices.

4.1 Switches in Rating Channels

If insurers route securities into the private channel to obtain more favorable treatment, a bond's rating should improve when it enters that channel. We examine this hypothesis by tracking how bonds move across the three rating channels: (i) the *public* channel, in which the NAIC designation is taken from a public credit rating; (ii) the *private* channel, in which it is taken from a privately disclosed letter rating; and (iii) the *in-house* channel, in which the NAIC's

SVO sets the designation itself for bonds that lack an eligible public or private rating. These channels are highly persistent, with more than 95 percent of bond-years in each remaining in the same channel the following year (Table IA.13). But we also find that a considerable number of bonds do switch, the private channel being the least persistent of the three.

In particular, we examine bonds that move out of the regulator's in-house assessment and into the private channel. Figure 6(a) plots the change in NAIC notches when these bonds switch to a private rating. The change is overwhelmingly favorable: the rating is upgraded for roughly 57 percent of switches and downgraded for only about 14 percent, more than four upgrades for every downgrade. One possible explanation is that the regulator's in-house assessment is systematically too conservative. We later examine this possibility in Section 5.1, where we directly evaluate the accuracy of in-house ratings as a potential substitute for outsourced certification. However, that explanation would predict similar upgrades whenever bonds leave the in-house channel, regardless of where they switch into. This is not what we observe. When the same in-house-rated bonds instead move to the public channel (Figure 6(b)), upgrades are no more common than downgrades and, if anything, occur less frequently. The favorable re-rating is therefore specific to transitions into the private channel rather than to departures from the regulator's assessment itself.

Earlier results in Section 3.2 highlighted the role of market discipline in sustaining a rating's informational content. One would then expect the same force to operate here: a bond that already carries a publicly observable, market-disciplined rating should have little room to be re-graded upward when it moves into the private channel. Indeed, that is what we find. When a bond enters the private channel from the public channel rather than from the regulator (panel (c)), upgrades and downgrades are about equally common, in contrast to the sharp upgrade from the in-house channel, whose conservative designation has more slack to give. The favorable re-grading is therefore concentrated in the move from the regulator's own assessment into the private channel.

While these patterns are consistent with insurers using the private channel to obtain more favorable ratings, one concern is that the decision to move a bond between channels is not random but made by the insurer itself. The securities that switch are selected, and a bond may be moved precisely when a more favorable rating becomes attainable or most valuable. Moreover, channel-switching events are relatively rare. Given this consideration, we turn next to a setting that shifts regulatory capital pressure independently of these choices.

4.2 The 2021 NAIC Reform and Empirical Design

To identify a causal strategic response rather than the selection just described, we require variation in regulatory capital pressure that is independent of insurers' ex ante channel choices. To generate such variation, we exploit a regulatory reform that mechanically changed capital charges across bonds that were largely unrelated to insurers' ex ante channel choices. The focal reform is the NAIC's June 2021 RBC factors, which unfolded in two stages. Beginning with year-end 2020 filings, insurers were required to report bonds using twenty granular NAIC sub-categories tied directly to the underlying agency letter ratings, rather than the previous six broad designations. In June 2021, the NAIC adopted a revised schedule of C-1 capital factors mapped to these finer rating categories, effective for year-end 2021 statements. The C-1 factor is effectively the regulatory price of credit risk: it determines how much capital an insurer must hold against a bond and enters directly into the RBC ratio governing regulatory intervention.

The introduction of the more granular risk-factor schedule redistributed capital charges within each previously broad NAIC designation, thereby generating heterogeneous changes in regulatory capital pressure across insurers. For example, under the prior rules every bond in NAIC 2 carried a 1.30 percent C-1 factor, whereas under the new schedule the factor ranges from 1.26 percent for BBB+ bonds at the top of the category to 2.17 percent for BBB− bonds at the bottom. Bonds near the lower end of each designation therefore experienced substantial increases in required capital, while those near the upper end experienced small declines. The full schedule of pre- and post-reform C-1 factors is reported in Table IA.14.

From the perspective of insurers, however, the reform's net effect on portfolio-level capital requirements was difficult to anticipate ex ante. Although insurers may have expected in 2020 that more granular disclosures would eventually be paired with more granular risk factors, the resulting changes were not a simple monotonic function of an insurer's pre-reform capital charges or portfolio risk. Instead, the effect depended on each bond's precise position within the newly introduced sub-category schedule. For instance, an insurer concentrated in A− bonds (the bottom of the old NAIC 1 bucket) could experience capital charge increases similar to another insurer concentrated in BBB− bonds (the bottom of NAIC 2), despite the underlying bonds differing substantially in credit quality. By contrast, an insurer concentrated in BBB+ bonds at the top of NAIC 2 could experience a decline in required capital. The ultimate effect of the reform therefore depended both on the detailed composition of an insurer's pre-reform portfolio and on the gradient of the new capital schedule across fine rating categories.

Specifically, we construct an exposure measure capturing how strongly the reform affected each insurer's regulatory capital requirements. For each bond in an insurer's 2020 portfolio,

we compute the change in its C-1 factor induced by the reform: the difference between its post-2021 sub-category factor and its pre-2021 bucket factor. We then aggregate these bond-level changes to the insurer level using 2020 portfolio weights and scale by the insurer's pre-reform average capital factor, thereby measuring the proportional change in capital charges that the insurer's pre-reform portfolio would face under the new schedule. Because the exposure measure is constructed using fixed 2020 portfolio weights, it is predetermined with respect to post-reform behavior in the spirit of a Bartik-style exposure design. The measure therefore isolates variation in regulatory capital pressure arising from pre-existing portfolio composition rather than from insurers' subsequent portfolio rebalancing or rating-channel choices. Figure IA.6 plots the distribution of the exposure measure across insurers. Most insurers experience a positive exposure shock, with the average insurer facing roughly a 20 percent increase in implied capital charges relative to its pre-reform schedule. The magnitude of the shock also varies substantially across firms: comparing insurers at the 25th and 75th percentiles of the exposure distribution, the interquartile range is approximately 12 percentage points.

We estimate the following difference-in-differences specification:

$$\text{PLRShare}_{it} = \beta\,(\text{Exposure}_i \times \text{Post}_t) + \theta' X_{it} + \alpha_i + \alpha_t + \varepsilon_{it}, \tag{2}$$

where PLRShare_{it} is the share of insurer i's bond holdings rated through the private channel in year t, among all publicly and privately rated bonds; Exposure_i is the insurer's pre-determined exposure to the reform; Post_t indicates years from 2021 onward; and X_{it} includes log total assets, log bond portfolio size, and the log number of publicly and privately rated bonds. Insurer fixed effects α_i absorb all time-invariant insurer characteristics, including baseline exposure and persistent differences in the propensity to use private ratings, while year fixed effects α_t absorb aggregate post-reform shifts common across insurers. Standard errors are clustered at the insurer level. Economically, the design compares otherwise similar insurers that differed in how strongly the reform increased the capital charges on their pre-reform portfolios, asking whether the more exposed insurers responded by increasing their reliance on private ratings relative to less exposed insurers. A positive and significant coefficient β would indicate that the constrained insurers would strategically use private ratings to mitigate the reform's impact on their capital requirements.

4.3 Results

Identification requires that, absent the reform, high- and low-exposure insurers would have followed parallel trends in private rating use. This assumption is plausible given the largely

idiosyncratic nature of the reform's insurer-level impacts. To further assess this assumption, Figure 7 reports the event-study version of the specification, plotting the coefficients on the interaction between exposure and each year relative to the 2020 baseline. Across panels, the pre-reform coefficients for 2018 and 2019 are economically small and statistically indistinguishable from zero, indicating that high- and low-exposure insurers were not on differential private rating trends prior to the reform. The coefficients turn positive after 2021 and increase over the post-reform period. The pattern is strongest for high-yield holdings in Panel (c), where the effect rises steadily and becomes statistically significant toward the end of the sample, although the estimates remain imprecise.

Table VIII reports the difference-in-differences estimates. Column (1) uses all publicly and privately rated holdings. The coefficient on Exposure × Post is approximately 2.7 and statistically significant at the 10 percent level. Given the cross-sectional dispersion in exposure, this estimate implies that an insurer at the 75th percentile of the exposure distribution increased the private rating share of its portfolio by roughly 0.32 percentage points more than an insurer at the 25th percentile after the reform, equivalent to about 9.4% of the unconditional mean private rating share in the sample. Column (2) restricts the outcome to investment-grade holdings. The coefficient remains economically similar at roughly 2.5, similarly statistically significant at the 10 percent level. Column (3) restricts the outcome to high-yield holdings, where the coefficient rises sharply to approximately 16.6 and is statistically significant at the 5 percent level, against a mean high-yield private rating share of 6.5 percent. The strategic response is therefore concentrated in high yield, although it is also detectable in the overall portfolio: insurers facing larger mechanically induced increases in capital charges increased their reliance on private ratings disproportionately after the reform. This concentration is economically meaningful because speculative-grade bonds face the largest capital consequences from rating changes. Notably, it is also the segment in which the informational gap between public and private ratings is most pronounced. Insurers therefore shift toward the rating channel that appears least informative precisely where favorable certification is most valuable.

The strategic response itself is revealing. When regulatory capital constraints tighten, insurers disproportionately shift toward private ratings, a revealed preference consistent with regulatory arbitrage. This behavior is naturally interpreted as a form of rating shopping: insurers facing greater capital pressure increasingly seek certification through the channel they perceive as more favorable. The opacity that facilitates rating shopping may also create scope for rating catering by agencies. Such concerns have also been raised by regulators. As noted in a recent SEC staff report, rating agencies may be aware that insurer clients "would benefit from receiving a higher credit rating" when ratings affect regulatory capital requirements

(SEC, 2025). Because private ratings are not publicly disseminated, agencies face weaker reputational discipline and may have stronger incentives to accommodate client demand for favorable certification.

Prior work studies arbitrage through asset choice or balance-sheet structure. Reaching for yield involves tilting toward riskier assets within a capital bucket to earn higher returns at the same regulatory charge (Becker and Ivashina, 2015), while securitization without risk transfer repackages exposures so that measured regulatory risk understates retained economic risk (Acharya, Schnabl, and Suarez, 2013). In both cases, the regulatory risk measure itself, the rating, is taken as given. The private rating channel instead arbitrages the certification process underlying the risk measure. Rather than changing the asset or its structure, the insurer obtains a different assessment of the same bond, one less likely to tighten capital constraints through downgrades or higher risk charges. This margin becomes increasingly important as private credit migrates onto insurer balance sheets, since a growing share of regulatory capital then rests on assessments that public markets never observe or price.

A concern with the baseline design is that an insurer's privately rated share can move without any active decision, for instance through the revaluation or runoff of bonds it already holds. To show that the response reflects deliberate portfolio choice, we re-estimate the design using only the bonds each insurer acquired during the year, measuring the privately rated share of those new purchases. We find a similar pattern: more exposed insurers tilt their new purchases toward privately rated bonds after the reform, and the effect is again concentrated in high yield (Table IA.15). The response therefore reflects deliberate demand for private ratings rather than mechanical changes in legacy portfolios. More importantly, it suggests that tighter capital regulation can redirect activity toward a certification channel that appears less informative about underlying credit risk. If private ratings indeed understate risk, the reform may inadvertently encourage a form of regulatory arbitrage that offsets part of its intended financial-stability benefits.

5 The Limits of Regulatory Intervention

In this section, we examine whether the regulator can substitute its own credit assessment for the outsourced ratings it relies on, or whether that delegation reflects a binding constraint rather than a choice. We consider two margins: (i) producing designations in-house and (ii) tightening the disclosure it requires of private raters. For each, we ask how far each can substitute for outsourced certification.

5.1 Need for Delegated Certification

A natural response to the accuracy gap is for the regulator to certify credit risk itself rather than rely on outsourced ratings. The NAIC already maintains this capability: its SVO assigns designations in-house, without reference to a credit rating provider, for bonds that lack an eligible public or private rating (NAIC, 2025a). If these regulatory assessments were better calibrated than private ratings, the case for relying on private ratings would weaken substantially. We therefore apply the within-rating and downgrade designs of Section 3 to SVO-rated bonds, comparing regulator-rated and publicly rated bonds carrying the same NAIC designation. The identifying variation therefore comes from differences in subsequent impairment and downgrade behavior between in-house vs. publicly certified bonds assigned the same regulatory designation.

Figure IA.5 plots forward impairment rates by credit rating for publicly rated and in-house-rated bonds. The two series track each other closely throughout the investment-grade range. The divergence emerges in speculative-grade categories, where in-house designations appear systematically more conservative. Panel (a) of Table IX confirms this pattern in a regression that re-estimates equation (1), replacing the private rating indicator with an in-house-rating indicator. The main in-house effect is economically small and statistically indistinguishable from zero, while the interaction between in-house ratings and high-yield status is negative and statistically significant, approximately -0.5 percentage points at the one-year horizon. Thus, conditional on the same rating designation, high-yield bonds rated in-house subsequently impair less often than publicly rated bonds.

Panel (b) of Table IX examines forward downgrades using the same specification as equation (1), replacing the private rating indicator with an in-house indicator. In-house-rated bonds are significantly more likely to be downgraded within one year than publicly rated bonds carrying the same designation, with coefficients around 1.4 percentage points against an unconditional one-year downgrade rate of 3.4 percent. The two-year estimates are economically similar but less precisely estimated. Where private ratings were more prone to impairment yet less likely to downgrade, in-house ratings are more conservative and more willing to downgrade, exhibiting the opposite pattern.

Given the information content of in-house ratings, why does the regulator rely on outsourced ratings at all? We find evidence that capacity constraints are an important part of the answer. Figure 8 contrasts the SVO's workload with its staffing. Panel (a) plots the number of unique privately rated securities each year against the SVO analyst headcount; private letter ratings have grown over ten-fold since 2018 while the analyst count has stayed essentially flat.

Panel (b) shows the number of insurer filings the SVO does not complete by its year-end deadline, which has nearly tripled from about 800 in 2021 to over 2,000 in 2025. This evidence suggests that the office cannot easily scale in-house review to the volume of credit now held by insurers, so delegation to outside raters is not a choice the regulator can simply reverse. The accuracy gap associated with private ratings persist in part because the more conservative alternative cannot currently be produced at the required scale.

5.2 Limits of Mandated Disclosure

If the regulator cannot fully replace outsourced ratings with in-house certification, a second-best response is to discipline private ratings through greater transparency. To test the effectiveness of such a reform, we examine whether increased disclosure narrows the private rating accuracy gap. Specifically, we study the 2020 transition to granular sub-category reporting, which increased the precision with which private ratings were disclosed to regulators. We extend the panel back to 2018 and estimate

$$\text{OTTI}_{ij,t+h} = \beta\,\text{Private}_{ijt} + \gamma\,(\text{Private}_{ijt} \times \text{Post2020}_t) + \theta' X_{ijt} + \alpha_{d(ijt)} + \alpha_t + \varepsilon_{ijt}, \qquad (3)$$

where Post2020_t marks years on or after the reform and $\alpha_{d(ijt)}$ is a fixed effect for the broad NAIC designation bucket, used in place of the sub-category because sub-categories are not reported before 2020. The coefficient β captures the pre-reform private rating impairment gap, while γ measures how that gap changes after the disclosure reform. If greater transparency disciplines private ratings, γ should be negative.

Table X reports the results. Column (1), which includes NAIC bucket, year, and insurer fixed effects, estimates a pre-reform private rating impairment gap of 0.31 percentage points and a Private × Post 2020 interaction of −0.19, although the interaction is statistically insignificant. Column (2), which replaces standalone year fixed effects with bucket-by-year fixed effects, yields similar estimates. The two-year specifications in Columns (3) and (4) show a larger pre-reform impairment gap of roughly 0.5 percentage points, while the post-reform interaction is only marginally significant in column (3). Overall, the estimates provide little evidence that the move to granular sub-category disclosure meaningfully narrowed the private rating impairment gap.

Mandated disclosure, like the regulator's in-house production, does not substitute for the market scrutiny that the private channel removes. The two margins fall short for a common reason. Market discipline is not a service the regulator can directly purchase or mandate; it

arises from the decentralized scrutiny of many participants who observe a rating, trade on it, and collectively hold the rating to the underlying credit risk. Producing ratings in-house replaces that diffuse scrutiny with the regulator's own assessment, but this approach does not scale to the volume of credit insurers now hold. Mandating disclosure of private ratings reveals the designation to the regulator, yet it does not generate the external monitoring and price feedback associated with publicly traded ratings, because the underlying securities still do not trade in markets that discipline the certification. Neither approach recreates the informational discipline that public observability generates as a byproduct of market participation, so the limits we document appear structural rather than merely a consequence of regulatory effort.

6 Conclusion

Investors and regulators have long delegated the assessment of credit risk to rating agencies, on the understanding that a rating both informs the market and sets the capital its holder must carry. Traditionally, these two functions held together as the rating was public: the same signal that priced a bond also disciplined the agency that issued it. As credit has migrated into private markets, a growing share now arrives with a private rating, which is disclosed only to the issuer and a select set of investors. As a result, the rating still determines regulatory capital, but whether it still conveys credit risk is an open question.

We provide four sets of findings on the information content of private ratings from the U.S. life insurance sector, where ratings set regulatory capital and insurers' filings disclose the channel behind each bond. First, privately rated holdings have grown roughly ten-fold since 2018, concentrated in opaque securities and among the largest and PE-affiliated insurers. Second, within the same rating, privately rated bonds carry higher subsequent credit losses yet fewer downgrades than publicly rated bonds, and this gap disappears for bonds that also carry a public rating. Third, exploiting a 2021 reform of the capital framework, we find that insurers tilt toward private ratings precisely where doing so relieves the most regulatory capital. Fourth, the regulator's own tools fall short: its in-house assessment rates credit more conservatively but is capacity-constrained, and disclosure reforms leave the accuracy gap in place.

Our comparisons hold the rating fixed, and in the strictest specifications also the insurer and the asset category. While we cannot rule out that the two groups differ along dimensions we do not observe, these differences are unlikely to be the whole story. For example, the impairment gap persists even within the subsample of issuer-years with assets rated both publicly and privately. It is also present within asset category and is no larger among the most opaque

securities where such asset-level differences would matter most. Most tellingly, privately rated bonds impair more yet are downgraded less, a pattern that differences in asset characteristics alone would not produce.

Together these findings identify market discipline as a critical component in keeping a rating informative. Our findings also have two broader implications. First, as capital is set by the rating and not the risk, an inflated private rating leaves the insurer undercapitalized against the bond it holds. This matters because private ratings concentrate among the largest, high-yield-exposed insurers and in their most opaque holdings, so inaccurate ratings conceal tail risk in the segment with the largest systemic footprint. Second, the potential shortfall is ultimately borne by those the insurer owes rather than by the insurer itself. When its equity is too thin relative to the bonds' true default risk, the unrecognized credit losses fall on the annuity and life claims it has promised to honor. Our results thus suggest that the accuracy of private ratings is therefore less a narrow measurement issue than a broader question of financial stability and policyholder welfare.

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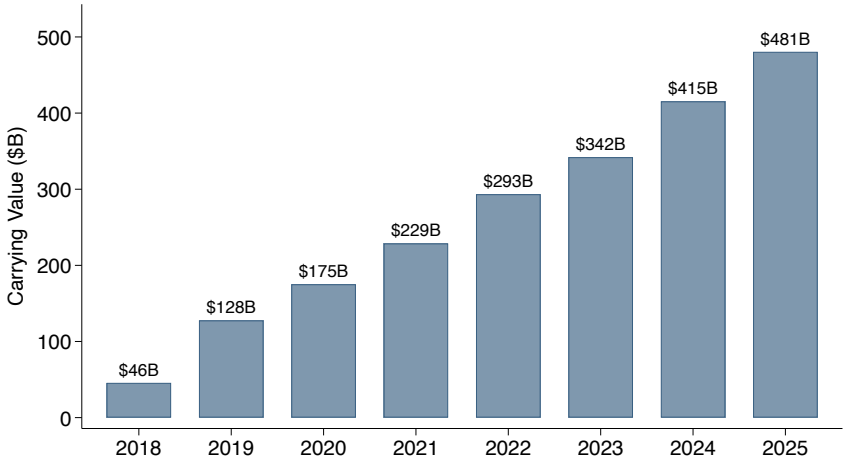
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Panel (a): Dollar holdings ($ billions)



Panel (b): Share of bond portfolio

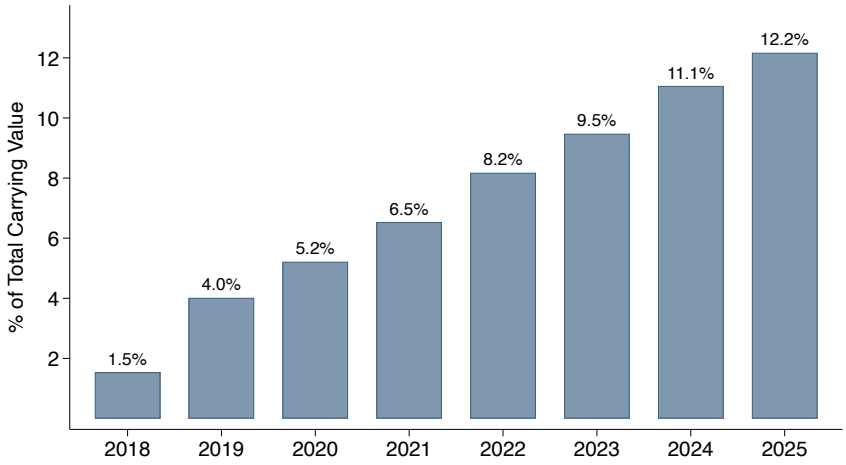


Figure 1. **Growth of Private Ratings in the U.S. Life Insurance Sector.** The figure plots the footprint of privately rated bonds in U.S. life-insurer general accounts from 2018 to 2025. Panel (a) reports carrying-value holdings in billions of dollars aggregated across all insurers. Panel (b) reports the same holdings as a share of total bond carrying value as reported in Schedule D.

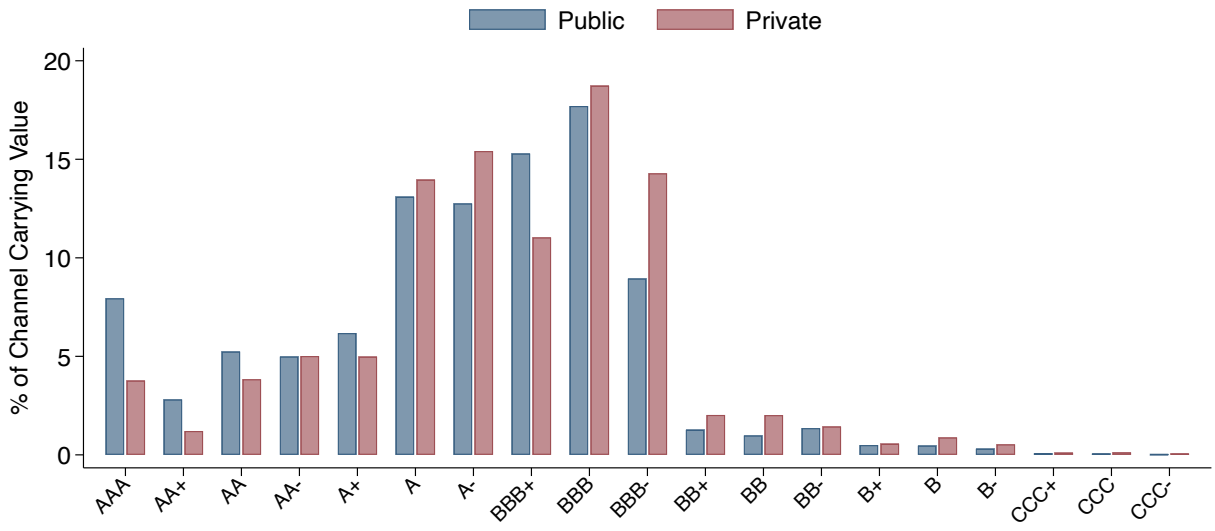


Figure 2. **Distribution of NAIC Credit Ratings: Publicly versus Privately Rated Bonds.** The figure plots, separately for publicly and privately rated bonds, the share of holdings (vertical axis) in each credit rating (horizontal axis). We convert the NAIC's sub-category designation, reported from 2021, into its equivalent rating-agency scale, which runs from AAA (highest quality) through C.

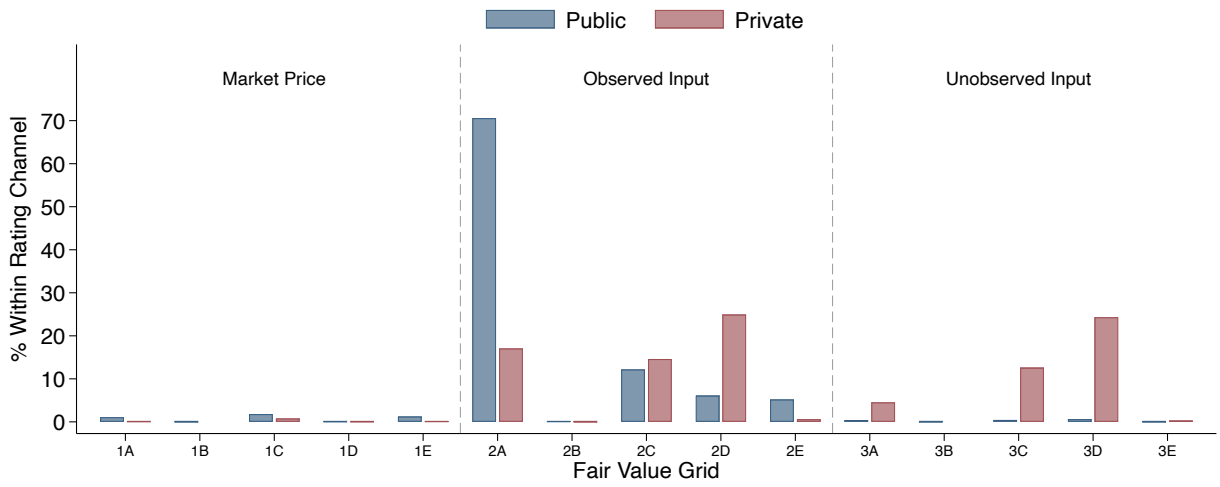


Figure 3. **Valuation Inputs of Publicly versus Privately Rated Holdings.** The figure plots the distribution of publicly and privately rated holdings, as a percentage within each group, across the NAIC fair-value grid, which groups securities by valuation input: market price (level 1), observable inputs (level 2), and unobservable inputs (level 3), each subdivided by pricing source. The source letter records how the price was obtained: a pricing service (a), a stock exchange (b), a broker or dealer quote (c), the holding insurer itself (d), or the price published in the NAIC's Valuation of Securities (e).

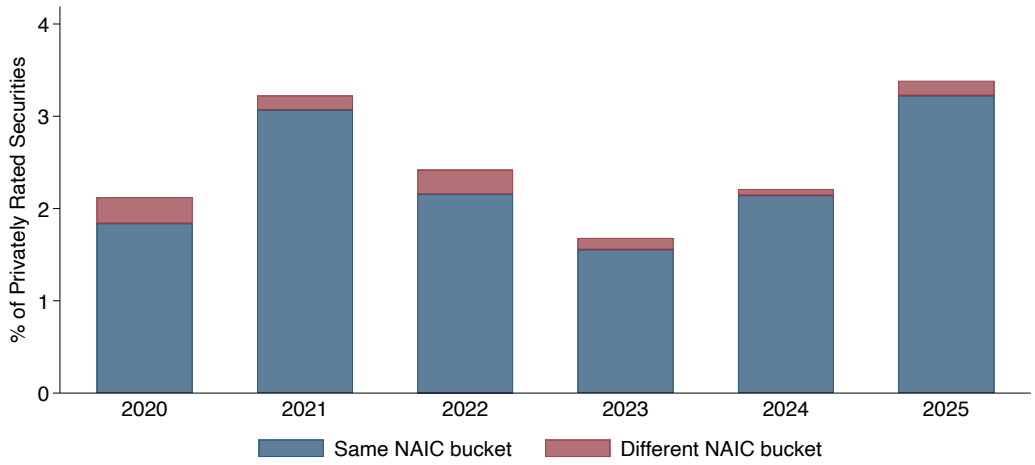


Figure 4. **Share of Privately Rated Bonds with a Public Benchmark.** The figure plots, by year, the share of privately rated bonds held by U.S. life insurers that are also publicly rated, where a privately rated security is counted as dual rated if at least one other insurer reports the same security using a public rating in that year. Each bar is split into the share for which the public and private reports assign the same NAIC designation and the share for which the two reports fall in different designations.

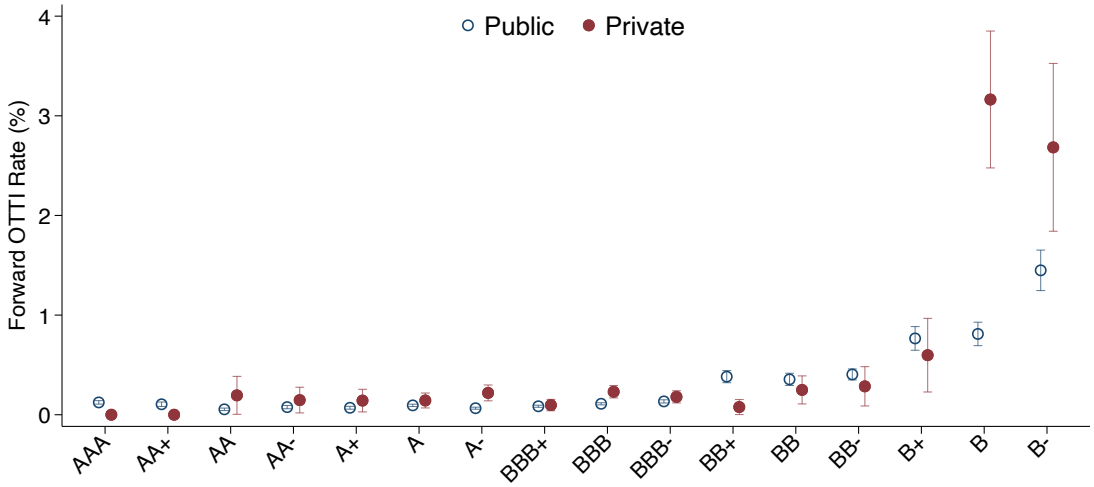
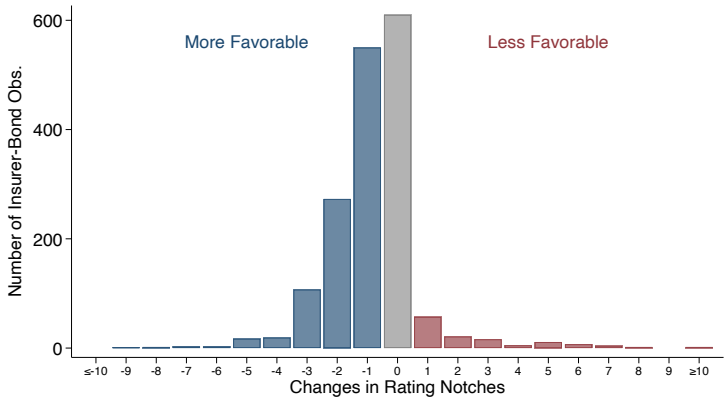
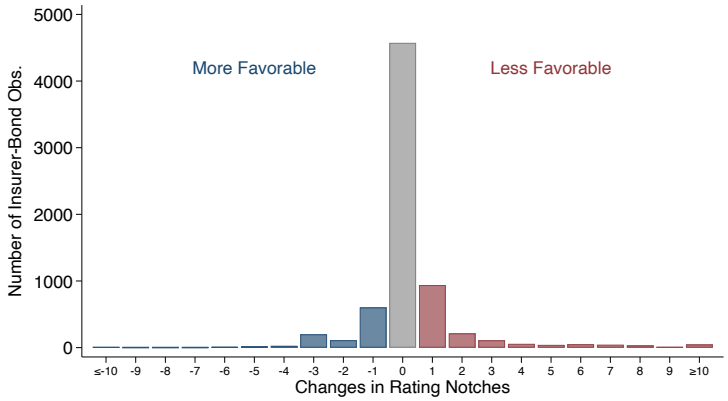


Figure 5. **Forward Impairment Rates by NAIC Credit Rating: Publicly versus Privately Rated Bonds.** The figure plots the average one-year-ahead other-than-temporary impairment (OTTI) rate (vertical axis), the share of bond-insurer-years that record a credit-related write-down within one year, against the credit rating (horizontal axis), with separate lines for publicly and privately rated holdings and 95% confidence intervals. The rating is the NAIC sub-category designation mapped to its equivalent rating-agency scale (AAA through B-), ordered from the safest categories on the left to the riskiest on the right. We omit the C category from the figure because of its low frequency and resulting wide confidence intervals, but retain it in the regression sample. The two-year-ahead horizon is reported in Figure IA.3.

Panel (a): In-house to Private



Panel (b): In-house to Public



Panel (c): Public to Private

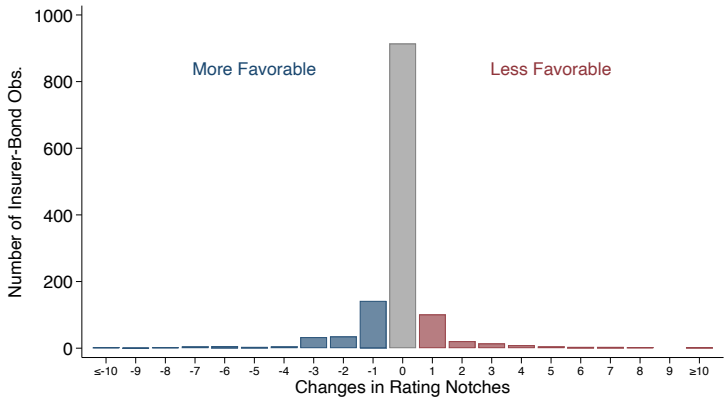


Figure 6. **Rating Changes around Channel Switches.** Each panel plots the distribution of the change in a bond's NAIC credit rating, in sub-category notches, in the year it switches rating channel. The change is the current-year notch minus the prior-year notch, so a negative value is a more favorable rating (an upgrade, in navy) and a positive value is less favorable (a downgrade, in maroon); grey bars denote no change. Panel (a) covers bonds moving from the in-house (SVO) channel to the private channel, panel (b) from the in-house channel to the public channel, and panel (c) from the public channel to the private channel. The sample is insurer-bond-years observed in both years over 2021–2025.

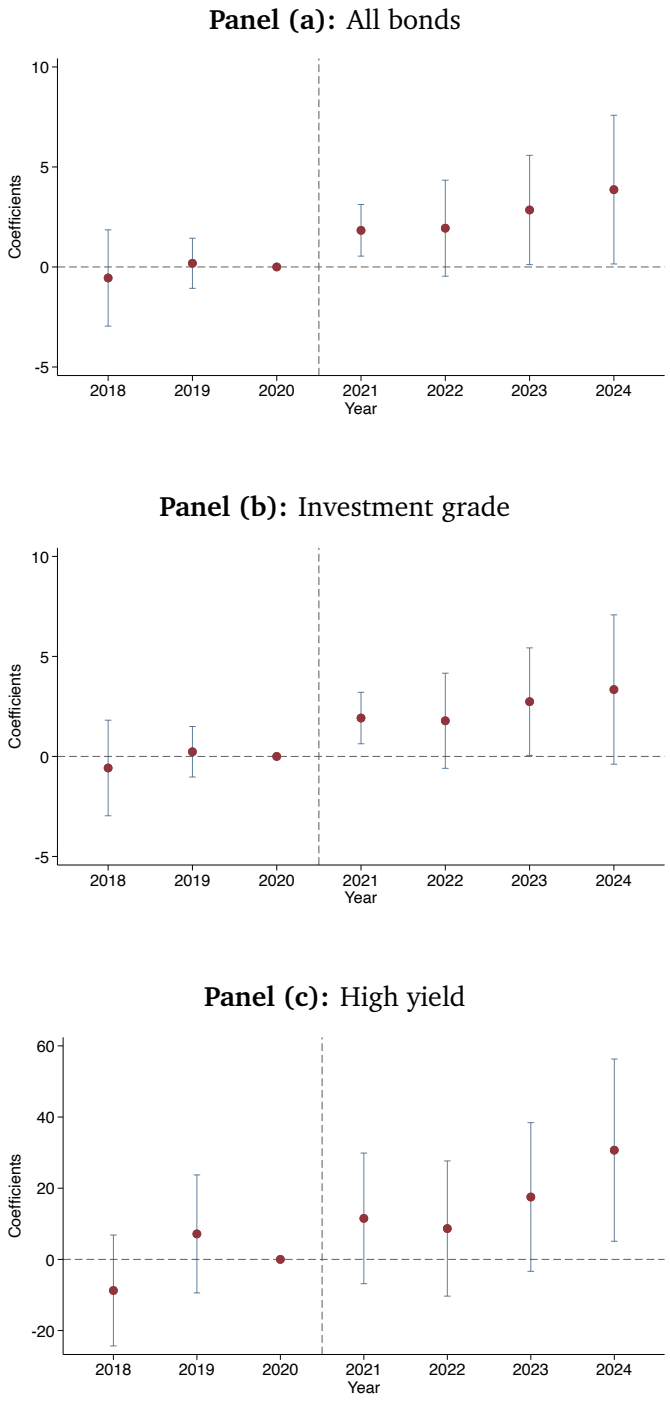


Figure 7. **Event-Study Estimates of the Private Rating Share by Reform Exposure.** The figure plots year-by-year coefficients from a regression of an insurer's private rating share on the interaction of its reform exposure with year indicators, with insurer and year fixed effects and insurer controls. 2020 is the omitted base year and the dashed vertical line marks the 2021 reform. Panel (a) uses all bonds, Panel (b) investment-grade bonds, and Panel (c) high-yield bonds.

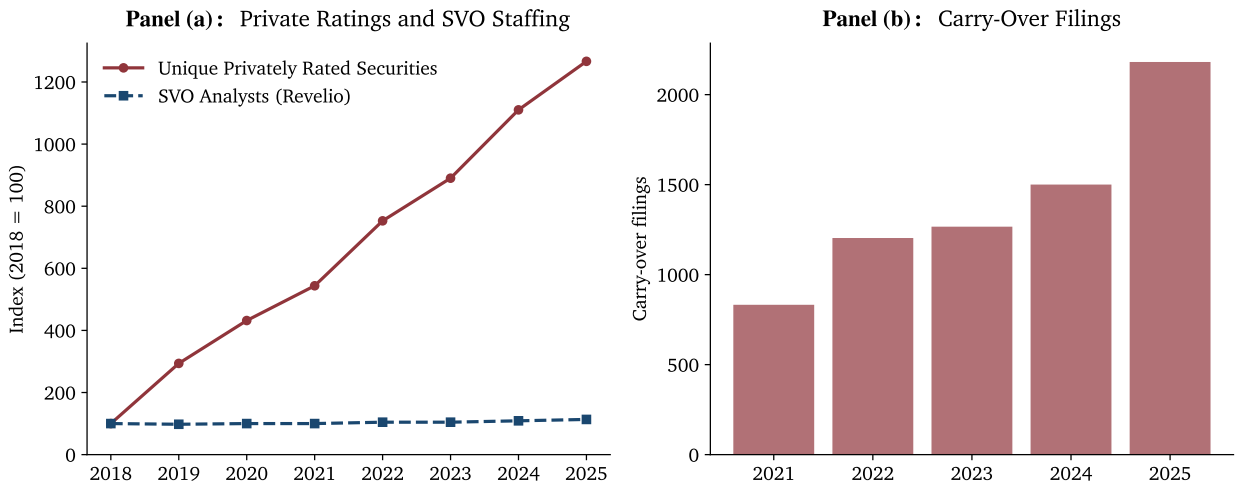


Figure 8. **Capacity Constraint of In-House Review.** The figure plots two annual measures of the NAIC Securities Valuation Office's workload and staffing. Panel (a) plots the count of unique privately rated securities (maroon) alongside the SVO analyst headcount (navy), both indexed to 100 in 2018. The count of privately rated securities is the number of distinct securities, identified by the combination of CUSIP, maturity date, and coupon rate, that appear in our Schedule D panel with the Private Letter administrative symbol in a given year. The SVO analyst headcount is constructed from Revelio Labs individual employment records for staff at the National Association of Insurance Commissioners (Revelio company identifier 847957) whose role falls under the Occupational Information Network codes for Credit Analysts (13-2041.00), Financial and Investment Analysts (13-2051.00), Financial Risk Specialists (13-2054.00), or Financial Quantitative Analysts (13-2099.01); a staffer counts in year t if their employment spell overlaps any day of the calendar year. Panel (b) plots the number of carry-over filings each year, defined as insurer-filed Schedule D securities the SVO did not complete before its year-end review deadline. Carry-over filing counts are from NAIC (2026).

Table I
Summary Statistics

This table reports summary statistics for the two panels used in our analysis. Panel A is at the bond-insurer-year level and covers bonds rated through the Filing Exempt (public), Private Letter (private), or Securities Valuation Office (in-house) channels over reporting years 2020–2024; Panel B is at the insurer-year level and covers the 650 U.S. life insurers in the sample used for Table VIII over 2018–2024. For each variable the table reports the number of observations, the mean, the 5th, 25th, 50th, 75th, and 95th percentiles, and the standard deviation. In Panel A, the *NAIC designation* is the broad rating bucket, an integer from 1 (highest quality) to 6 (in or near default); the *sub-category* is its twenty-bucket refinement, reported from year-end 2020; the *interest rate* is the bond's coupon in percent; *book-adjusted carrying value* is in thousands of dollars; and the *OTTI indicator* equals one if the bond-insurer-year records an other-than-temporary impairment. In Panel B, *total assets* and *total bond BACV* are in millions of dollars; *PLR Share* and *HY Share* are the privately rated and high-yield shares of the insurer's bond portfolio, in percent; the *RBC ratio* is the insurer's risk-based-capital ratio; *log insurer size* is the natural log of total assets; and *private equity (PE) affiliated is an indicator for PE-affiliated* insurers. The coupon rate is winsorized at the 1st and 99th percentiles within each year.

Variable	N	Mean	5th	25th	50th	75th	95th	SD
Panel (a): Bond-Insurer-Year Level								
NAIC Designation (1-6)	2,878,379	1.54	1.00	1.00	1.00	2.00	3.00	0.75
NAIC Sub-Category (1-20)	2,878,379	6.31	1.00	3.00	7.00	9.00	12.00	3.69
Coupon Rate (%)	2,878,379	4.40	1.75	3.25	4.20	5.50	7.50	1.78
Years to Maturity	2,878,379	14.76	2.45	6.37	11.93	22.25	30.58	18.92
Book-Adjusted Carrying Value ($ thousands)	2,878,379	5,897.76	44.88	516.10	2,025.59	6,232.99	22,794.97	16,730.41
Panel (b): Insurer-Year Level								
Total Assets ($ millions)	4,317	13,306.54	8.58	79.20	492.21	4,509.00	62,836.84	44,574.89
Total Bond BACV ($ millions)	4,317	5,528.52	4.02	44.50	289.16	2,396.93	28,059.98	18,146.06
Number of Bonds	4,317	929.80	20.00	119.00	377.00	981.00	3,845.60	1,613.53
PLR Share (%)	4,317	3.39	0.00	0.00	0.00	3.75	16.14	7.80
HY Share (%)	4,317	3.62	0.00	0.23	2.16	4.93	11.41	5.63
Log Insurer Size	4,317	19.57	15.21	17.61	19.48	21.60	24.06	2.73
Private Equity Affiliated (0/1)	4,317	0.06	0.00	0.00	0.00	0.00	1.00	0.23

Table II
Asset Category Composition: Privately versus Publicly Rated Securities

This table reports the asset category composition of privately rated and publicly rated bond holdings of U.S. life insurers. Rows partition holdings into seven asset categories: corporate bonds, CLOs and structured credit, bank loans, non-agency RMBS/CMBS, sovereign and municipal debt, agency RMBS/CMBS, and other securities. For each channel, the table reports the number of bond-insurer-year observations (N) and the category's share of that channel's book-adjusted carrying value (% BACV). Rows are ordered by the privately rated channel's carrying-value share, with Other shown last.

	Private		Public	
Asset Category	N	% BACV	N	% BACV
Corporate bonds	99,294	58.8%	2,378,375	72.6%
CLOs and structured credit	27,082	28.7%	377,175	13.3%
Bank loans	25,448	10.9%	35,438	0.8%
Non-agency RMBS / CMBS	1,297	0.7%	71,145	1.9%
Sovereign and municipal debt	963	0.7%	484,281	10.4%
Agency RMBS / CMBS	15	0.0%	46,400	0.9%
Other	244	0.2%	1,355	0.0%

Table III
Which Insurers Use Private Ratings?

This table reports estimates from regressions that relate an insurer's use of private ratings to its characteristics. The dependent variable is the carrying-value share (in percent) of insurer i's publicly and privately rated holdings that are privately rated in year $t+1$, regressed on insurer characteristics measured at year-end t: log total assets, the high-yield share of the portfolio, a PE affiliation indicator, log bond portfolio, the risk-based-capital (RBC) ratio, and the surplus-to-assets ratio. The RBC ratio is scaled per 100 percentage points and PE-Affiliated is an indicator (absorbed in the insurer-fixed-effect columns). Standard errors clustered by insurer are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels.

	(1)	(2)	(3)	(4)
	PLR Share $(t+1)$			
Log(Total Assets)	0.147	3.671***	0.105	2.006**
	(0.180)	(0.912)	(0.176)	(0.863)
HY Share	0.181***	0.219***	0.180***	0.219***
	(0.057)	(0.082)	(0.055)	(0.083)
PE-Affiliated	11.147***	10.169***	10.954***	8.833***
	(2.257)	(2.746)	(2.259)	(2.715)
Log(Bond Portfolio)	0.888***	0.136	0.922***	0.694
	(0.187)	(0.658)	(0.184)	(0.625)
RBC Ratio	0.004	-0.003	0.003	-0.002
	(0.002)	(0.003)	(0.002)	(0.003)
Surplus/Assets	-0.003	0.013	-0.003	-0.011
	(0.009)	(0.032)	(0.009)	(0.029)
Insurer FE	No	Yes	No	Yes
Year FE	No	No	Yes	Yes
Observations	3,614	3,614	3,614	3,614
R^2	0.251	0.815	0.267	0.826
Y-Mean	3.891	3.891	3.891	3.891

Table IV
Credit-Analyst Characteristics: Small Three versus Big Three

The table compares mean characteristics of credit analysts (occupation code 13-2041.00) at the Small-Three providers (KBRA, DBRS Morningstar, Egan-Jones) and the Big-Three providers (S&P, Moody's, Fitch), drawn from the Revelio Labs analyst panel. Columns report the two group means, their difference (Big Three minus Small Three), and a *t*-test of equality. ***, **, and * denote significance at the 1%, 5%, and 10% levels.

	Mean				
	Big 3	Small 3	Big 3–Small 3	t-stat	p-value
Seniority Level	2.678	2.521	0.158*	1.95	0.051
Yrs. as Credit Analyst Roles	2.519	2.331	0.188	0.86	0.388
Yrs. at Current Firm	3.417	1.479	1.938***	7.30	0.000
Yrs. since College	5.232	3.833	1.399***	3.15	0.002
Has Master/MBA/PhD	0.494	0.397	0.096***	3.31	0.001
North American Bachelor	0.420	0.688	-0.267***	-9.34	0.000
North American Master's/MBA	0.186	0.249	-0.063***	-2.77	0.006
North American PhD	0.006	0.019	-0.013***	-2.61	0.009
Log Salary ($)	11.161	11.291	-0.130***	-2.77	0.006
Log Total Compensation ($)	11.308	11.426	-0.118**	-2.37	0.018
Log Additional Compensation ($)	8.506	8.769	-0.264	-1.60	0.111

Table V
Within-Rating Comparison of Forward Impairment

This table reports estimates of equation (1), which provides a within-rating comparison of forward impairment between privately rated bonds and publicly rated bonds. The dependent variable is an indicator, scaled by 100, equal to one if bond j held by insurer i at year-end t records an other-than-temporary impairment (OTTI) within h years; Columns (1)–(4) set $h = 1$ and Columns (5)–(8) set $h = 2$. *Private* equals one for a privately rated bond and zero for a publicly rated bond carrying the same NAIC credit rating. All columns control for log carrying value, years to maturity, coupon rate, and insurer size and include either a rating notch fixed effect or a rating-notch-year fixed effect; the additional fixed effects (insurer; year) are reported at the foot of each column. The sample is the panel of publicly and privately rated bond-insurer-years. Standard errors, clustered by bond and insurer, are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	OTTI							
	One Year				Two Years			
Private	0.137**	0.161***	0.129**	0.154***	0.233**	0.253***	0.224**	0.245***
	(0.056)	(0.056)	(0.055)	(0.054)	(0.094)	(0.096)	(0.091)	(0.093)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Insurer FE	No	Yes	No	Yes	No	Yes	No	Yes
Rating Notch FE	Yes	Yes	No	No	Yes	Yes	No	No
Year FE	Yes	Yes	No	No	Yes	Yes	No	No
Rating Notch × Year FE	No	No	Yes	Yes	No	No	Yes	Yes
Observations	2,300,786	2,300,777	2,300,786	2,300,777	1,813,530	1,813,521	1,813,530	1,813,521
R^2	0.009	0.027	0.011	0.029	0.008	0.036	0.010	0.037
Y-Mean	0.158	0.158	0.158	0.158	0.281	0.281	0.281	0.281

Table VI
Within-Rating Comparison of Forward Downgrades

This table reports a forward-downgrade version of the within-rating test. The dependent variable is an indicator, scaled by 100, equal to one if insurer i assigns bond j a worse NAIC credit rating within h years; Columns (1)–(4) set $h = 1$ and Columns (5)–(8) set $h = 2$. *Private* equals one for a privately rated bond and zero for a publicly rated bond of the same credit rating. Controls (log carrying value, years to maturity, coupon rate, insurer size) and fixed effects follow Table V. Standard errors, clustered by bond and insurer, are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Downgrade							
	One Year				Two Years			
Private	-0.676***	-0.569**	-0.637***	-0.525**	-1.065**	-0.842**	-1.010**	-0.779*
	(0.238)	(0.238)	(0.239)	(0.239)	(0.421)	(0.417)	(0.420)	(0.417)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Insurer FE	No	Yes	No	Yes	No	Yes	No	Yes
Rating Notch FE	Yes	Yes	No	No	Yes	Yes	No	No
Year FE	Yes	Yes	No	No	Yes	Yes	No	No
Rating Notch × Year FE	No	No	Yes	Yes	No	No	Yes	Yes
Observations	2,300,801	2,300,792	2,300,801	2,300,792	1,813,557	1,813,548	1,813,557	1,813,548
R^2	0.009	0.012	0.017	0.020	0.011	0.019	0.016	0.024
Y-Mean	3.548	3.548	3.548	3.548	6.162	6.162	6.162	6.162

Table VII
Within-Bond Comparison of Forward Impairment

This table reports estimates of equation (1) on the dual-rated subsample: bond-years in which at least one insurer reports the security as publicly rated and another reports it as privately rated. The dependent variable is the forward OTTI indicator (scaled by 100), with $h = 1$ in Columns (1)–(4) and $h = 2$ in Columns (5)–(8). *Private* equals one for the privately rated report and zero for the publicly rated report; the even columns add its interaction with a high-yield indicator. Controls (log carrying value, years to maturity, coupon rate, insurer size) and the rating-notch, year, and insurer fixed effects follow Table V. Standard errors, clustered by bond and insurer, are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	OTTI							
	One Year				Two Years			
Private	-0.461	-0.186	-0.244	-0.183	-0.945	-0.564	-0.662	-0.529
	(0.296)	(0.234)	(0.182)	(0.186)	(0.649)	(0.500)	(0.505)	(0.494)
Private × High Yield		-9.611		-3.007		-13.566**		-7.350*
		(6.896)		(2.533)		(6.347)		(3.963)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Insurer FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Rating Notch FE	Yes	Yes	No	No	Yes	Yes	No	No
Year FE	Yes	Yes	No	No	Yes	Yes	No	No
Rating Notch × Year FE	No	No	Yes	Yes	No	No	Yes	Yes
Observations	7,929	7,929	7,922	7,922	5,820	5,820	5,815	5,815
R^2	0.049	0.066	0.209	0.210	0.094	0.110	0.188	0.191
Y-Mean	0.227	0.227	0.227	0.227	0.481	0.481	0.482	0.482

Table VIII
Strategic Use of Private Ratings for Capital Relief

This table reports estimates of equation (2). The dependent variable is the carrying-value share (in percent) of the insurer's publicly and privately rated holdings that are privately rated. *Exposure* × *Post* interacts the insurer's 2020 reform exposure (the predetermined, 2020-portfolio-weighted increase in C-1 capital factors under the new schedule) with a post-2021 indicator. Column (1) uses all bonds, Column (2) the investment-grade slice, and Column (3) the high-yield slice. Controls are log total assets, log bond portfolio, PE-affiliation, and the log number of publicly and privately rated bonds. Standard errors clustered by insurer are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels.

	(1)	(2)	(3)
	PLR Share		
	All	IG	HY
Exposure × Post	2.683*	2.515*	16.580**
	(1.491)	(1.474)	(7.054)
Controls	Yes	Yes	Yes
Insurer FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Observations	4,315	4,311	3,248
R^2	0.744	0.738	0.691
Y-Mean	3.390	3.367	6.527

Table IX
Public Rating vs. Regulator Designations: Accuracy and Staleness

This table compares the regulator's rating designations with public ratings, repeating the accuracy and staleness tests of Section 3 with an SVO indicator in place of the private rating indicator; SVO-rated bonds are those the NAIC's Securities Valuation Office rates directly, without a credit rating provider. In Panel (a) the dependent variable is the forward OTTI indicator (scaled by 100); in Panel (b) it is an indicator (scaled by 100) for whether the bond has a worse NAIC credit rating. In both panels $h = 1$ in Columns (1)–(2) and $h = 2$ in Columns (3)–(4). *SVO* equals one for an SVO-rated bond and zero for a publicly rated bond of the same credit rating; Panel (a) also reports its interaction with a high-yield indicator. All columns control for log carrying value, years to maturity, coupon rate, and insurer size and absorb rating-notch and insurer fixed effects. Standard errors, clustered by bond and insurer, are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels.

Panel (a): Forward impairment

	(1)	(2)	(3)	(4)
	OTTI			
	One Year		Two Years	
SVO	0.022	0.023	0.068	0.069
	(0.024)	(0.024)	(0.050)	(0.050)
SVO × High Yield	-0.494**	-0.534**	-0.745***	-0.782***
	(0.223)	(0.225)	(0.285)	(0.290)
Controls	Yes	Yes	Yes	Yes
Insurer FE	Yes	Yes	Yes	Yes
Rating Notch FE	Yes	No	Yes	No
Year FE	Yes	No	Yes	No
Rating Notch × Year FE	No	Yes	No	Yes
Observations	2,764,909	2,764,909	2,188,225	2,188,225
R^2	0.023	0.025	0.033	0.034
Y-Mean	0.145	0.145	0.264	0.264

Panel (b): Forward downgrades

	(1)	(2)	(3)	(4)
	Downgrade			
	One Year		Two Years	
SVO	1.465***	1.437***	1.634	1.579
	(0.464)	(0.464)	(1.019)	(1.031)
Controls	Yes	Yes	Yes	Yes
Insurer FE	Yes	Yes	Yes	Yes
Rating Notch FE	Yes	No	Yes	No
Year FE	Yes	No	Yes	No
Rating Notch × Year FE	No	Yes	No	Yes
Observations	2,764,928	2,764,928	2,188,254	2,188,254
R^2	0.014	0.021	0.023	0.027
Y-Mean	3.438	3.438	5.880	5.880

Table X
Accuracy of Private Rating around the 2020 Disclosure Reform

This table reports estimates of equation (3). The dependent variable is the forward OTTI indicator (scaled by 100), with $h = 1$ in Columns (1)–(2) and $h = 2$ in Columns (3)–(4). *Private* is the private-minus-public difference in forward impairment within designation bucket, and *Private* × *Post* the change in that difference after the 2020 move to granular twenty-sub-category reporting. Because sub-categories are unavailable before 2020, all columns absorb the coarse NAIC designation bucket (1–6) in place of the credit rating, along with insurer and year (or bucket-by-year) fixed effects, and control for log carrying value, years to maturity, coupon rate, and insurer size. Standard errors, clustered by bond and insurer, are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels.

	(1)	(2)	(3)	(4)
	OTTI			
	One Year		Two Years	
Private	0.310*	0.271	0.543**	0.512**
	(0.182)	(0.183)	(0.232)	(0.234)
Private × Post 2020	-0.193	-0.139	-0.345*	-0.300
	(0.165)	(0.168)	(0.206)	(0.211)
Controls	Yes	Yes	Yes	Yes
Insurer FE	Yes	Yes	Yes	Yes
NAIC Bucket FE	Yes	No	Yes	No
Year FE	Yes	No	Yes	No
NAIC Bucket × Year FE	No	Yes	No	Yes
Observations	3,043,353	3,043,353	2,556,091	2,556,091
R^2	0.016	0.019	0.024	0.026
Y-Mean	0.155	0.155	0.281	0.281

Internet Appendix for Rating Without Market Discipline

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A Asset Classification

To describe the asset composition of privately and publicly rated holdings (Table II), we assign each Schedule D, Part 1 holding to one of the following seven categories: (i) corporate bonds, (ii) sovereign and municipal debt, (iii) agency RMBS/CMBS, (iv) non-agency RMBS/CMBS, (v) CLOs and other structured credit, (vi) bank loans, and (vii) a residual category denoted as Other. The assignment uses the NAIC's asset-type and issuer-type fields, which together identify a security's collateral and the nature of its issuer.

The classification depends on the year because the NAIC changed its bond-reporting taxonomy under the 2025 Principles-Based Bond Definition reform. In both regimes we read the asset-type and issuer-type fields together. Through reporting year 2024, the security-type detail we need, such as bank loans, mortgage-backed securities, and other loan-backed and structured securities, resides in the asset-type field, which we combine with the issuer-type field to separate government from private issuers. From reporting year 2025 onward, the asset-type field collapses to a coarse three-way hierarchy and this detail moves into the issuer-type field, which separately identifies, for example, non-agency CLOs from agency mortgage pass-throughs; the asset-type field still enters for corporate bonds, which the reform labels issuer credit obligations. Mapping these regime-specific labels onto the common seven categories keeps the composition comparable across years.

As a handful of NAIC labels are ambiguous, the order in which the rules are applied matters. We apply the agency mortgage-backed rule before the sovereign and municipal rule, since the government-agency issuer label appears in both and an agency mortgage pass-through belongs with other agency MBS rather than with Treasury and municipal debt. We also classify project-finance operating entities as corporate bonds, following the reform's treatment of them as issuer credit obligations rather than asset-backed securities, and we pool foreign sovereigns with US sovereign and municipal debt, whose combined share is small in life-insurer portfolios. The complete mapping of NAIC labels to categories is given in Table IA.1, with the rules applied in the order shown there.

Table IA.1
Asset-Category Classification Crosswalk

This table summarizes the classification of observations in NAIC Schedule D, Part 1 to the seven asset categories used in Table II. The classification is year-aware because the NAIC overhauled its bond-reporting taxonomy under the 2025 Principles-Based Bond Definition reform. The two columns give the rule applied in each regime, and the rules are evaluated in the row order shown, so a holding is assigned to the first category whose condition it meets. "Unaff." and "Aff." denote the unaffiliated and affiliated variants of an `issuer_type` cell, both included.

Category	2018–2024	2025
Bank loans	`asset_type` contains "Bank Loans"	`issuer_type`: Bank Loans Acquired or Issued (Unaff./Aff.)
Agency RMBS / CMBS	`asset_type` = Mortgage-Backed Securities *and* `issuer_type` ∈ {US Federal Gov't, Gov't Agency}	`issuer_type` begins "Agency RMBS" or "Agency CMBS"
Sovereign and municipal debt	`issuer_type` ∈ {US Federal Gov't, Gov't Agency, Foreign Gov't, US States/Possessions, state subdivisions}, for non-MBS holdings	`issuer_type` ∈ {US Gov't (Exempt or Not-Exempt RBC), Foreign Gov't, Municipal (Special Revenue or General)}
Non-agency RMBS / CMBS	`asset_type` = Mortgage-Backed Securities *and* `issuer_type` ∈ {Industrial; Parents, Sub. & Aff.; Hybrid Securities}	`issuer_type`: Non-Agency RMBS or CMBS (Unaff./Aff.)
CLOs and structured credit	`asset_type` = Other Loan-Backed and Structured Securities	`issuer_type`: ABS cells (CLO/CBO/CDO, Other ABS, Loan-Backed Securities, Single-Entity-Backed, Equity-Backed; Unaff./Aff.); excludes Project Finance
Corporate bonds	`asset_type` = Issuer Obligations *and* `issuer_type` ∈ {Industrial; Parents, Sub. & Aff.; Hybrid Securities}	`asset_type` = Issuer Credit Obligations *and* `issuer_type` ∈ {Corporate, Funds Representing Operating Entities, Mandatory Convertible, Project Finance Operating Entity}
Other	residual	residual

B Validating OTTI as a Measure of Realized Credit Losses

The main analysis uses OTTI as a proxy for realized credit losses. Because OTTI is an accounting write-down recorded by the insurer, a natural concern is whether it reflects genuine credit deterioration rather than discretionary bookkeeping. We validate OTTI directly by asking whether an OTTI on a bond in year t predicts subsequent credit events, following the literature that studies the accuracy of credit ratings. Specifically, we draw on the literature that assesses a rating or risk estimate by its ability to predict subsequent downgrades (Griffin and Tang, 2012; Griffin, Nickerson, and Tang, 2013) and realized default (Becker and Milbourn, 2011; Cornaggia, Cornaggia, and Hund, 2017).

We start by collapsing the insurer-bond-year panel to the bond-year level, defining an OTTI indicator equal to one if any holder records an OTTI on the bond in year t and the credit rating based on the NAIC designation as the modal rating across holders. For each test we construct a forward outcome at horizons $h = 1, \ldots, 4$ and compare the share of impaired and unimpaired bonds that experience it.

B.1 Subsequent Downgrades

The first outcome we examine is a downgrade. We measure it based on the NAIC sub-category designation, which maps one-to-one to the credit-rating provider's letter-rating notch. The sub-category is reported for every holding, so the test spans the full sample as our main analysis. If an OTTI reflects genuine credit deterioration rather than discretionary bookkeeping, bonds with at least one OTTI recorded by an insurer should be downgraded more often than bonds that record no impairment.

Figure IA.1 shows that bonds that record an OTTI in year t are downgraded far more often than bonds without one. Within one year, 11.2 percent of bonds with at least one OTTI recorded by an insurer are downgraded at least one notch, against only 3.9 percent of bonds without an OTTI, roughly three times the rate. By the fourth year, the gap widens to 24.1 versus 9.3 percent. These results suggest that an OTTI carries substantial forward-looking information about a bond's credit quality as evidenced by the downgrade.

B.2 Defaults

The second outcome we examine is a default. We take default events from the Mergent Fixed Income Securities Database (FISD), which records issue-level defaults. We match each insurer

holding to FISD by its nine-digit CUSIP through the FISD issue master, collapse a bond's event history to its earliest default date, and code a bond-year as defaulting if that date falls within $(t, t+h]$, restricting the sample to matched bonds that are not already in default at t. Relative to the downgrade test, this one runs on a smaller and less representative sample as FISD covers publicly rated corporate bonds well but private placements and structured credit poorly. On the other hand, a default is the hardest and least ambiguous credit event, observed from a source entirely outside the regulatory rating apparatus, so it validates the OTTI against ground truth that neither the NAIC designation nor the impairment itself produces. The two tests are therefore complementary: the downgrade test trades a softer outcome for full coverage, while the default test trades coverage for an unimpeachable one. As before, if an OTTI captures genuine deterioration, bonds with at least one OTTI recorded by an insurer should default at higher rates than bonds that record no impairment.

Figure IA.2 shows that they do and by a striking margin. Within one year, 3.8 percent of OTTI'd bonds default, against just 0.1 percent of bonds without an OTTI, more than thirty times the rate, a far larger multiple than for downgrades precisely because the baseline default rate is so low. The gap grows with the horizon, reaching 13.3 versus 0.5 percent at five years. Overall, the default test provides the sharpest validation of the measure, showing that an OTTI anticipates realized default well before it occurs.

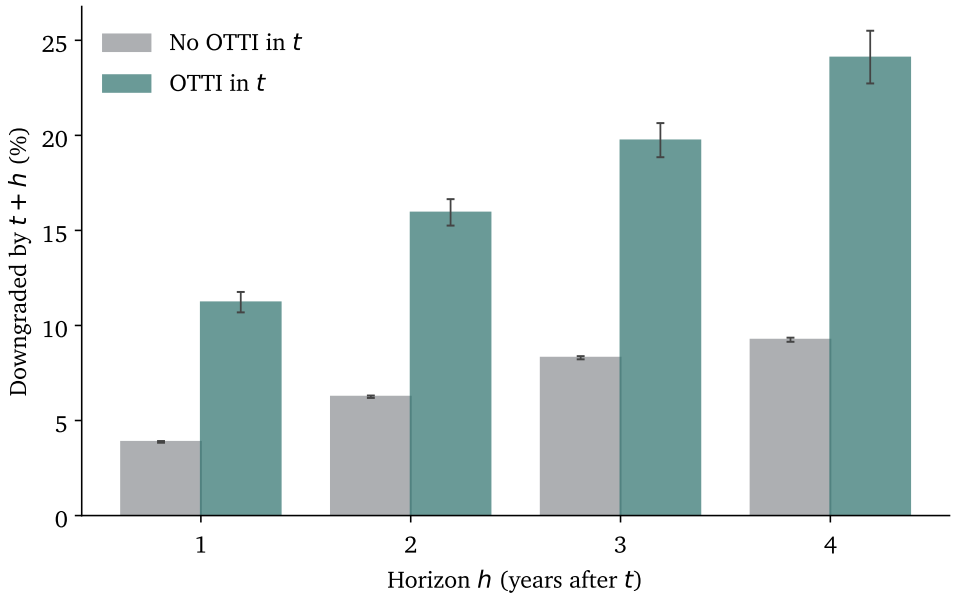


Figure IA.1. **OTTI Predicts Subsequent Downgrades.** The figure plots, for bonds with and without an other-than-temporary impairment (OTTI) in year t, the share that are subsequently downgraded by horizon $t+h$, with 95% confidence intervals. The unit of observation is a bond-year, the bond identified by its nine-digit CUSIP, obtained by collapsing the insurer-bond-year NAIC Schedule D panel across holders; the OTTI indicator equals one if at least one insurer holding the bond records an OTTI on it in year t. A bond is counted as downgraded if its modal NAIC sub-category in any year from $t+1$ through $t+h$ is worse than in year t. The sub-category maps one-to-one to the credit-rating provider's letter-rating notch (AAA, AA+, AA, and so on), so a worsening is a true one-notch agency-rating downgrade, and it is reported for every holding, so the test spans the full sample including privately rated bonds. Because the sub-category is reported only from 2020, the sample is restricted to bond-years that carry a sub-category at t, and the horizon is capped at four years, with the four-year bars resting on the 2020–2021 cohorts. Grey bars denote bonds with no OTTI in t and teal bars bonds with an OTTI in t.

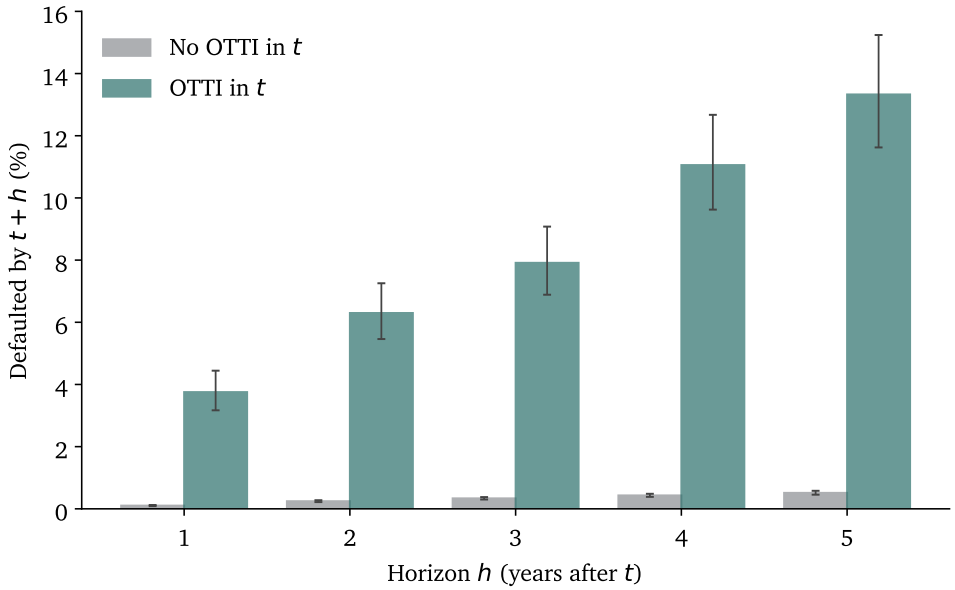


Figure IA.2. **OTTI Predicts Future Defaults.** The figure plots, for bonds with and without an OTTI in year t, the share that subsequently default by horizon $t+h$, with 95% confidence intervals; the bond-year unit, the OTTI indicator, and the grey/teal bars are defined as in Figure IA.1, and each horizon uses cohorts whose forward window closes by 2025. A default is an issue-level default recorded in Mergent FISD with a default date in $(t, t+h]$, matched to holdings by nine-digit CUSIP through the FISD issue master and dated by the bond's earliest recorded default. The sample is restricted to bonds matched to FISD that are not already in default at t; because FISD covers publicly rated corporate bonds well but private placements and structured credit poorly, this test is identified on the public, corporate slice.

C Additional Tables and Figures

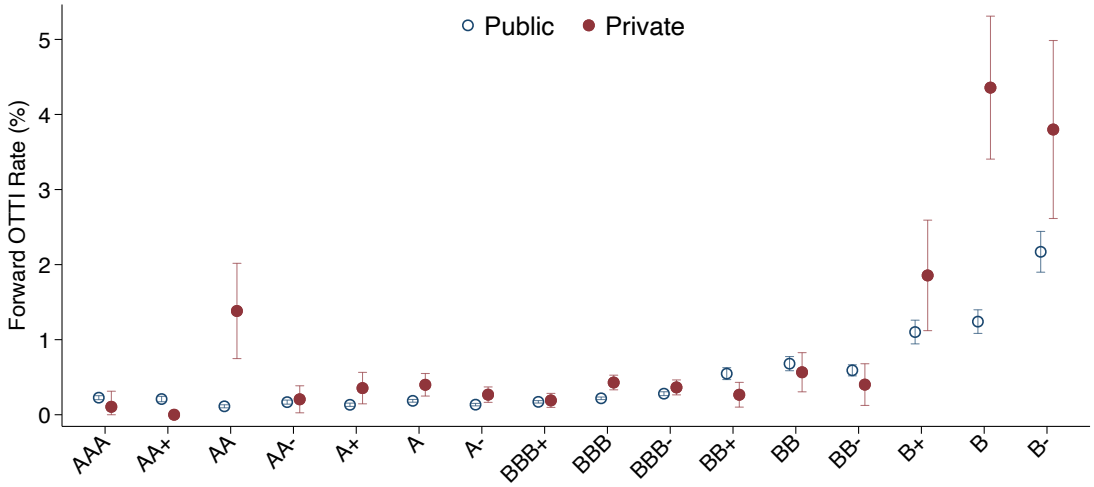


Figure IA.3. **Two-Year-Ahead Forward Impairment Rates by NAIC Credit Rating: Publicly versus Privately Rated Bonds.** This figure repeats Figure 5 at a two-year horizon. It plots the average two-year-ahead other-than-temporary impairment (OTTI) rate (vertical axis), the share of bond-insurer-years that record a credit-related write-down within two years, against the credit rating (horizontal axis), with separate lines for publicly and privately rated holdings and 95% confidence intervals. The rating is the NAIC sub-category designation mapped to its equivalent rating-agency scale (AAA through B-), ordered from the safest categories on the left to the riskiest on the right. We omit the C category because of its low frequency and resulting wide confidence intervals, but retain it in the regression sample.

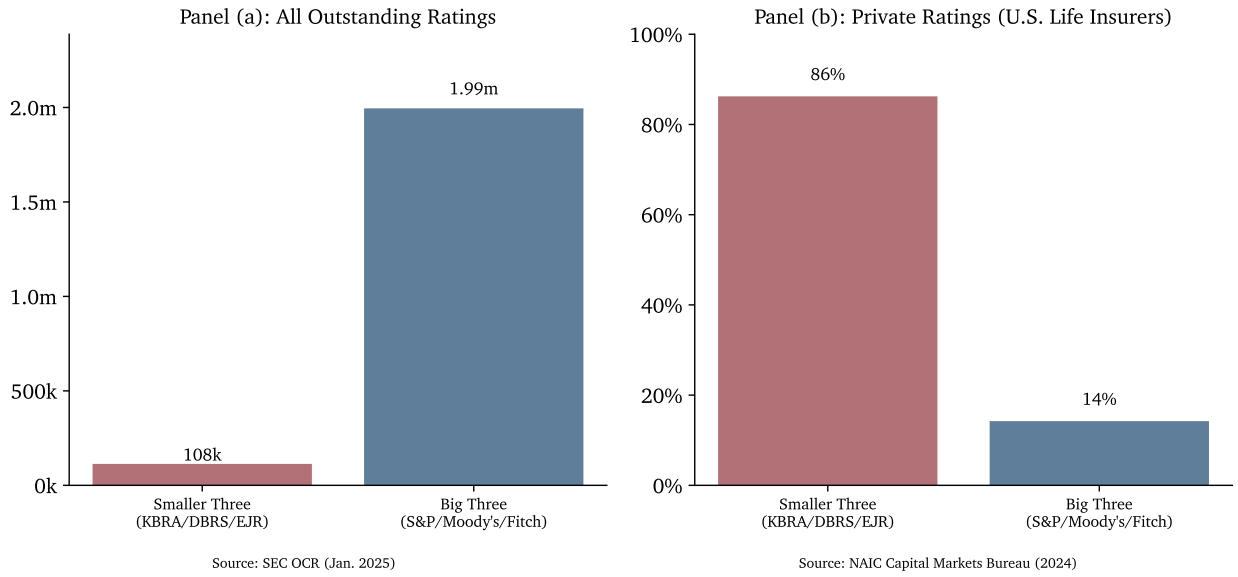


Figure IA.4. **NRSRO Market Share versus Footprint in Private Letter Ratings.** The figure compares the Smaller Three credit rating providers (KBRA, DBRS Morningstar, Egan-Jones) with the Big Three (S&P, Moody's, Fitch). Panel (a) reports the number of outstanding NRSRO ratings by group (SEC, 2025); Panel (b) reports each group's share of U.S. life insurers' private-letter-rating exposure (NAIC, 2024).

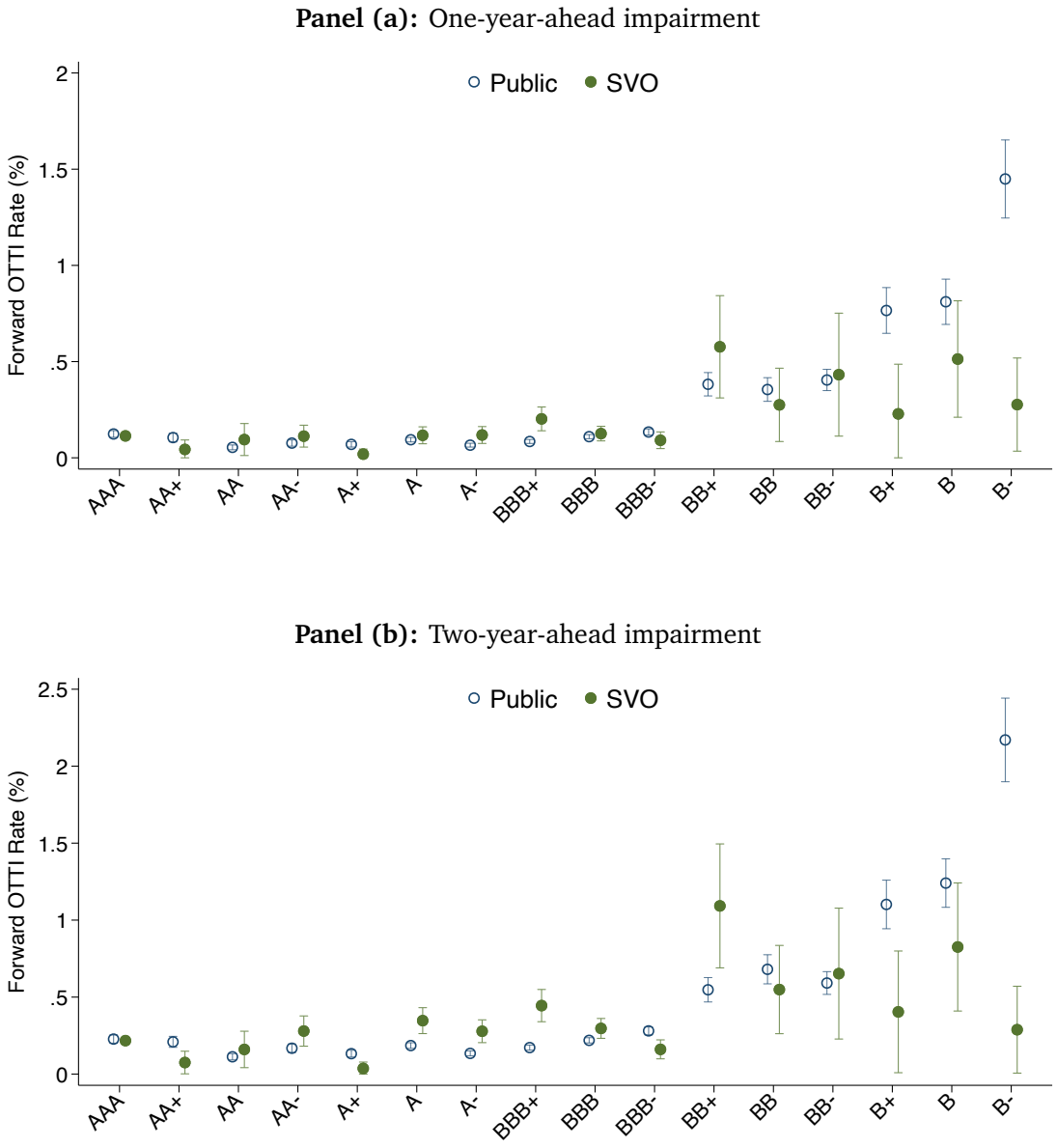


Figure IA.5. **Forward Impairment Rates by NAIC Credit Rating: Publicly Rated versus In-House.** The figure plots the average forward other-than-temporary impairment (OTTI) rate (vertical axis), the share of bond-insurer-years that record a credit-related write-down within the horizon, against the credit rating (horizontal axis), with separate lines for publicly rated and in-house-rated holdings and 95% confidence intervals. The rating is the NAIC sub-category designation mapped to its equivalent rating-agency scale (AAA through C), ordered from the safest categories on the left to the riskiest on the right. Panel (a) uses a one-year horizon and Panel (b) a two-year horizon.

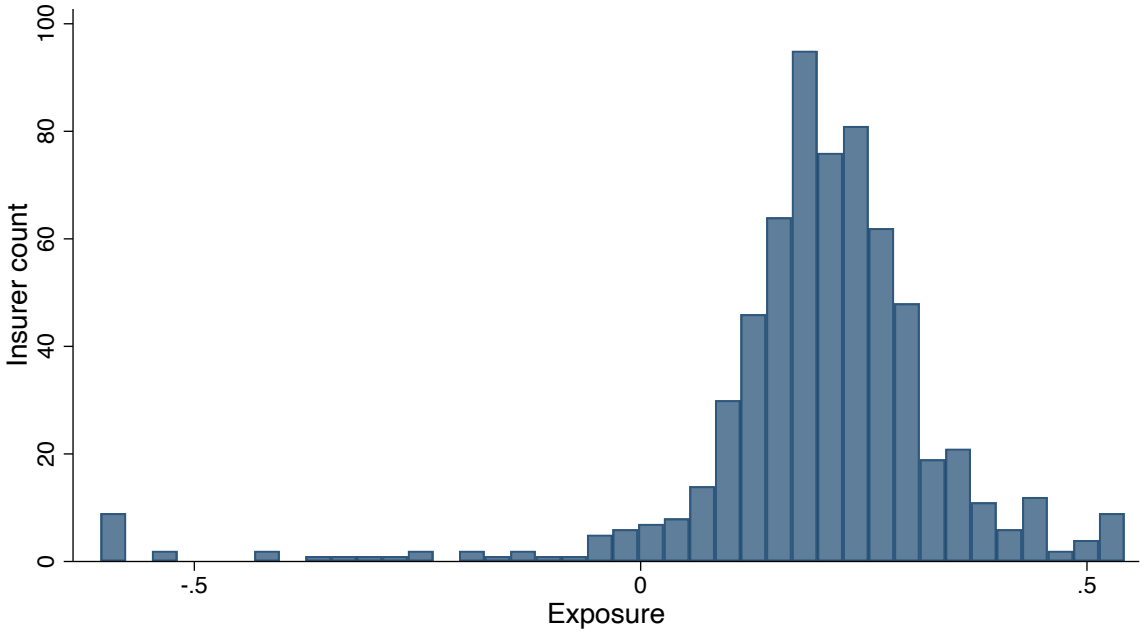


Figure IA.6. **Distribution of Insurer Exposure to the 2021 NAIC Reform.** The figure plots the cross-insurer distribution of reform exposure, a Bartik measure equal to the 2020-holdings-weighted change in RBC C-1 factors (post-reform minus pre-reform) scaled by the insurer's pre-reform factor, winsorized at the 1st and 99th percentiles. Positive values denote insurers whose pre-reform portfolio faced a net capital-charge increase under the new factor schedule.

Table IA.2
Within-Rating Comparison of Forward Impairment by Credit Quality

This table augments Table V with an interaction between the private rating indicator and a high-yield indicator, allowing the accuracy gap to differ between investment-grade and high-yield bonds. *Private* × *High Yield* reports this interaction. The dependent variable is the forward OTTI indicator (scaled by 100), with $h = 1$ in Columns (1)–(4) and $h = 2$ in Columns (5)–(8). *Private* equals one for a privately rated bond and zero for a publicly rated bond of the same credit rating. Controls (log carrying value, years to maturity, coupon rate, and insurer size) and fixed effects follow Table V, and the sample is the panel of publicly and privately rated bond-insurer-years. Standard errors, clustered by bond and insurer, are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	OTTI							
	One Year				Two Years			
Private	0.082**	0.097**	0.081**	0.096**	0.153**	0.162**	0.151**	0.160**
	(0.038)	(0.039)	(0.038)	(0.039)	(0.071)	(0.070)	(0.071)	(0.070)
Private × High Yield	0.318	0.376	0.280	0.345	0.467	0.538	0.429	0.505
	(0.335)	(0.340)	(0.335)	(0.336)	(0.496)	(0.513)	(0.483)	(0.498)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Insurer FE	No	Yes	No	Yes	No	Yes	No	Yes
Rating Notch FE	Yes	Yes	No	No	Yes	Yes	No	No
Year FE	Yes	Yes	No	No	Yes	Yes	No	No
Rating Notch × Year FE	No	No	Yes	Yes	No	No	Yes	Yes
Observations	2,300,786	2,300,777	2,300,786	2,300,777	1,813,530	1,813,521	1,813,530	1,813,521
R^2	0.009	0.027	0.011	0.029	0.008	0.036	0.010	0.037
Y-Mean	0.158	0.158	0.158	0.158	0.281	0.281	0.281	0.281

Table IA.3
Public-Rated OTTI Gradient and Private-Channel Excess Impairment

This table reports the inputs used in the counterfactual capital exercise. All regressions are weighted by carrying value. The reported dependent-variable mean is correspondingly carrying-value weighted, and so differs from the unweighted mean in Table V. Columns (1) and (3) estimate the relationship between forward OTTI and rating notch among publicly rated bonds only. The dependent variable is an indicator, scaled by 100, equal to one if bond j held by insurer i experiences an impairment within one year (Column (1)) or two years (Column (3)). *Rating Notch* is the twenty-category NAIC sub-category transformed into a continuous integer scale ordered from best (1 = AAA) to worst (20 = below CCC−) credit quality. Columns (2) and (4) re-estimate equation (1) using the same carrying-value weights. All columns control for log carrying value, years to maturity, coupon rate, and insurer size and absorb insurer fixed effects. Columns (1) and (3) additionally include year fixed effects, while Columns (2) and (4) include rating-notch-by-year fixed effects. Standard errors, clustered by bond and insurer, are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels.

	(1)	(2)	(3)	(4)
	OTTI			
	One Year		Two Year	
Rating Notch	0.031***		0.053***	
	(0.006)		(0.011)	
Private		0.076*		0.170**
		(0.043)		(0.083)
Controls	Yes	Yes	Yes	Yes
Insurer FE	Yes	Yes	Yes	Yes
Year FE	Yes	No	Yes	No
Rating Notch × Year FE	No	Yes	No	Yes
Observations	2,193,994	2,300,777	1,735,475	1,813,521
R^2	0.013	0.021	0.028	0.032
Y-Mean	0.139	0.153	0.259	0.284

Table IA.4
Within-Issuer Comparison of Forward Impairment

This table reports estimates of equation (1) on the within-issuer sample, restricted to issuer-years (CUSIP-6 issuer × year) that contain both a publicly rated and a privately rated bond, so the public–private contrast is drawn within issuers. The dependent variable is the forward OTTI indicator (scaled by 100), with $h = 1$ in Columns (1)–(4) and $h = 2$ in Columns (5)–(8). *Private* equals one for a privately rated bond and zero for a publicly rated bond of the same credit rating; the even columns add its interaction with a high-yield indicator. Controls and the rating-notch, year, and insurer fixed effects follow Table V. Standard errors, clustered by bond and insurer, are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	OTTI							
	One Year				Two Years			
Private	0.303**	0.019	0.255**	0.056	0.264	-0.113	0.192	-0.072
	(0.131)	(0.068)	(0.104)	(0.070)	(0.219)	(0.144)	(0.185)	(0.145)
Private × High Yield		5.720**		4.240**		6.623**		4.937**
		(2.315)		(1.736)		(2.693)		(2.129)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Insurer FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Rating Notch FE	Yes	Yes	No	No	Yes	Yes	No	No
Year FE	Yes	Yes	No	No	Yes	Yes	No	No
Rating Notch × Year FE	No	No	Yes	Yes	No	No	Yes	Yes
Observations	29,567	29,567	29,565	29,565	23,301	23,301	23,300	23,300
R^2	0.136	0.147	0.191	0.196	0.106	0.115	0.149	0.153
Y-Mean	0.311	0.311	0.311	0.311	0.579	0.579	0.579	0.579

Table IA.5
Within-Issuer Comparison of the Assigned Rating

This table compares the rating assigned to publicly and privately rated bonds of the same issuer, on the within-issuer sample of issuer-years (CUSIP-6 issuer × year) that contain both a publicly rated and a privately rated bond. In Columns (1)–(2) the dependent variable is the bond's *rating notch*, the twenty-category NAIC sub-category ordered from best to worst, so a negative coefficient indicates a more favorable rating; in Columns (3)–(4) it is an indicator (scaled by 100) for an investment-grade designation. *Private* equals one for a privately rated bond and zero for a publicly rated bond. All columns control for the same covariates as Table V and absorb insurer fixed effects; Columns (1) and (3) add separate issuer and year fixed effects, while Columns (2) and (4) add issuer-by-year fixed effects. Standard errors, clustered by bond and insurer, are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels.

	(1)	(2)	(3)	(4)
	Rating Notch		IG	
Private	-0.313***	-0.288***	3.128***	3.426***
	(0.091)	(0.092)	(0.818)	(0.856)
Controls	Yes	Yes	Yes	Yes
Insurer FE	Yes	Yes	Yes	Yes
Issuer FE	Yes	No	Yes	No
Year FE	Yes	No	Yes	No
Issuer × Year FE	No	Yes	No	Yes
Observations	29,567	29,567	29,567	29,567
R^2	0.817	0.837	0.800	0.818
Y-Mean	7.928	7.928	95.251	95.251

Table IA.6
Within-Rating Comparison of Impairment Severity

This table compares the severity of the impairment recorded on privately rated bonds with that of publicly rated bonds on the sample of bonds impairing at year t. In all columns, the dependent variable is the bond's *OTTI severity*, measured as the percentage point of impairment over a bond's pre-impairment carrying value. *Private* equals one for a privately rated bond and zero for a publicly rated bond. All columns control for the same covariates as Table V and fixed effects are reported at the foot of each column. Standard errors, clustered by bond and insurer, are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels.

	(1)	(2)	(3)	(4)
	OTTI Severity			
Private	8.584***	5.699**	11.390***	7.583***
	(2.964)	(2.518)	(2.924)	(2.397)
Controls	Yes	Yes	Yes	Yes
Insurer FE	No	Yes	No	Yes
Rating Notch FE	Yes	Yes	No	No
Year FE	Yes	Yes	No	No
Rating Notch × Year FE	No	No	Yes	Yes
Observations	6,829	6,778	6,829	6,778
Y-Mean	19.117	18.984	19.117	18.984

Table IA.7
Asset Complexity: Fair-Value Level 3 versus Levels 1–2

This table augments equation (1) with an interaction between the private rating indicator and an indicator for securities valued from unobserved inputs (ASC 820 fair-value level 3); *Private* × *Unobserved* reports this interaction. The dependent variable is the forward OTTI indicator (scaled by 100), with $h = 1$ in Columns (1)–(2) and $h = 2$ in Columns (3)–(4). *Private* equals one for a privately rated bond and zero for a publicly rated bond of the same credit rating. All columns control for log carrying value, years to maturity, coupon rate, and insurer size and absorb insurer fixed effects and fixed effects for the fifteen-cell fair-value grid (valuation level × pricing source). Standard errors, clustered by bond and insurer, are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels.

	(1)	(2)	(3)	(4)
	OTTI			
	One Year		Two Years	
Private	0.073	0.068	0.161*	0.156*
	(0.047)	(0.046)	(0.092)	(0.091)
Private × Unobserved	0.022	0.018	-0.058	-0.064
	(0.120)	(0.120)	(0.197)	(0.196)
Controls	Yes	Yes	Yes	Yes
Insurer FE	Yes	Yes	Yes	Yes
FV Grid FE	Yes	Yes	Yes	Yes
Rating Notch FE	Yes	No	Yes	No
Year FE	Yes	No	Yes	No
Rating Notch × Year FE	No	Yes	No	Yes
Observations	2,300,648	2,300,648	1,813,421	1,813,421
R^2	0.027	0.029	0.036	0.037
Y-Mean	0.158	0.158	0.281	0.281

Table IA.8
Within-Rating Comparison of Forward Impairment by Asset Complexity

This table augments equation (1) with an interaction between the private rating indicator and an indicator for securities whose fair value is reported by the holding entity itself (NAIC pricing Source D, "reporting entity"), the most discretionary of the five sources; the reference group pools Sources A (pricing service), B (stock exchange), C (broker or custodian), and E (NAIC). *Private* × *Reporting Entity* reports this interaction. The dependent variable is the forward OTTI indicator (scaled by 100), with $h = 1$ in Columns (1)–(2) and $h = 2$ in Columns (3)–(4). *Private* equals one for a privately rated bond and zero for a publicly rated bond of the same credit rating. All columns control for log carrying value, years to maturity, coupon rate, and insurer size and absorb insurer fixed effects and fixed effects for the fifteen-cell fair-value grid (valuation level × pricing source). Standard errors, clustered by bond and insurer, are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels.

	(1)	(2)	(3)	(4)
	OTTI			
	One Year		Two Years	
Private	0.114**	0.111**	0.191**	0.188**
	(0.053)	(0.053)	(0.093)	(0.093)
Private × Reporting Entity	-0.088	-0.095	-0.107	-0.117
	(0.091)	(0.090)	(0.161)	(0.159)
Controls	Yes	Yes	Yes	Yes
Insurer FE	Yes	Yes	Yes	Yes
FV Grid FE	Yes	Yes	Yes	Yes
Rating Notch FE	Yes	No	Yes	No
Year FE	Yes	No	Yes	No
Rating Notch × Year FE	No	Yes	No	Yes
Observations	2,300,648	2,300,648	1,813,421	1,813,421
R^2	0.027	0.029	0.036	0.037
Y-Mean	0.158	0.158	0.281	0.281

Table IA.9
Within-Rating Comparison of Forward Impairment with Asset-Category Fixed Effects

This table augments equation (1) with asset-category fixed effects, so that privately and publicly rated bonds are compared within the same broad asset type (for example, corporate bonds, structured credit, or bank loans). The dependent variable is the forward OTTI indicator (scaled by 100), with $h = 1$ in Columns (1)–(2) and $h = 2$ in Columns (3)–(4). *Private* equals one for a privately rated bond and zero for a publicly rated bond of the same credit rating. All columns control for log carrying value, years to maturity, coupon rate, and log insurer size and absorb insurer, rating-notch, and year fixed effects following Table V. Standard errors, clustered by bond and insurer, are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels.

	(1)	(2)	(3)	(4)
	OTTI			
	One Year		Two Year	
Private	0.254***	0.244***	0.392***	0.382***
	(0.064)	(0.061)	(0.109)	(0.105)
Controls	Yes	Yes	Yes	Yes
Insurer FE	Yes	Yes	Yes	Yes
Rating Notch FE	Yes	No	Yes	No
Year FE	Yes	No	Yes	No
Rating Notch × Year FE	No	Yes	No	Yes
Asset Category FE	Yes	Yes	Yes	Yes
Observations	2,300,777	2,300,777	1,813,521	1,813,521
R^2	0.028	0.030	0.036	0.038
Y-Mean	0.158	0.158	0.281	0.281

Table IA.10
Within-Rating Comparison Among Non-Disposed Bonds

This table reports estimates of equation (1) restricted to bonds that the insurer never disposes of during the sample period, whether by sale, call, or maturity. The dependent variable is an indicator, scaled by 100, equal to one if bond j held by insurer i at year-end t records an other-than-temporary impairment (OTTI) within h years; Columns (1)–(4) set $h = 1$ and Columns (5)–(8) set $h = 2$. *Private* equals one for a privately rated bond and zero for a publicly rated bond carrying the same NAIC credit rating. All columns control for log carrying value, years to maturity, coupon rate, and insurer size and include either a rating notch fixed effect or a rating-notch-year fixed effect; the additional fixed effects (insurer; year) are reported at the foot of each column. Standard errors, clustered by bond and insurer, are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	OTTI							
	One Year				Two Years			
Private	0.090**	0.120***	0.087**	0.117***	0.177*	0.222***	0.174*	0.219***
	(0.043)	(0.040)	(0.043)	(0.040)	(0.091)	(0.084)	(0.091)	(0.083)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Insurer FE	No	Yes	No	Yes	No	Yes	No	Yes
Rating Notch FE	Yes	Yes	No	No	Yes	Yes	No	No
Year FE	Yes	Yes	No	No	Yes	Yes	No	No
Rating Notch × Year FE	No	No	Yes	Yes	No	No	Yes	Yes
Observations	1,168,059	1,168,051	1,168,059	1,168,051	863,935	863,930	863,935	863,930
R^2	0.014	0.041	0.018	0.045	0.010	0.073	0.013	0.076
Y-Mean	0.071	0.071	0.071	0.071	0.118	0.118	0.118	0.118

Table IA.11
Disposal at a Loss: Privately versus Publicly Rated Bonds

This table reports estimates of the within-rating specification of equation (1) with the impairment outcome replaced by an indicator, scaled by 100, equal to one if bond j held by insurer i at year-end t is disposed of within h years for sale consideration weakly smaller than its carrying value in the year before disposal (a disposal at a loss). The disposal universe includes both terminal and same-year partial sales. Prior-year carrying value is used because the disposal-year carrying value already embeds any sale-driven write-down, and the realized gain or loss reported in Schedule D Part 4 is contaminated by that write-down. Columns (1)–(2) set $h = 1$ and Columns (3)–(4) set $h = 2$; within each horizon the first column absorbs rating-notch and year fixed effects and the second rating-notch-by-year fixed effects, both with insurer fixed effects. *Private* equals one for a privately rated bond and zero for a publicly rated bond of the same NAIC credit rating. All columns control for log carrying value, years to maturity, coupon rate, and log insurer size. The sample is the panel of publicly and privately rated bond-insurer-years. Standard errors, clustered by bond and insurer, are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels.

	(1)	(2)	(3)	(4)
	Disposal at Losses			
	One Year		Two Years	
Private	11.571***	11.580***	9.803***	9.763***
	(1.352)	(1.349)	(1.749)	(1.751)
Controls	Yes	Yes	Yes	Yes
Insurer FE	Yes	Yes	Yes	Yes
Rating Notch FE	Yes	No	Yes	No
Year FE	Yes	No	Yes	No
Rating Notch × Year FE	No	Yes	No	Yes
Observations	2,300,792	2,300,792	1,813,548	1,813,548
R^2	0.042	0.044	0.059	0.061
Y-Mean	14.242	14.242	21.806	21.806

Table IA.12
Disposal at a Gain: Privately versus Publicly Rated Bonds

This table repeats Table IA.11 for gains. The dependent variable is an indicator, scaled by 100, equal to one if bond j held by insurer i at year-end t is disposed of within h years for sale consideration strictly above its carrying value in the year before disposal (a disposal at a gain). The disposal universe includes both terminal and same-year partial sales. Columns, controls, fixed effects, sample, and *Private* follow Table IA.11. Standard errors, clustered by bond and insurer, are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels.

	(1)	(2)	(3)	(4)
	Disposal at Gains			
	One Year		Two Years	
Private	-2.457***	-2.487***	-4.305***	-4.322***
	(0.482)	(0.484)	(0.678)	(0.679)
Controls	Yes	Yes	Yes	Yes
Insurer FE	Yes	Yes	Yes	Yes
Rating Notch FE	Yes	No	Yes	No
Year FE	Yes	No	Yes	No
Rating Notch × Year FE	No	Yes	No	Yes
Observations	2,300,792	2,300,792	1,813,548	1,813,548
R^2	0.053	0.057	0.059	0.062
Y-Mean	10.862	10.862	14.879	14.879

Table IA.13
Persistence and Switching of Rating Channels

This table reports year-over-year transitions across the three rating channels: public (Filing Exempt), private (Private Letter), and in-house (Securities Valuation Office). Each cell reports the percentage of U.S. life insurer bond-years starting in the row channel at year $t-1$ that end in the column channel at year t; rows sum to 100. The sample covers 2021–2025 and requires the channel to be observed at both $t-1$ and t.

	Channel (t)		
	Public	Private	SVO
Public	99.2	0.1	0.7
Private	3.9	95.2	0.9
SVO	1.6	0.4	97.9

Table IA.14
NAIC RBC C-1 Capital Charges, Pre- and Post-2021 Reform

This table reports the risk-based-capital C-1 base factor (in percent of book value) applied to each NAIC designation and, under the 2021 reform, to each of its twenty credit-rating sub-categories, shown pre- and post-reform. The factor determines the capital an insurer must hold against the bond, so higher-risk designations carry larger factors; within each old designation, bonds near the bottom saw their factor rise and those near the top saw a small decline. The change in these factors due to the form is the basis for the insurer exposure measure used in Table VIII.

NAIC Desig.	Sub Desig.	Rating	Pre-2021 Factor	Post-2021 Factor
1	1.A	Aaa/AAA		0.158%
	1.B	Aa1/AA+		0.271%
	1.C	Aa2/AA		0.419%
	1.D	Aa3/AA−	0.400%	0.523%
	1.E	A1/A+		0.657%
	1.F	A2/A		0.816%
	1.G	A3/A−		1.016%
2	2.A	Baa1/BBB+		1.261%
	2.B	Baa2/BBB	1.300%	1.523%
	2.C	Baa3/BBB−		2.168%
3	3.A	Ba1/BB+		3.151%
	3.B	Ba2/BB	4.600%	4.537%
	3.C	Ba3/BB−		6.017%
4	4.A	B1/B+		7.386%
	4.B	B2/B	10.000%	9.535%
	4.C	B3/B−		12.428%
5	5.A	Caa1/CCC+		16.942%
	5.B	Caa2/CCC	23.000%	23.798%
	5.C	Caa3/CCC−		30.000%
6	–	All Lower	30.000%	30.000%

Table IA.15
Strategic Use of Private Ratings for Capital Relief: Newly Acquired Bonds

This table re-estimates equation (2) with the outcome restricted to bonds the insurer acquired during the year, so it reflects new purchases rather than the revaluation of existing holdings. The dependent variable is the privately rated share (in percent) of the insurer's newly acquired publicly and privately rated bonds. *Exposure* × *Post* interacts the insurer's 2020 reform exposure with a post-2021 indicator; controls, fixed effects, and clustering follow the specification for Table VIII. Column (1) uses all bonds, Column (2) the investment-grade slice, and Column (3) the high-yield slice. Standard errors clustered by insurer are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels.

	(1)	(2)	(3)
	PLR Share Newly Acquired		
	All	IG	HY
Exposure × Post	0.799*	0.682	4.481*
	(0.480)	(0.502)	(2.336)
Controls	Yes	Yes	Yes
Insurer FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Observations	4,315	4,311	3,248
R^2	0.486	0.464	0.380
Y-Mean	0.771	0.773	1.259

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