



CASE STUDY

How enhanced company data improved claims risk prediction for a Fortune 500 insurer

CLAIMS MODELING

Executive summary

A Fortune 500 insurer engaged Moody's to investigate whether firmographic, financial, or credit attributes contributed measurable signals that could help predict future claims across general liability, professional, and financial lines.

Using Moody's company data, which was matched and enriched across two business groups, the study demonstrated that a range of company attributes carry predictive value for both claim incidence and loss size.

These findings, although drawn from a single customer engagement, show the potential for improved pricing through enhanced inputs and strengthen Moody's position as a valuable partner in science-led casualty analytics.

Background and early indicators

For years, casualty underwriting has relied on policy information and historical loss experience. Although more data is now available, many insurers still lack forward-looking, reliable signals that help differentiate risk with confidence. The challenge is not the absence of data but rather the absence of clarity about which features matter, how they influence outcomes, and where they can help sharpen decisions across pricing and portfolio steering.

Moody's objective in this engagement was to test whether widely available company attributes could reveal consistent relationships with historic loss outcomes. The work forms part of Moody's broader effort to build market credibility in casualty analytics and to demonstrate the value of enhanced company-level data for underwriting.

Preliminary analysis showed that firm age, employee count, and credit risk each displayed directional relationships with both the likelihood of a claim and the expected loss size. These signals were consistent across the insurer's international business group and its US specialty business group, although the strength of the relationship varied. Coverage gaps, particularly in US small and midsize companies, influenced the sensitivity of certain features but did not alter the broader pattern.

Moody's data revealed improved model accuracy through enhanced inputs

The insurer's baseline model relied on policy data alone. When Moody's company attributes were added, the model displayed clearer separation between high- and low-risk entities. Predictive accuracy improved for both the "will a claim occur" and "how large might the loss be" questions. These improvements were directional rather than absolute, and results will vary by business group.

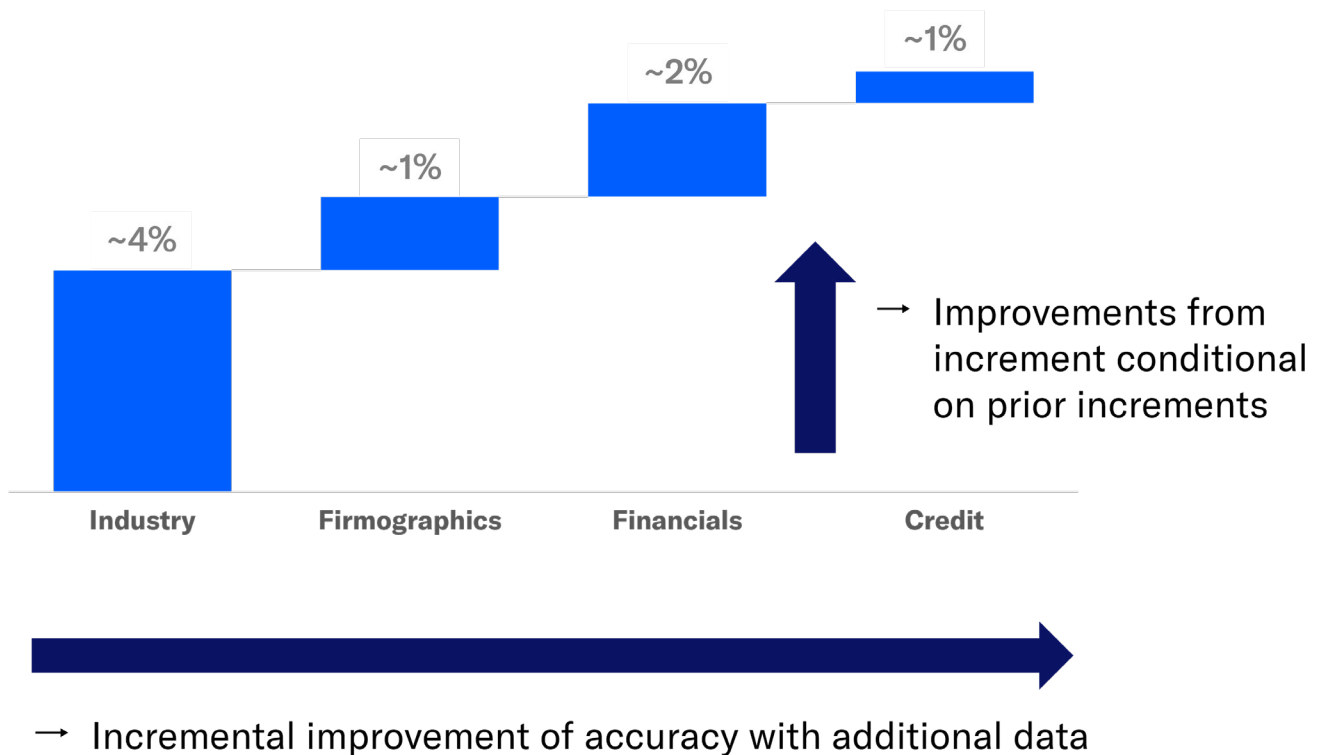
The signals helped the insurer identify accounts that historically appeared similar but demonstrated different risk profiles once enriched with company information.

The additional inputs gave pricing teams a more structured view of insureds. Firm age helped distinguish newly established businesses from mature operations, and employee count assisted with approximate scale and operational complexity. Credit indicators helped identify entities with elevated financial fragility, which correlated with loss experience in several segments.

In one group of business, analysis found that a significant portion of entities were underwritten across multiple lines, revealing a material accumulation and competition risk across business units.

Figure 1 Claim event accuracy

Claim event prediction accuracy



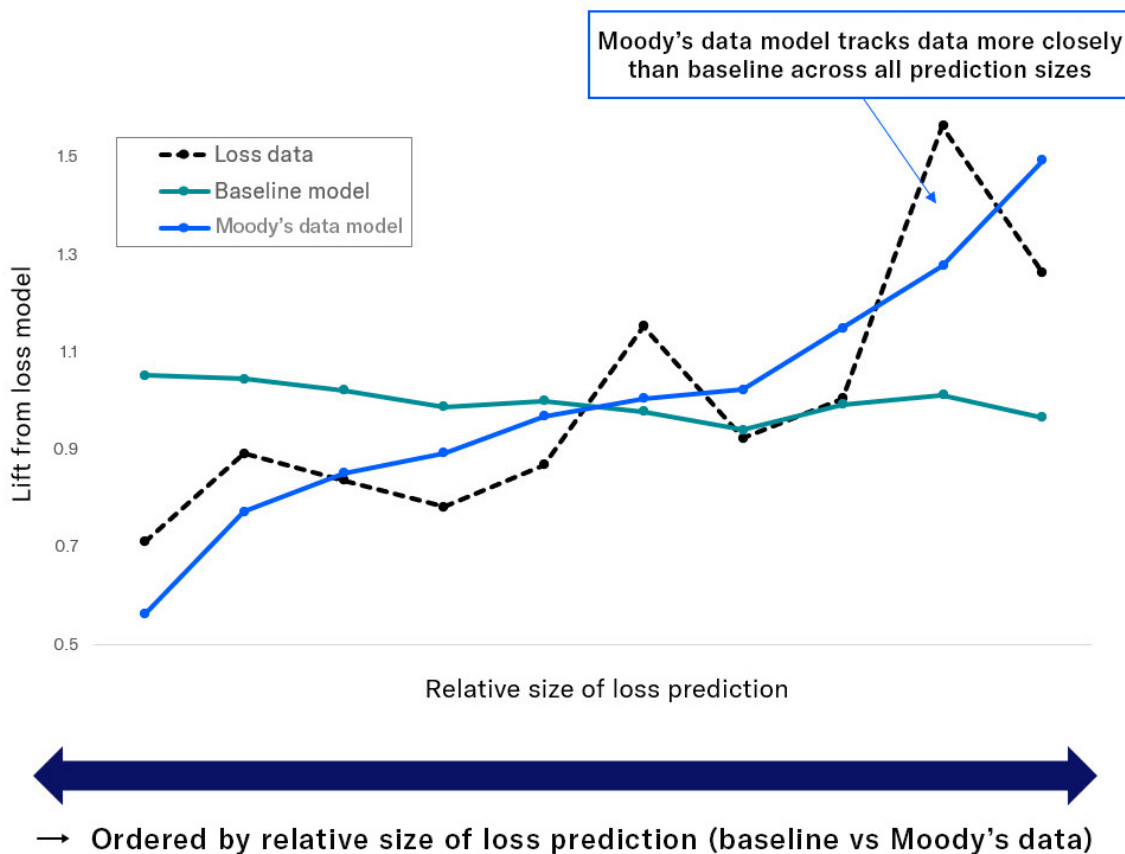
Market reaction versus Moody's signals

Traditional underwriting relies on broker submissions and loss runs, which often lack the depth needed to differentiate risk across similar accounts. The enriched dataset showed that externally observable company attributes can

reveal patterns not visible in submission materials. In several classes, the data helps underwriters distinguish between superficially similar risks, supporting a more consistent pricing approach.

Figure 2 Loss model comparison

Loss model comparison



This has broader implications for portfolios since the analysis indicated significant potential book performance gains (depending on class and geography) if signals were to be incorporated into pricing models. These results are directional and based on the insurer's specific mix of business. Further validation across additional business groups is required, which Moody's is actively pursuing with new partners.

The results also suggest that enriched data can help carriers respond to regulatory scrutiny, manage single-entity accumulation, and strengthen reserving decisions through clearer visibility of underlying insureds.



Looking ahead

Moody's is expanding its research across new portfolios to validate the generalizability of the findings. Early discussions with carriers show strong interest in structured company data as a way to select risks, sharpen pricing discipline, and guide strategic decisions in casualty and financial lines.

As the industry faces rising pressure from emerging risks, social inflation, and regulatory expectations, forward-looking company data is becoming an essential element of casualty strategy. This case demonstrates the potential value of enhanced inputs and underscores Moody's commitment to supporting insurers as they modernize their approach to casualty risk.

Conclusion

This engagement illustrates how enriched company data can improve predictive accuracy and strengthen underwriting decisions. While drawn from a single insurer and requiring broader validation, the study establishes a solid foundation for future work.

Moody's continues to invest in building a comprehensive casualty analytics suite that brings together company data, emerging risk intelligence, and forward-looking modeling. These capabilities position Moody's as an exceptional partner for carriers seeking deeper insights, better decisions, and more resilient casualty portfolios.

MOODY'S

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