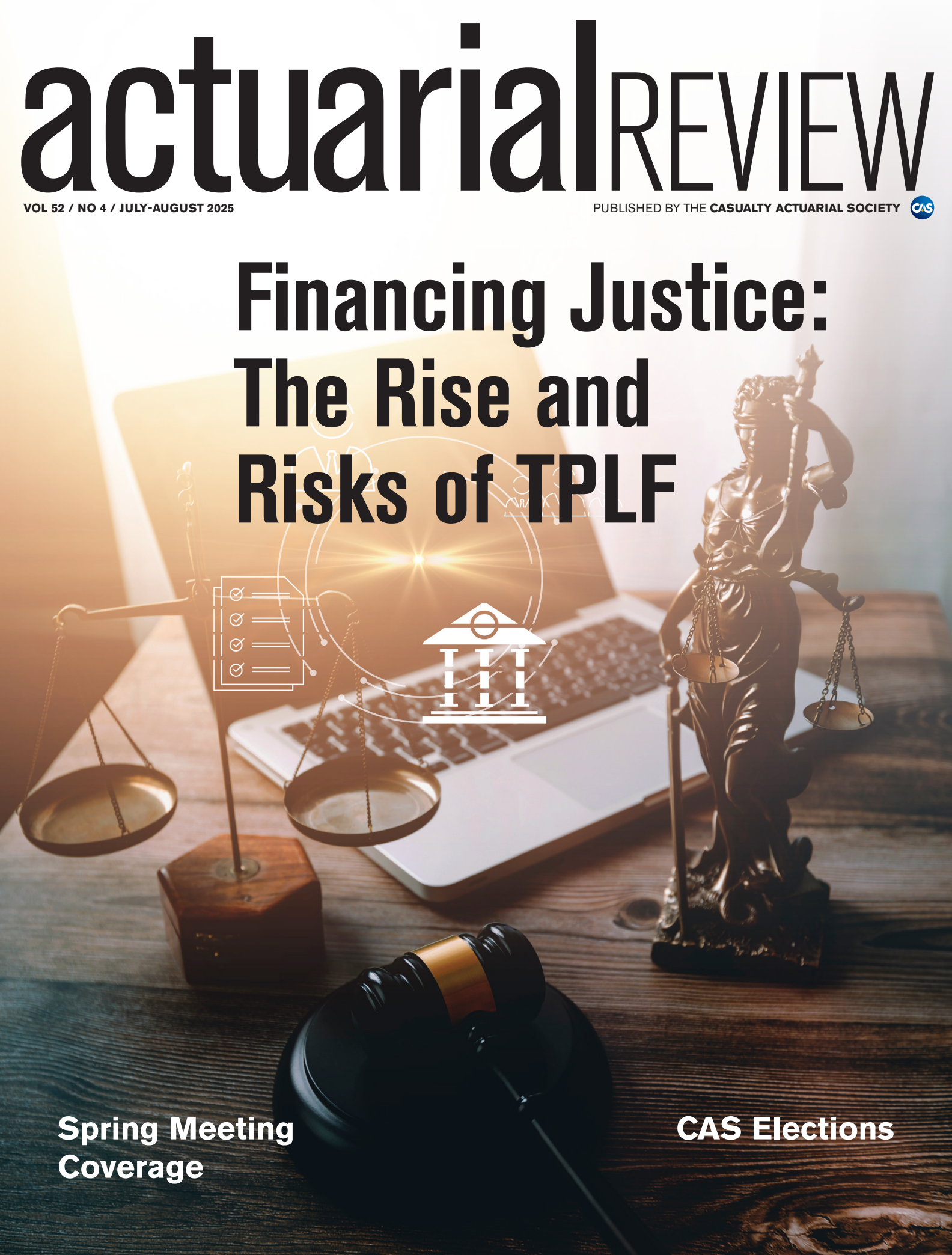
actuarial REVIEW
VOL 52 / NO 4 / JULY-AUGUST 2025
PUBLISHED BY THE CASUALTY ACTUARIAL SOCIETY

Financing Justice: The Rise and Risks of TPLF



Spring Meeting Coverage

CAS Elections

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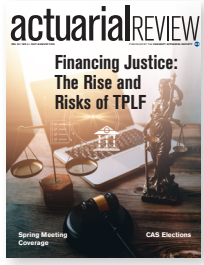

Financing Justice: The Rise and Risks of TPLF

By JIM LYNCH

Third-party litigation financing is shaking up the insurance world. Are your models ready? Explore how this high-stakes investment trend is fueling megaverdicts, disrupting reserving, and forcing actuaries to rethink everything from pricing to trend assumptions.

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AI and emerging tech are reshaping actuarial work, crypto insurance, and legal risks. Our coverage examines actuarial judgment, ethics, and rising secondary perils in North American catastrophes.

CAS Elections

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Meet the candidates for the CAS Board of Directors, who will be responsible for setting strategic direction, establishing policies, and ensuring effective governance and financial stewardship of the organization.

Actuarial Review (ISSN 10465081) is published bimonthly by the Casualty Actuarial Society, 4350 North Fairfax Drive, Suite 250, Arlington, VA 22203. Telephone: (703) 276-3100; Fax: (703) 276-3108; Email: ar@casact.org. Presorted standard postage is paid in Lutherville, MD. Publications Mail Agreement No. 40035891. Return Undeliverable Canadian Addresses to PO Box 503, RPO West Beaver Creek, Richmond Hill, ON L4B 4R6.

The amount of dues applied toward each subscription of *Actuarial Review* is $10. Subscriptions to nonmembers are $50 per year. Postmaster: Send address changes to *Actuarial Review*, 4350 North Fairfax Drive, Suite 250, Arlington, Virginia 22203.

actuarialREVIEW
The magazine of the
Casualty Actuarial Society

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Inside TPLF, Spring Meeting Coverage, Elections

Third-party litigation financing (TPLF) is quietly turning the insurance world upside down by driving up claims, delaying settlements, and throwing a wrench into traditional reserving models. Our cover story by Jim Lynch, FCAS, MAAA, unpacks how TPLF fuels megaverdicts, distorts reserving models, and escalates claims unpredictability — all of which threaten the validity of actuarial assumptions. With insights from interviews with top actuaries, legal counsel, TPLF investors, and industry leaders, this article offers essential strategies to detect, price, and adapt to this emerging risk. If you're seeking to future-proof your analyses and understand a force that's reshaping loss triangles and legal trends, this is your must-read guide. Stay ahead of the curve — your next pricing decision could depend on it.

In our Volunteers Make Things Happen column you'll meet Jonathan Lim, FCAS, MAAA, who is championing the strategic pillar of Enhancing the Candidate Experience in his work with the Syllabus and Examination Working Group and the Candidate Advocate Working Group.

We also have in-depth coverage of some of the most exciting sessions from the Spring Meeting in Toronto, Canada. Learn about North American catastrophes and how these secondary peril events are no longer secondary. Unpack how AI, while not a systemic single point of failure, amplifies cyber risk through increased attack frequency, severity, and data aggregation exposure. Find out how actuaries can benefit from — as well as be challenged by — the increasing presence of AI. Want to know more about developing sound actuarial judgment or developing rates for the severe convective storm peril in property insurance? Read on!

You will also have the chance to meet the candidates for the CAS Board of Directors. The Board is responsible for overseeing the organization's strategic direction, governance, and overall performance. They set policies, approve major initiatives, ensure financial health, and uphold the Society's mission to advance the practice and application of actuarial science. Learn more about the people who will shape the future of the CAS before you vote in August.

Actuarial Review welcomes story ideas from our readers. Please specify which department you intend for your item: Member News, Solve This, Professional Insight, Actuarial Expertise, etc.

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Save the Date!

2025 CAS Annual Meeting
Fairmont Austin • Austin, TX
Nov 9–12, 2025

Strengthening Our Profession

I have often been asked what I hope to accomplish during my tenure as CAS president. My answer is simple and significant — to strengthen our profession. I then explain how unique the actuarial profession is. It is one of very few analytical careers that is also a profession, due to the attributes that make us a profession: our unique body of knowledge, our high standards of entry, our code of ethics/professionalism, our service orientation, and our credentialing organization — the CAS itself. And this is how I make that simple statement more concrete — to strengthen our profession is to strengthen each of these attributes that make us a profession.

I'm very pleased to tell you that we are making remarkable progress in strengthening each of these attributes. I'd like to share with you a few highlights of how our profession is getting stronger as a result.

Our unique body of knowledge

We are advancing the practice of casualty actuarial science in many ways, and we are building knowledge and expertise in our members. This was abundantly evident at our Spring Meeting in May and was a powerful example of how we are evolving to meet the demands of a changing world. We delivered dedicated educational tracks on artificial intelligence and climate risk, two of the most pressing challenges and opportunities facing actuaries today. These sessions were designed not just to inform but also to prepare actuaries to lead in domains where data, uncertainty, and risk modeling converge in complex ways.

The energy and engagement at the Spring Meeting was powerful. We saw hundreds more attendees than expected, underscoring our community's hunger for timely and strategic content. And we delivered content to build our profession's knowledge and expertise in response. Thank you to everyone who made that meeting a success and to everyone who made that possible, through research, presentations, publications, and knowledge sharing. There is more to come in our upcoming meetings this year — the Casualty Loss Reserve Seminar and Annual Meeting.

We are advancing the practice of casualty actuarial science in many ways, and we are building knowledge and expertise in our members.

Our high standards of entry

We continue to refine and advance our educational system to ensure that those who earn CAS designations are prepared for impactful careers in property/casualty actuarial roles and beyond.

For example, the Property Casualty Predictive Analytics (PCPA) requirement will take effect on January 1 for new Associates. This requirement has both an exam component and a project component that together ensure new members have demonstrated capabilities in predictive analytics and modeling.

To further empower candidates preparing for the new PCPA project, we are developing a GLM On-Demand Course. This course is more than a refresher — it's a toolkit for real-world applications, guiding candidates in building their own predictive models.

This initiative strengthens our commitment to competency-based education and ensures our future members are not just exam-ready, but career-ready. The new requirement is just one example of how we ensure that the standards of entry are appropriately high for our profession.

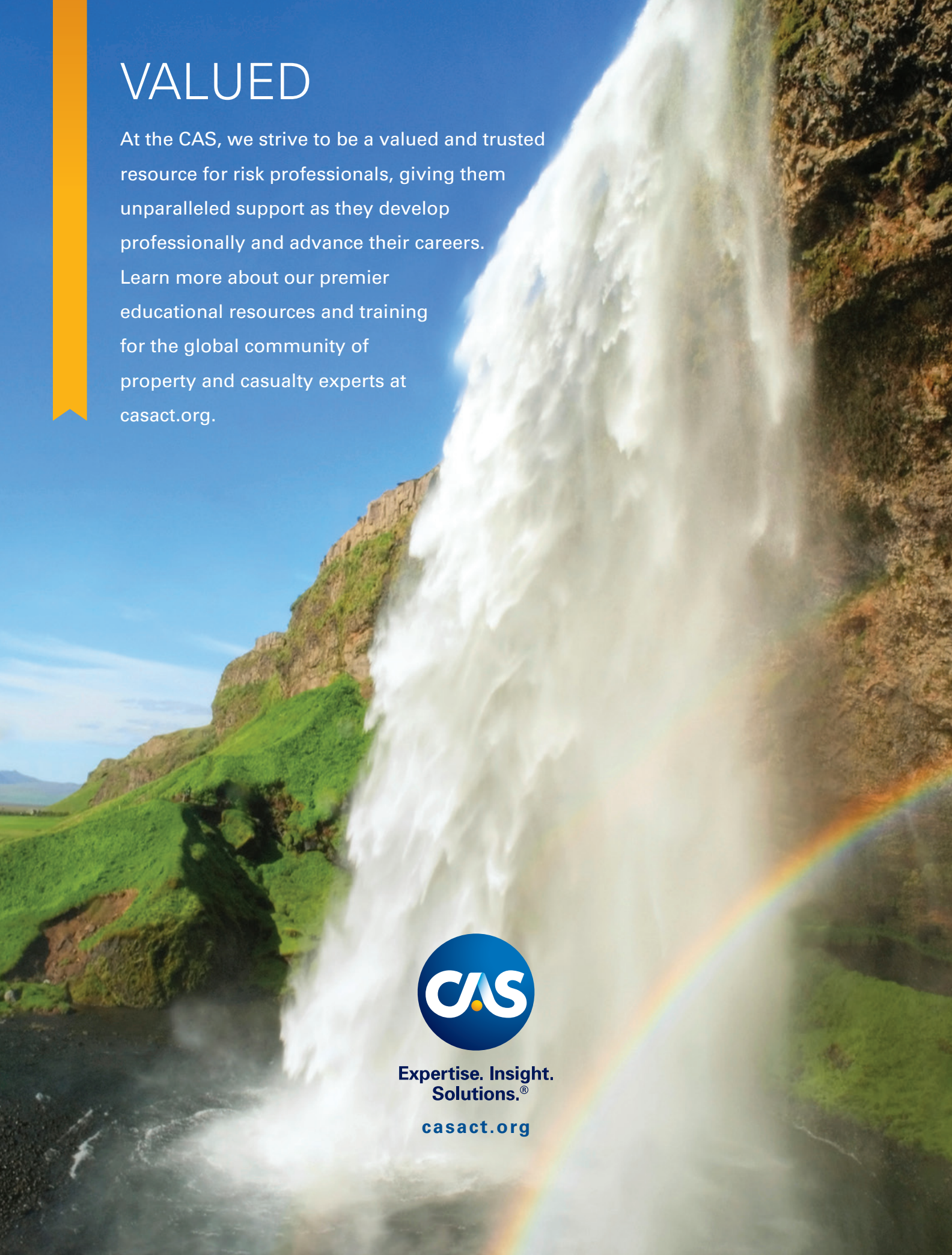
Additionally, the Admissions Governance Committee, which was established to oversee and support the effective functioning of the Admissions process in alignment with Board strategy, has been working diligently in reviewing the results of the Actuarial Professional Analysis (APA) and prioritizing the results within the Candidate Experience Pillar of the Strategic Plan. The past few months have been dedicated to collecting feedback on concepts and ideas from various stakeholder groups and work will begin shortly on finalizing these priorities. We look forward to sharing more information about the details soon.

Thank you to everyone who plays a part in the Admissions process — particularly our Syllabus and Examination Working Group members. And thanks to our candidates who prepare themselves to meet and exceed our standards.

Our code of ethics/professionalism

One of my most rewarding experiences as president this year was to attend a CAS Course on Professionalism. I

President's Message, page 8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President's Message

from page 6

enjoyed speaking to and meeting more than 100 soon-to-be new CAS members and seeing their enthusiasm for their chosen profession. Even more impressive was seeing how they engaged authentically in discussions about ethics and professionalism. I was equally impressed with the volunteers who led the sessions and prepared informative and thought-provoking content. The case studies have been updated and improved since I participated in the Course on Professionalism many years ago. They posed challenging questions in context that is very relevant to today's actuaries.

As the course concluded, I was confident that the next generation of CAS actuaries was just as committed to ethics and professionalism as previous generations have been. Many thanks to all who serve on our Professionalism Working Group and ensure that this commitment remains strong and relevant. And thanks to all of you who take pride in your personal commitment to professionalism and demonstrate it in your everyday lives.

Our service orientation

I've already said "thank you" many times now — evidence that this work of strengthening our profession relies on many members offering their time and energy. Whatever you do to serve the CAS, it has a meaningful impact on the ongoing strength of the profession. I've had the opportunity to meet many of you and hear about the rewards you feel from getting involved. I've also heard some feedback about opportunities to improve your volunteer experience. We take those opportunities seriously and look for ways to ensure your valuable volunteer time has maximal impact.

As we enter our election season, I especially want to thank those who have been nominated to serve as Board members and president-elect. Each of these members has contributed much to the strength of our profession throughout their careers. And they each have now offered to give significant time and effort in the coming years if elected. Please take the time to review the candidates' information and cast your vote. Voting in our elections is an important way that each of us can serve the profession and ensure we remain strong.

Our organization — the CAS itself

The CAS is growing stronger as an organization. Our new strategic plan charts a course for growth and improvement across five key pillars. The Board has strengthened its commitment to transparency. We are expanding our reach to serve a larger membership community around the world to attract top analytical talent to our profession.

As I wrote about in the last issue of *Actuarial Review*, we seek to strengthen the foundation of the CAS this election by adopting a consolidated set of bylaws through members' votes. The new bylaws will provide additional clarity, transparency, and resilience to benefit the CAS for many years to come. This is another way that your vote can help us strengthen the profession by strengthening our organization. Again, I strongly encourage you to take the time to review information about the proposed bylaws and cast your vote in favor.

I hope you see that "strengthening our profession" is much more than a simple answer to a frequent question. It has real meaning and a real impact. I hope you see how our members contribute in so many ways to accomplish this outcome. We can be proud to be members of this unique profession, and we can each do our part — from volunteering to voting — to ensure it remains strong.

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Letters shall not contain personal attacks or statements directly or implicitly denigrating the characters of individuals or particular groups; false or unsubstantiated claims; or political rhetoric. Letters should be no more than 250 words and must include the author's name and phone number or email address, so the editorial staff can confirm the author. Anonymous letters will not be published. There shall be no recurrence of topics; issues previously addressed will not be the subject of continued letters to the editor, unless new and pertinent information is provided. No more than one letter from an individual can appear in every other issue. Letters should address content covered in AR. Content regarding the CAS Board of Directors or individual departmental policies should be directed to the appropriate staff and volunteer groups (e.g., board, working groups, committees, task forces or councils) instead of AR. No letter that attempts to use AR as a platform for an ulterior purpose will be published. Letters are subject to space limitations and are not guaranteed to be published. The AR editorial volunteer and staff team reserves the right to edit any submitted letter so that it conforms to this policy. Decisions to publish letters and make changes to submissions shall be made at the discretion of the AR Working Group and CAS staff.

For more information on AR editorial policies, visit https://ar.casact.org/wp-content/uploads/2023/06/AR_Statement_of_Purpose.pdf

COMINGS AND GOINGS

Greg Talbot, FCAS, has been promoted to senior vice president, actuarial and underwriting, at Summit. Talbot will provide direct leadership to actuarial operations, underwriting operations and regulatory/reinsurance operations, as well as functional oversight to how Summit manages underwriting, loss prevention, and premium audit throughout the organization. Talbot joined Summit as an actuary in 2010 and was responsible for overseeing rate and reserve adequacy, predictive modeling, and internal reporting. He most recently served as vice president-actuarial for Summit.

Martin Vezina, FCAS, CPCU, ARe, CCRA, has been appointed head of underwriting analytics at Greenlight Reinsurance, Ltd. Vezina has held various senior underwriting positions at Allianz, New Ocean Capital, AQR Re, and Markel (previously Alterra/Harbor Point Re/Chubb Re). He also held actuarial roles at American Re and Overseas Partners Re early in his career. Vezina brings over 30 years of experience in reinsurance, with a diverse background in underwriting and pricing functions.

Ben Ng, FCAS, FSA, has been appointed president at Life Insurance Association of Malaysia (LIAM). Ng has over 30 years of experience in the life insurance industry, including 22 years overseas.

Dominic Weber, FCAS, MAAA, has been promoted to senior vice president and chief actuary at NI Holdings, Inc. Weber will continue to lead the actuarial department and oversee reserving, ratemaking, and predictive analytics initiatives. With more than 42 years of experience in the property and casualty insurance industry, Weber previously served as vice president and chief actuary at Society Insurance.

David Drury, FCAS, has been appointed head of analytics and risk at Novel Financial Holdings LLC, a new independent holding company that oversees carriers supporting managing general underwriters (MGU). Drury previously served as executive vice president of underwriting at SiriusPoint.

EMAIL "COMINGS AND GOINGS" ITEMS TO AR@CASACT.ORG.

See real-time news on our social media channels. Follow us on Facebook, Instagram and LinkedIn.

CALENDAR OF EVENTS

September 8–10, 2025
Casualty Loss Reserve Seminar & Workshops
Philadelphia, PA

November 9–12, 2025
CAS Annual Meeting
Austin, TX

Visit casact.org for updates on meeting locations.

CAS STAFF SPOTLIGHT

Meet Greg Guthrie, Managing Editor

Welcome to the CAS Staff Spotlight, a column featuring members of the CAS staff. For this spotlight, we are proud to introduce you to Greg Guthrie.

- **What do you do at the CAS? How does your role support the Strategic Plan?**
  I am the CAS Managing Editor. Primarily, it's my job to manage the day-to-day operations of CAS publications, while ensuring that everything the CAS publishes is of the highest quality. In practice, this means I read every article in *E-Forum* and *Variance* twice before it goes live! I work closely with our volunteer editorial leaders to translate their visions into tangible results. Along the way, we hope these published works advance the field of actuarial science, promote the knowledge and leadership of the CAS, and support our members as they advance in their careers.
- **What inspires you in your job? What do you love most about your job?**
  I love learning, solving problems, and being challenged. In a lot of ways, organizing information into a thoughtful, elegant written piece is simply the process of solving a puzzle. Likewise, grammatical constructions can be thought of as a process of applying a framework to unsorted knowledge. I have devoted my career to the written word, and I love working with words every day. I am also inspired by working with energetic volunteers who contribute to their field and their profession in their free time.
- **Describe your educational and professional background. What do you bring to the organization?**
  I have a BA in English from the University of Iowa and an MA in English Literature from the University of New Hampshire. It took me a bit to find my footing, but I've gained more than 20 years of experience in association publishing, content strategy, and content marketing.
- **What is your favorite hobby outside of work?**
  I am very involved in youth baseball. I've been a Little League coach for seven years. I've been a division commissioner for five years, which means I schedule the entire season for a division, build team rosters, run player drafts, and more. I also try to volunteer as an umpire when I can. Last summer, I got to watch my older son play in the Little League East Region Tournament in Bristol, Connecticut, which was an incredible experience.
- **If you could visit any place in the world, where would you go and why?**
  There are so many places! Hong Kong. I was there for just over 24 hours many years ago, but I would love to go back and experience more of it. My mom was born there.

Sarah, Ethan, Nicholas, and Greg Guthrie (left to right) at the Little League East Region Tournament in Bristol, Connecticut.

- **What would your colleagues find surprising about you?**
  I have had *a lot* of jobs. Before I settled into my career track, my early twenties were nomadic. In no particular order, I have been a barista, a janitor in a hydroelectric power plant, a UPS preloader (I loaded the brown package cars), a prospector for a stock brokerage, an investigator/researcher for a credit bureau, a team leader for scoring standardized exams for elementary school students, and more. One of the more interesting jobs was when I sold wine-of-the-month clubs by phone out of a dilapidated office building in Chicago.
- **How would your friends and family describe you?**
  I'd like to think that the people in my life would say that I am a thoughtful, humble, and supportive person.

VOLUNTEERS MAKE THINGS HAPPEN

Championing the Candidate Experience By SARAH SAPP

The Making Things Happen column features CAS and iCAS members who serve the organizations in many capacities and enrich the volunteer experience for all.

In the world of actuarial science, where technical precision and analytical rigor reign supreme, it's easy to overlook the human element behind the credentialing process. But for Jonathan Lim, FCAS, MAAA, putting people at the center of actuarial advancement has been his mission from day one. As the general officer of candidate experience at the CAS, Lim brings empathy, innovation, and strategic vision to one of the most vital aspects of the profession: supporting aspiring actuaries on their journeys to becoming credentialed members.

Lim's current role may be behind the scenes, but its impact resonates through every exam taken and every milestone reached by CAS candidates. He works closely with the Syllabus and Examination Working Group (SECOM) and the Candidate Advocate Working Group (CAWG), ensuring that candidate needs are considered from exam development and grading to communications and support tools.

"I advocate for CAS candidates at every stage of their journey," Lim explains. "I'm focused on establishing a credentialing process candidates can trust, streamlining the path to designation, and optimizing our volunteer resources in the assessment process."

These priorities are not only well aligned with the CAS Strategic Plan; they are also instrumental in transforming its goals into tangible results. Lim's leadership ensures that the Society's vision for a candidate-centered admissions process is more than aspirational — it's operational.

Among the many initiatives Lim has helped steer, one stands out as particularly impactful — the Answering and Grading Insights Videos. Developed through a collaboration between SECOM and CAWG, these videos provide candidates with greater transparency into exam expectations and grading practices. The result is not just clarity — it's empowerment.

"These videos give candidates valuable guidance on approaching questions and insight into the grading process," says Lim. "They help demystify the expectations, and that can make a world of difference for candidates preparing for high-stakes exams."

By increasing transparency and fostering a more supportive exam environment, he's helping redefine the candidate experience for a new generation of actuaries.

Lim's volunteer journey with the CAS began in 2018, shortly after he earned his FCAS. Driven by a desire to give back, he joined SECOM as a volunteer. It didn't take long for his leadership qualities to shine. During the early pandemic years, a period marked by rapid change and enormous pressure, he took on a leadership role.

"We implemented additional exam sittings, introduced new grading software, revised content, and piloted innovative item types," Lim recalls. "It was a transformative time, and I'm proud to have contributed to making our exams stronger and more aligned with professional standards."

Jonathan Lim, FCAS, MAAA

After seven years with SECOM, many might have stepped back. But Lim saw a new opportunity to have an even greater impact. Taking on the general officer role allowed him to channel his accumulated experience into shaping a credentialing system that prioritizes both excellence and empathy.

Lim's contributions to the CAS are matched by a rich and dynamic professional career. He earned his bachelor's degree in mathematics from the University of Waterloo, where his passion for actuarial science took root. Since then, he's built a diverse résumé spanning brokering, insurtech, and reinsurance.

Currently, he works at a reinsurer that merges traditional markets with decentralization and blockchain technology — a space where innovation

meets risk management. "I'm passionate about applying cutting-edge technology to strengthen insurance processes," he says. "It's a niche that's gradually attracting more actuaries."

Ask Lim about the long-term future of the actuarial profession, and he's likely to respond with a twinkle in his eye. "Sometimes I daydream about a future where humanity has expanded throughout the solar system and reinsurance has evolved beyond Earth," he muses. "I wonder what CAS exams might look like then — perhaps testing interplanetary risk management principles or Martian catastrophe modeling!"

It's a fun fantasy, but it speaks volumes about his forward-thinking mindset. Lim isn't just preparing candidates for the next exam. He's helping prepare the profession for its next evolution.

For many actuaries, their first interaction with the CAS is through its exams. Lim understands that this first impression can shape a lifetime of engagement. That's why he's so passionate about ensuring the process is fair, transparent, and supportive.

"By strengthening the candidate experience, we strengthen our collective future," he says.

The CAS is lucky to have volunteers like Lim — individuals who don't just serve the profession but shape it. With his unwavering dedication, collaborative spirit, and strategic insight, Lim is not only advocating for candidates, he's building a better path for every actuary who follows in his footsteps.


1


Casualty Actuarial Soc
Actuary (noun):
someone who solves problems you never knew existed in ways that will blow your mind! see also: wizard, magician
PROUD OF THE NEW FELLOW IN OUR FAMILY
2

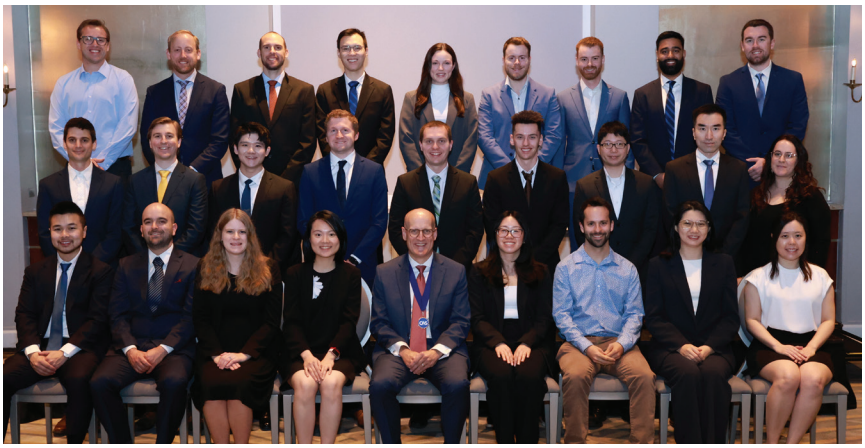

3


4

Scenes from the CAS 2025 Spring Meeting

1. *Attendees make connections during a Monday speed networking event.*
2. *New FCAS Daniel Shaw (center) with his wife and CAS President Dave Cummings. Grin and grip.*
3. *CAS President Dave Cummings addresses those assembled for the celebration of new members on May 5.*
4. *New Associates stand to be recognized at the CAS Spring Meeting's celebration of new members.*
5. *New Fellow Hailey Lynn Walters accepts her diploma from CAS President Dave Cummings.*
6. *CAS Past President Jim Christie gives the address to new members on May 5.*
7. *New FCAS Josue Kouyo (with baby in arms) and his family celebrate his achievement with a group photo taken with CAS President Dave Cummings.*
8. *Jamie Clarke was the featured speaker for the Spring Meeting. A professional and Olympic-level performance coach, Clark spoke about decision-making in extreme circumstances.*
9. *Longtime CAS volunteer Bob Wolf (far left, seated at table) moderates as Francis Chou presents during the Spring Meeting concurrent session "ERM and Strategic Planning—A Case Study."*
10. *New ACAS Mike Farrug (left) and new FCAS Gege Tian take a selfie following a speed networking session.*
11. *Attendees and CAS staff mingle during a break.*

NEW FELLOWS ADMITTED OR RECOGNIZED IN MAY 2025



Row 1, left to right: *Ian Le, Matthew Wayne Dunlap, Abigail Christine Boger, Jinglin Li,* ***CAS President David Cummings,*** *Jennifer Toye, Ezra M. Kirshenbaum, XinMing Wan, Florina Or.*
Row 2, left to right: *Benjamin Michael Jesser, Evan Resuali, Wangsun Xia, Andrew Daniel Dunkle, Samuel Bermke, Stephen McInturff, Felix Chen, Lei Guo, Audrey Roy-Doyon.*
Row 3, left to right: *Samuel Joseph Garvey, Woodrow Sabroske, Trevor Mooneyhan, Alexander Phung, Ashley Lauren Thompson, Guillaume Michel, Antoine Langevin, Jaisal Parshotam, Daniel Wasson.*

Row 1, left to right: *Amanda Lindquist, Khoa Dang Truong, Yanisa Cheeppensuk, Michelle Chu Luan Lim,* ***CAS President David Cummings,*** *Queenie Chen, Eryn Collins, Daniel Shaw, Andreea Gheorghita.*
Row 2, left to right: *Ryan Ho, Justin Joseph Mangiaracina, Sara Cahill, Matthew Lam, Frank Zihong Yang, Xin Li, Yuanjia Yin, Frederick E. Galloway, Morgan Marie Butz.*
Row 3, left to right: *Josh Chou, Guoxin Su, Daniel Kozlowski, Kelsey Powell, Sen Mu, Julie Araniyasundaran, Keren Chheang, Jason Friedlaender, Jordan Golaszewski.*

Row 1, left to right: *Nicholas Tyler Wong, Siyang Xie, Nora Jean Evans, Gege Tian, Jessica Efstathiou,* ***CAS President David Cummings,*** *Michelle Lau, Syed Fahim Hussain, Jose Joaquin Camara, David Joe, Rachel Lynn Bushman.*
Row 2, left to right: *Abby Marsh, Mike Feoli, Frederick Horsman, Donald Glenn Allan, David Lam, Brendan Shefcik, Hailey Lynn Walters, David Blake, Nicholas Goers, Haokuan Dong, Greg Spindell, Nan Zhou.*
Row 3, left to right: *Josué Kouyo, Brandon Maggio, Harrison Reese, Bryan Paul Hong, Caleb Hancock, Anthony Baer, Lawrence Heymann, Raj Chittal, Unknown, John Harder.*

New Fellows not shown: *Nishi Agarwal, Olivier Bensimon, Michael Ryan Caputo, Fen You Chen, Jianyu Chen, Hao-Wei Chu, Kelli D. Chupp, Nicholas Wade Egli, William Ellison, Joenathan Ferio Hardi, Waleed Hassan, Preamini Jeevaharan, Lei Jing, Jamila Jones, Greg Karabinos, Christopher Kevin, Kashif Khalid, Winson Khoo, Elizabeth A. Kurina, Mengda Lu, Sean Malloy, Thomas Ryan Mazzotti, Michelle Muller, Emmanuel Poirier, Barry John Posterro, Devika Sethi, Jiratt Sirisithichote, Tyler Steele, Yee Fong Tan, Jacob Adriaan Van der Merwe, Sophie Emily Weisenberger, Jin Cheng Wong, Jennifer Xu, Qian Yang, Wan Jing Yip, Ruijia Zhang, Danish Zulfiqar.*

NEW ASSOCIATES ADMITTED OR RECOGNIZED IN MAY 2025

Row 1, left to right: *Alexa Biswal, Shekina Carpanen, Victoria Myers, Matthew Zysk,* ***CAS President David Cummings,*** *Gregory Paul Keene, Gabriel J. Koppel, Dayna Chun, Kevin M. Kadunc.*
Row 2, left to right: *Unknown, Christopher J. Abbott, Alexander Charles Ventrello, Kentaro Makino, Nicole Sullivan, Anna Salger, Robert Hennecy, Samuel Crossland Rhodes, Roel Morales.*
Row 3, left to right: *Zachary Johantges, Kyle Matthew Mosher, Raymond J. Clouse, Jeffrey Zeitler, Noah James Hewes, Francis Guerin, Thomas O'Bryan, Tyler Millson, Luke Thomas Cooley.*

Row 1, left to right: *Kramer Endres, Kyle Zacher, Kada Reghan James-Hubbard, Samantha Nicole Paulson, Brenda Aguado Escandon,* ***CAS President David Cummings,*** *Maria Lazurko, Chase Benoist, Josephine Heng.*
Row 2, left to right: *Guillaume Turnblom, Kevin McGonigle, Claire Yi-Yun Liu, Pace Finn Isaac, Unknown, Ethan Hackett, Afzal Feeresta, Kara Douglas, Kyle Thomas Ulmet, Oscar Yong Qi Zhang.*
Row 3, left to right: *Anthony Salvatore Milluzzo, Karsten Lucas Malthaner, Christopher Ng Chieng Hin, Kadin Farnsworth, Dylan Van Ruler, Elizabeth Rose Davio, Lauren Talbot, Linda D. Schwartz, Carter Klein.*

Row 1, left to right: *Ron Kinel, Wei Chien Soh, Jackson Chen, Yuyang Liu,* ***CAS President David Cummings,*** *Nashi Ni, Yinshu Chen, Michael Francis De Jesus, Bryan Nicholas Ong.*
Row 2, left to right: *Jacob Kirk Francy, Brody A. Haynes, Matthew Aarin Alfredo Fernandez, Niship Baraili, Huiting Li, Hannah Rose Baney, Emily Torricelli, Stacy Jane Ng Oy Kam Ng-In-Keng.*
Row 3, left to right: *Bryce Marmaduke, Sam Kunkler, Zachary A. Gelber, Daniel Drabik, Matthew James Zilligen, Michael Farrug, Anthony John Papa, Justin Dippold.*

Row 1, left to right: *Benjamin Johnson, Mason David Lawrenz, Maxwell Thomas, Francisca A. De Medeiros, Alison Kay Hansen,* ***CAS President David Cummings,*** *Blake Kim, Hoi Chon Yuen, Tianyu Zhao, Brendan Madi, Pooja Khatri.*
Row 2, left to right: *Deborah Mergens, Eva Gabrielle Pando Mars, Neil Bhardwaja, Renxia Huang, Samuel Scheele, Olivia Sabat, Noelle Christine Martin, Dihui Zhu, Hananya M. (Mark) Schwartz, Matthew Frank Frastaci.*
Row 3, left to right: *Thomas E. Clark, Tyler Whitesell, Yannis Bi, Domenic J. Bernard, Hanjun Brian Kim, Daniel Gadasi, Isaiah Anthony Guerrero, Bradley Marx.*

NEW ASSOCIATES ADMITTED OR RECOGNIZED IN MAY 2025

Row 1, left to right: *Brandon Cardenas, Ruijie Shen, Gina Marino, Anh Nguyen, Chu Wen Ye,* ***CAS President David Cummings,*** *Alexa Weber, Xinyun Jiang, Olivia Warnock, Kylei Walters, Joshua Gordon.*
Row 2, left to right: *Suraj Setlur, Collin Shae Levis, David Matej, David DelGizzo, Catherine Kortje, Alexia O'Linn, Saurabh Santoshkumar, Nathan Bryan Schilling, Matthew Cleveland, Chad Williams.*
Row 3, left to right: *Benjamin Donald Heidt, Matthew Kirmse, Kurt Smith, Devon Veach, Stephen Dorff, Nicholas Weicker, Dayne Lassiter, Adam Yarbrough, Akash Rana.*

Row 1, left to right: *Isabella Peakes, Emily Sham, Michelle Huang, Architha Sridharan, Brianna Mendes,* ***CAS President David Cummings,*** *Xinyu Li, Krishna R. Nair, Christian Alexander Valerio, Marissa Burleigh, Allison Rachel Stark.*
Row 2, left to right: *Hailey Hoogers, Henry Wu, Bryan Kukulski, Matthew S. Wessler, Brendan Patrick Watson, Sek Teng Leong, Kanglim Ryu, Allison Barnes, Nicholas Perrando.*
Row 3, left to right: *Joseph Fafian, Ian Reed Ackerman, Dillon Damme, Nathan Michael Chouinard, Jacquelyn Mouck, Diego Kaptain, Matthew Schutz, Robert Van Tash.*

Row 1, left to right: *Nicole Foster, Kieran Rose, Harshith Tenepalli, Christina Marinello Swan, Evelyn Fang,* ***CAS President David Cummings,*** *Amy Nassour, Sarah Nadine Podlewski, Erin Leigh Humphreys, Ksenia Dracheva, Danielle M. Meyers.*
Row 2, left to right: *Michael Bolton, Stephany Carolina Palmer, Kevin Lin, Cassandra Tai, Kristi Lulu Intara, Aydan Noah Delgado, Chenye (Fiona) Yang, Qiuli Tang, Yiming Yuan, Sharon Zang, Wenrui Mellon Li.*
Row 3, left to right: *Joseph Clifford Alberts, Darin W. Fraser, Jasmine Li, Makinzie Youngblood, Jing Feng, Fan Feng, Nathaniel Partelow, Zhaokun (Daniel) Yan, Kayla Brooke Krakoff, Eamon Levin, Thomas Edward Barnes.*

Row 1, left to right: *Meqdes Birru, Hsin Yi Tai, Yao Li, Sihan Cheng, XinYuan (Kaya) Chen,* ***CAS President David Cummings,*** *Raine Stryczny, Jiasui Ding, Jay Shah, Naomi Nicole Wright, Joanna Kelner.*
Row 2, left to right: *Nathan Lacombe, Charlotte Saternos, Alyssa Odau, Matthew J. Bodenrader, Payton Kim, Joseph Adamek, Matthew Kwan-Ho Lee, Julian Janczak, Isaac Tepperman.*
Row 3, left to right: *Andy Tam, Alexander Pax, Randall Parker, Jacob Driggers, Lukas David Lehmann, Edmund Davis, Warren Glenn Leuteritz, Alicia Friend, Peter Skryzalin, Kathleen Kennedy Evans.*

NEW ASSOCIATES ADMITTED OR RECOGNIZED IN MAY 2025

Row 1, left to right: *Katherine Marie Richardson, Uziel Milevsky, Olivia Yunjeong Kim, Yang Yang,* ***CAS President David Cummings,*** *Sufan Zhang, Anita Suvasia, Leela Krishnan, Jimin Kwag.*
Row 2, left to right: *Sebastian Wyman, Samir Singh Mann, Adam Dougall, Gregory Rogner, Philip W. Uhlig, Alexis Casa, Joseph P. Sunny, Haotian Wang, Oscar Joseph Arlinghaus.*

New Associates not shown: *Nicholas Andrew Alekel-Havrilla, Kristine Elizabeth Anderson, Christopher Max Arentz, Jarett Bache, Zachary Bailey, Alberto Baldonado, Brian Barsotti, Madisyn Becker, Ethan Michael Bennett, Benjamin Bergman, Denise D. Biscoglia, Taylor Boudwin-Jones, Kenneth Bowers, Timothy Brennan, Joseph Breslin, Kevin Daniel Callaghan, Mengjiao Cao, Mark Cappaert, Yu Huai Chai, Sainan Chen, Mickey Kian Ngiap Chew, Siew Kheng Chew, Nathan Choi, Chun-Li Chuang, Dov Raphael Spivak Corne, William Gerald Cotty, Mazwe Vulindlela Cuba, Jonathan Curtis, Palma Abdul-Nasser Daawin, Maryanne Gomez Dabney, Timothy Colin Dannels, Brandon Dargay, Muhammad Saad Ahmed Daudpota, Mark Davids, Joshua Akiva Davis, Arvin Jason Perena Del Rosario, Qiuyue Deng, James Vincent Depierro, Jake Devin, Yeni Ding, Nathan Eli Dotterer, Samco Duong, Siming E, Sammy Eap, Mitchell Shawn William Eckert, Jordan Falk, Yuqian Fan, Nicholas Daniel Fiete, John Flaherty, Sam Johnson Fraser, Emily G. Freed, Josephine Funaro, Mary Carol Garrity, Christine Garza, Lindsay Gearty, Bartholomew Embir Ghanney, Sofia Giubilaro, Paul Glixman, Ronny Gordy, Nickolas Grammatico, Jayson Grassi, Danica Greene, Maxwell Gruber, Wei Guo, Cody Gustafson, Brittany Hall, Bryan Allan Hall, Issaac Nolan Hansen, Zeling Hao, Rebecca Henion, Julianne Marie Hess, Jack Hillesheim, Phuong Lan Hoang, Jing Yi Hoe, Elizabeth Howland, Shuo-Heng Hsu, Jiamei Huang, Tobias Im, Peter Thomas Jensen, Yuping Jiang, Anthony Jin, Yifan Jin, Michael D. Karl, Kimberly S. H. Kaune, Brandon Michael Keiber, Jeffrey Bryan Kerner, Yongho Kim, Spencer Kirbyson, Jill Lynn Kirshman, Evan Koenig, Nathan Koo, Clayton E. Koon, Alison Lambert, Luke D. Larue, Ronaldo Raivhar Latibeaudiere, Elizabeth M. Latournes, Sara Lawson, Huy Le, Chiew Lai Lee, Ernest Lee, Lucinta Lee, Wai Khong Lee, Matthew Leise, Matthew Leonhartt, Asher Levy, Ning Li, Ai Huat Ling, Patricia Loaiza, Rostyslav Lohoida, Samuel A. Lovely, Joseph Deierhoi Lowry, Fresa Luo, Adam Majewski, Stephen Dean Maynard, Robert D. McCarthy, Andrew McPheely, Samuel Gerald Meyer, Tianyi Miao, Yiyi Ming, Tyson Mohr, Thomas Mondry, Adam Morlan, Haylie Nicole Kanda Munda, Stephanie Murphy, Ryan Muzulu, James H. Myers, Cheuk Lun Ng, Lin Jian Ng, Jimmy Nguyen, Phong Ba Nguyen, Katherine Norris, Bo Nosbisch, Judy Oh, Jason Ooi Wei Jing, Ethan M. Orchard, Jonathan Ouh, Prarthi Parikh, Tae Hyung Park, Liam N. Parsons-Meyer, Mufaro Pazvakawambwa, Christopher Patrick Peck, Joseph Henry Peeples, Robert Peeters, Nicholas Pellegrini, Noah Alexander Porter, Anna Puhek, Yue Qi, Delong Qian, Daniel Raminfar, Haley I. Reed, Lucas Reihman, Cijian George Ren, Jack Reynolds, Charles Richard, Matthew Riczko, Gavin Rublewski, April Ruff, Samuel Ryskamp, Ashley Anne Salazar, Julia Sarrazin, Anthony M. Scenna, Alexis Marie Segal, Timothy Selhorst, Krishna Shahdadpuri, Adil Mohammad Siddiqui, Cheong Sik How, Arik Skifstad, Douglas W.H. Smith, Samuel Smith, Yumeng Song, Jarret Sonoga, Tarinee Sriboonchaichusakul, Foster Stager, Samantha Stowe, Andrew Strongin, Ryan Nathaniel Stubbs, Renuka Subramaniam, Jiahui Sun, Linyi Sun, Minwoo Sung, Gabriel Suskin, Luke Swiatek, Juan Yuan Tan, Terri Tan, King Lok Tang, Chengzhong Teng, Janak Thapa, Nathan Edward Thomas, Conor James Timlick, Dylan Torrance, Zorigoo Tugsbayar, Emily Turvey, Travis Vines, Nicholas A. Waddington, Jianyi Wang, Tingyan Wang, Christopher Russell Ward, Joshua Andrew Wauchope, Xiao Wei, John Andrew Weis, Siqi Wen, Jordan Willis, Joseph M. Winbigler, Hanzhi Wu, Shuang Wu, Peng Fei Yao, Sizhi Yu, Ying Kit Wilson Yung, Landon Zavesky, Taige Zhang, Xuelei Zhang, Ivy Zhou, Huihui Zhu, Mason Michael Ziemer, Grayson Zimmerman.*

2025 CAS ELECTION

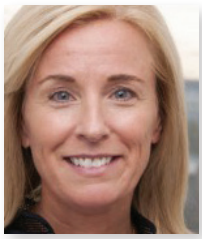
CAS voting members (all Fellows, plus Associates who have been members for at least five years) will have the opportunity to vote on a slate of candidates for the CAS Board of Directors and CAS President-Elect, with online voting beginning on August 1, 2025. On that day, voting members will receive an email with a link to the online ballot. Completed ballots must be submitted online by August 30, 2025.

In the following pages, readers can learn about the candidates through the 100-word summaries they provided regarding their interest in running for CAS leadership positions.

More details about each candidate can be found in the Meet the Candidates section of the CAS website. Please contact Mike Boa (mboa@casact.org) with any questions or comments about the election process.

Meet the *Candidates*

President-Elect Nominee



Kathleen C. Odomirok

FCAS 2005

I am passionate about leading the CAS to thrive, bringing strategic vision, strong leadership, and a commitment to collaboration, innovation, and professional excellence. Throughout my career, I have embraced opportunities to drive meaningful progress, from early volunteer roles to leadership positions in CAS governance, industry committees, and education initiatives. I believe in fostering connections, honoring our well-established professional standards, and ensuring the CAS remains adaptive in a rapidly evolving industry. Cultivating excellence for current and future members, reinforcing our profession's impact, and fostering global connections are priorities I am excited to pursue. I am eager to lead the CAS forward.

Board Director Nominees

Shane Barnes

FCAS 2012

We are facing a shift driven by AI — a transformation unlike any we've seen in a while. I've led organizations through major innovations, including machine learning and cloud adoption. But this moment is bigger. The CAS must lead with urgency — evolving our education, empowering our members, and redefining our relevance in a rapidly changing world. I want to serve on the Board to help steer this course. With practical experience and a future-focused mindset, I'll work to ensure actuaries don't just adapt to AI — we thrive in it, and we help shape the industry.

Isaac Espinoza

FCAS 2007

With over 20 years of industry experience across insurance, reinsurance, and insurtech, I feel that I am well positioned in my career to give back to the organization that has greatly benefited me. Over the years, I've actively engaged in mentoring actuaries, participated in industry panels, and supported actuarial education. Currently, I volunteer on three CAS conference committees, the Spring, Annual, and Reinsurance meetings, where I have planned, presented, and/or moderated dozens of sessions. I aim to enhance CAS education, foster leadership skills, and align member development with emerging trends. I would be honored to serve on the CAS Board of Directors.

Kim Guerriero

FCAS 2015

I am committed to the long-term success and relevance of the actuarial profession, and I want to give back to the Society that has helped shape my career. Throughout my time as VP, I saw firsthand how engaged members are the heartbeat of a thriving Society. I envision a CAS where members, regardless of where they are in their careers, feel informed, heard, and valued. I am passionate about making the profession more accessible and well known. I am ready to help move the CAS forward in a way that is member-centered, accountable, and inclusive for our current and future members.

2025 CAS Elections

Bo Huang

FCAS 2005

I am a passionate CAS member based in Asia with a career that spans consulting, insurance, and reinsurance in multiple jurisdictions, each step deepening my commitment to our profession. Through years of volunteering with the CAS, I have seen firsthand the power of connection, education, and innovation to shape the future. I believe the CAS can lead globally and empower members to stay ahead of industry change. I bring energy, vision, and a global mindset to the Board. Together, we can build a more forward-thinking and inclusive CAS that equips actuaries everywhere to thrive and make a lasting impact.

Jamie Mills

FCAS 2008

I'm excited about the future, and I want to help shape it. I'm an experienced actuarial leader with over two decades in the profession and a long history of CAS volunteer service. I've served as part-chair of the Exam Committee and am currently chair of the RPM Seminar Planning Working Group. Professionally, I lead innovation-focused teams in pricing, automation, and AI. I'm passionate about education and committed to helping actuaries build future-ready skills in areas like AI, data science, and communication. I want to help the CAS strengthen its educational framework, attract top analytical talent, and deliver lasting value to members.

Dale Porfilio

FCAS 1997

I served as chief insurance officer of the Insurance Information Institute and president of the Insurance Research Council from 2021-2025. In these roles, I led the research and education activities, served as a media spokesperson, and presented at events and member companies. On July 14, 2025, I joined WTW to serve as senior director, head of personal and commercial lines business development for insurance consulting and technology. I previously worked at Genworth, Kemper, and Allstate for a total of 29 years. I earned my FCAS in 1997 and have been a member of the American Academy of Actuaries since 1996.

Sharon K. Robinson

FCAS 1992

I offer the CAS a rich history of influential leadership, enthusiastic advocacy for our profession, and confidence in the vision embodied in our strategic plan. I have invested in the profession through my service to the CAS, the AAA, IABA, and The Actuarial Foundation. As a CAS Board member, I will

- Differentiate our brand in ways that resonate with the executive audiences that influence workforce strategy within their organizations.
- Leverage my experiences reaching diverse audiences in order to champion strategic expansion in global and market diversity.

Alisa Havens Walch

FCAS 2015

I truly believe in the CAS as the industry leader and gold standard for property and casualty insurance, and I appreciate the member-driven approach (collaborative work is my favorite kind). I have been a CAS volunteer since 2013 and a member since 2014. I feel ownership in the Society and want to help it succeed. Before switching over to academia, I worked for three years as a P&C actuary. Now I'm the actuarial program assistant director at UT Austin. I'm hoping that my background in academia will bring a perspective that will help the CAS maintain its pipeline of candidates.

CAS Board Proposes Constitution and Bylaws Amendments to Streamline Governance

The CAS Board of Directors is proposing amendments to our governing documents designed to streamline and modernize the Society's governance without changing its structure or policies. Fellows will be asked to vote on the changes in conjunction with the 2025 CAS elections in August. In putting the proposals on the ballot, the Board is recommending that the Fellows vote in favor of the amendments.

Currently, the CAS operates under two separate documents — a Constitution and Bylaws — which creates unnecessary duplication, can cause confusion, and makes updates more cumbersome than necessary. The proposed change would consolidate these into a single, clear set of Bylaws, enabling a more nimble governance framework.

As part of the CAS's commitment to transparent and collaborative leadership, an exposure draft of the proposed changes was released for member feedback in April. Five members submitted comments on the proposal, all of which were supportive.

What's Changing — and What's Not

The proposal centers on a single, focused objective: combining the current CAS Constitution and Bylaws into one cohesive governing document. This new document, titled the CAS Bylaws, will incorporate all content from the existing Constitution not already found in the current Bylaws. This approach reflects best practices for professional societies and is supported by CAS legal counsel.

It's important to note:

- No changes to the CAS governance structure or policies are being proposed.
- The updates are intended purely to simplify, clarify, and align our governance documents.

In addition to combining the two documents, the Board-appointed Governance Committee has proposed minor editorial updates to improve clarity, such as defining what is meant by a quorum, and eliminate outdated or inconsistent terminology.

Review the Proposal

The proposed Bylaws are available for review, along with the current Constitution and Bylaws and other helpful documents.

- Proposed CAS Bylaws (clean) https://www.casact.org/sites/default/files/2025-04/CAS_Bylaws_Draft_Clean.docx
- Proposed CAS Bylaws (redlined) https://www.casact.org/sites/default/files/2025-04/CAS_Bylaws_Draft_Redlined03302025.docx
- Map of Current Constitution and Bylaws to new Bylaws https://www.casact.org/sites/default/files/2025-04/Bylaws%20Mapping03302025.xlsx
- Current CAS Constitution https://www.casact.org/sites/default/files/2025-04/cas_constitution.pdf
- Current CAS Bylaws https://www.casact.org/sites/default/files/2025-04/CAS_Bylaws.pdf
- Frequently Asked Questions https://www.casact.org/sites/default/files/2025-06/CAS-Bylaws-FAQ_2025-06-11.pdf

Questions on the proposal are welcome and may be submitted via an online form.

What's Next?

Balloting on the proposed Bylaws will open on August 1, with ballots due by August 29. Constitution and Bylaws changes require an affirmative vote from 10% of the Fellows or two-thirds of the Fellows voting, whichever is greater.

Wording of Ballot Question for Proposed Changes to the CAS Constitution and Bylaws:

Do you approve the adoption of the new proposed CAS Bylaws, replacing the current CAS Constitution and Bylaws?

- Yes or No

CLRS

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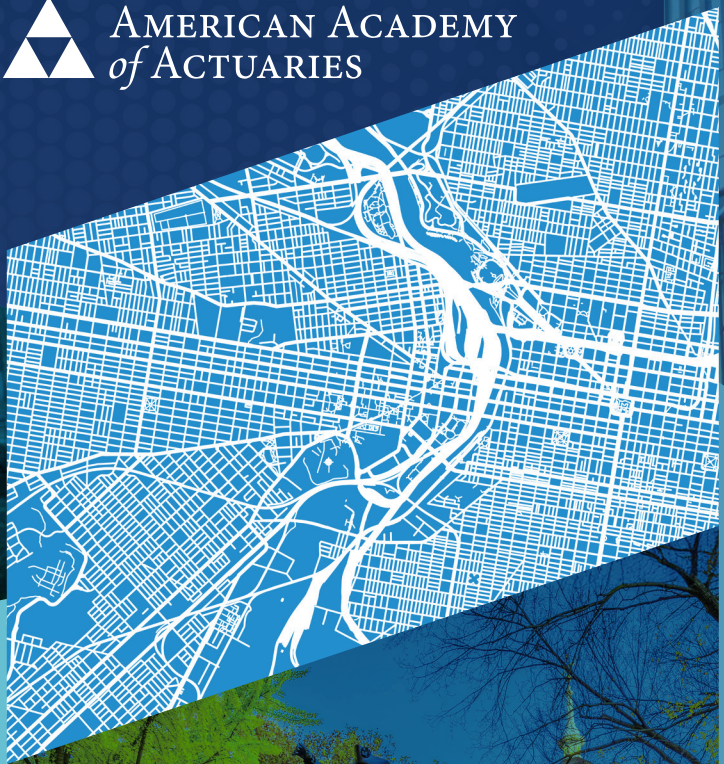
SEPTEMBER 8 - 10, 2025

PHILADELPHIA, PA

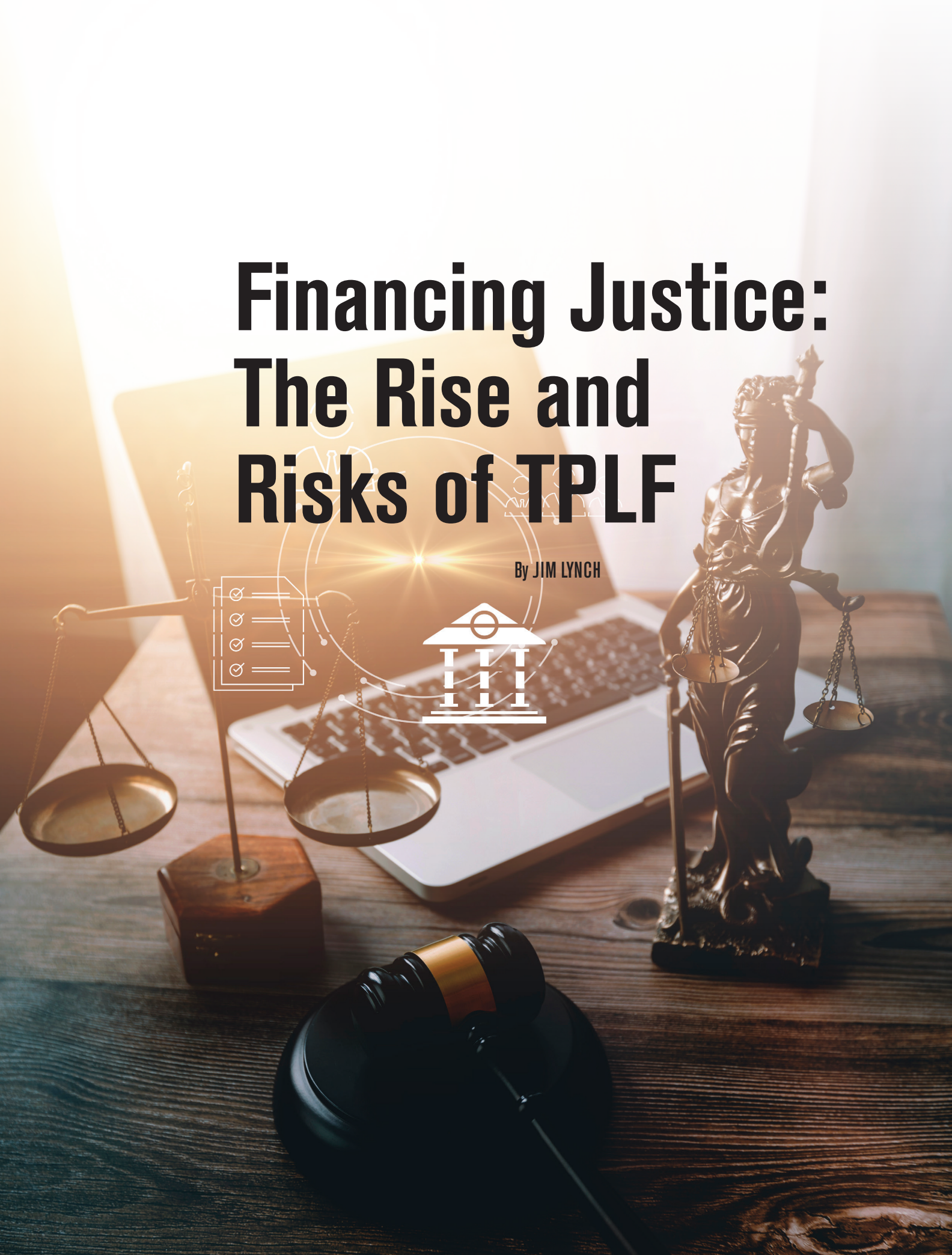
CASUALTY ACTUARIAL SOCIETY

AMERICAN ACADEMY of ACTUARIES



Financing Justice: The Rise and Risks of TPLF

By JIM LYNCH



Explore the growing impact of third-party litigation financing on insurance claims, reserving practices, and pricing strategies.

In seeking out the roots of the social inflation problem, P&C insurers have landed on a stealthy cause: third-party litigation financing (TPLF).

TPLF is a financial arrangement. Simply put, it is an investment in a lawsuit. An investor provides funding for a legal claim in exchange for a share of the potential settlement or judgment. Litigants can pursue cases without bearing the full cost upfront.

Insurance companies complain that the financing skews the playing field against them. Plaintiffs can tap the financiers' deep pockets to bring in a larger settlement.

TPLF is "the jet fuel funding megaverdicts," Alan Dobbins, director of research at Conning, an investment management firm that serves the insurance industry, told a webinar audience on February 11.

More than anything else, insurers hate the stealthy nature of litigation financing. In most cases, there's no requirement to disclose a funding agreement. Players across the industry have banded together in what seems to be their top priority: requiring plaintiffs to reveal the presence of TPLF in a case.

The financiers respond that they are leveling out a field that had been skewed for decades in favor of insurance companies and the defendants they protect. They see themselves as supplying rocks to a David-and-Goliath struggle.

This article will give the history of financing lawsuits, document the recent growth of TPLF, and describe how insurers are seeking solutions in the courtroom and the legislature. It will also describe how insurance companies are trying to ferret out the presence of TPLF and minimize its impact on their portfolio.

History of TPLF

Litigation funding is an attractive asset class. Most financiers are private, so all industrywide data trends should carry an asterisk, but returns can exceed 20% on invested capital. Results are uncorrelated with traditional investments like stocks and bonds.

And the asset class is growing, perhaps doubling in size from 2017 to 2021, according to a U.S. Government Accountability Office (GAO) report.

In the U.S., litigation financing was virtually unheard of until about 10 years ago. In many states, it was illegal.

The practice can sometimes be compared to a legal skullduggery known as champerty. That practice can be traced back to ancient Greece, but it became notorious in England during the Middle Ages, an era in which the king was not much more powerful than the aristocracy that was nominally subservient to him. Government courts could be intimidated, especially in the hinterlands, by barons who could overrun a weaker neighbor through their wealth and power, as Edmond H. Bodkin noted

in his 1935 book, "The Law of Maintenance and Champerty."

If the weaker neighbor went to court, Bodkin wrote, "he found the law powerless to aid him." Before the cowed judge, the influence "of the name of one of the great lords … [would] carry the day." If that wasn't enough, a bribe did the trick.

Thanks to the legal and ethical ambivalence, funders structure their agreements carefully.

Investing in the case became known as champerty, and perpetuation of the case became known as maintenance. You'll usually see these two terms together: *champerty and maintenance*, a slight anachronism held together by linguistic momentum, like *stock and trade* or *hither and yon*.

The practice was ubiquitous in the 14th century. Even Alice Perrers, mistress of Edward III, had to be cajoled out of it.

Eventually, according to "History of Conspiracy and Abuse of the Legal System," a 1921 overview, the Tudor monarchs gained enough power that they (and the English courts) could cow the gentry. (The Star Chamber helped.)

The practice remained suspect, though for new reasons: distrust of lawsuits and lawyers. As a 2019 article in the *Third-Party Litigation Funding Review* put it, "Litigation itself was a vice to be avoided."

That was the attitude when the U.S. gained independence. States generally adopted the British common law restrictions against champerty and maintenance.

Over time, though, the taint hanging over the practice dissipated.

What changed? The Massachusetts Supreme Court summed it up in Saladine v. Righellis (1997), which overturned the state's champerty ban. The court agreed with an American Bar Association report that lawsuits had shifted from being "a social ill, which like other disputes and quarrels, should be minimized" to "a socially useful way to resolve disputes."

The U.K. and Australia did away with champerty and maintenance as criminal or civil wrongs, the former in the 1960s and the latter in the 1990s.

In the U.S., an active debate remains. As a 2020 New York City Bar report noted, 28 states permit maintenance to some degree, and 16 explicitly allow champerty.

"However," the report noted, "other states have refused to abandon the champerty doctrine simply because a few states have chosen to do so."

But the social opprobrium has eased. Burford Capital, a leader in the field, claims that it has received queries from 94 of the 100 largest U.S. law firms by revenue and from 92 of the 100 largest global firms.

Thanks to the legal and ethical ambivalence, funders structure their agreements carefully. Many explicitly disclaim any right to control litigation strategy while maintaining access to nonprivileged case information for monitoring purposes. The industry's adherence to such frameworks has helped it gain legitimacy in jurisdictions where champerty remains an unsettled issue.

Whether the practice is a social good is subject to debate. In its 2022 study, the U.S. GAO gave a reasonable listing of the pros and cons:

Pros

- TPLF levels the playing field for underfunded plaintiffs. A small company might not pursue a strong case against a large corporation without more financial resources.
- It allows plaintiffs to "convert the value of their claims to cash." They won't have to wait until they win a case and the entire appeal process, which can take years.
- It lets plaintiffs shift the risk of a negative outcome to the financiers. Plaintiffs won't be stuck with legal costs if they lose. This, the GAO said, is similar to the way insurance companies relieve policyholders of risk.
- The due diligence the financiers undertake can give plaintiffs insight into their own cases.
- The accounting treatment of TPLF lets corporate plaintiffs take litigation costs off their balance sheet.

Cons

- TPLF is expensive. We'll discuss how expensive in a moment. The financiers say they take great risks, which deserves great reward.
- It may slow down settlements. Plaintiffs might reject a fair settlement to get back the money the funding organization will receive.
- It could increase defense costs. Delays in settlement inevitably drive settlement amounts higher, and the longer a case lasts, the more legal costs the defense incurs.
- A financier could explicitly or tacitly control the litigation, leaving the actual plaintiff unable to settle.
- If the plaintiff's attorney is the borrower, they could find their own interests in conflict with those of their client.

How TPLF works

Some observers liken litigation finance to buying stock. However, it's really closer to banking.

Stripped down, TPLF is a nonrecourse loan; the future settlement is collateral. If there is no settlement, the borrower defaults, and the financier has no collateral to collect.

There are two types of litigation finance. Personal TPLF, where firms front relatively small amounts, typically tens of thousands of dollars, to individuals in exchange for a piece of a future settlement of, say, a personal auto settlement or a health insurance claim. Insurance industry advocates don't focus here much.

Insurers worry more about commercial TPLF. It is there, they say, that financing is ratcheting up payouts.

Unlike banking, TPLF is lightly regulated. The GAO report noted TPLF isn't specifically regulated under federal law. State laws tend to focus on interest rates and other consumer protections.

Most commercial TPLF deals are in the millions of dollars, sometimes in the tens of millions. Payouts can be enormous. Burford Capital funded a $16 billion dollar victory in litigation over the nationalization of the Argentinian oil producer YPF. The judgment is on appeal. According to the company's 2024 Annual Report, Burford had invested $70 million and already won triple that. It has put a fair value of $1.5 billion on its share of the overall deal.

On the smaller side was Burford's deal with jalapeño farmer Craig Underwood. Underwood received $4 million to finance his appeal after winning a suit against the makers of Sriracha hot sauce. When his case settled, he happily paid back the $4 million — plus another $4 million.

"They stepped in and helped us out when we couldn't get help from anybody else," Underwood told journalist Lesley Stahl in a "60 Minutes" segment on TPLF in 2022. "They basically rescued us."

A more typical TPLF client, though, is a law firm. The financier will sometimes fund a single case or sometimes lend against several cases brought by a single firm. The diversification smooths cash flow for both organizations.

Insurance-related matters are only one facet of TPLF and, by most accounts, not the largest. Burford, for example, invests in patent disputes and antitrust and arbitration matters, as well as the commercial litigation matters that insurers are most focused on.

Financiers enjoy hefty returns. In a 2022 study, Swiss Re reported that litigation funding firms posted internal rates of return of more than 20% for personal injury, commercial litigation, and mass tort in each of the previous three years.

Returns of 100%, like Burford got from farmer Underwood, are routine, "singles and doubles" in the words of Burford chief investment officer Jonathan Molot.[1] About 60% of deployed capital since the firm's inception has returned between zero and 99%.

Then there are the "home runs." They represent only 16% of capital, but they generate 30% of returns.

There can be strikeouts, too — 14% of invested capital has posted a negative return. So far, though, Burford's wagers have been as likely to return over 200% as to lose so much as a dollar.

Their results are favorably skewed.

"When we lose," Molot told investors, "we can't lose any more than we invest. But when we win, we can win many times more than we invest. It's a beautiful thing."

It's the opposite skewness of an insurance portfolio, where profits are limited to premium plus investment income less expenses but losses are virtually limitless.

Overall, at the end of 2024, Burford's weighted average return on invested capital was 87%, with an internal rate of return of 26%.

It costs money to underwrite and decline business, and these numbers don't seem to be captured in those returns. Burford turns down a lot of opportunities. It takes on only about 5% of the deals it sees. Burford claimed an average return on tangible common equity of 14% from 2022 to 2024.

And the firm is growing fast, showing a 15% compounded annual growth rate from 2020 to 2024.

There's a lot there that rankles insurers.

Stef Zielezienski, chief legal officer at the American Property Casualty Insurance Association (APCIA), takes the most philosophical argument. Litigation funding, he said, is "outside parties investing in the outcome of a branch of government." It makes government into "a competitive, profit-seeking market … [which] … introduces all sorts of dysfunction. What is justice? Is justice getting the most profit out of a lawsuit? Justice is making sure the injured party has a remedy."

Dale Porfilio, FCAS, formerly of Triple-I and now of

[1] We don't know how long Burford's capital was tied up in Underwood's case, so we can't calculate an IRR to compare to the Swiss Re numbers.

Deep Data and Modeling Drive Litigation Success

With no disclosure requirement on litigation financiers, insurers have no realistic way to get information about what cases attract the capital or how those cases turn out.

Burford Capital shows how important that information can be. At Burford's Investor Day in April 2025, chief investment officer Jonathan Molot outlined how quantitative modeling drives the firm's success. Burford leans on quantitative models to choose its caseload.

Burford's investment process relies on a dual-layered analysis, beginning with a traditional legal review. Experienced underwriters conduct a "merits-based" analysis. They look at the facts, the relevant law, the jurisdiction involved, and other considerations.

"But that's not enough," he said.

Their quantitative models tap data from their own settlements — thousands of commercial cases over the past 15 years. Burford supplements publicly available information.

Public litigation data is often skewed by small commercial cases and personal injury claims, information irrelevant to Burford's portfolio, Molot said. And it shows only adjudicated cases, not out-of-court settlements.

In addition to adjudicated cases, Burford's dataset has data for cases that settle before adjudication and data on settlements negotiated after adjudication. These yield insights that competitors cannot get, Molot said.

Their data lets them pick up on trends. For example, settlements have taken a bigger share of Burford's case proceeds in recent years. Through mid-2021, 41% of proceeds came from settlements. Since then, 79% have.

The shift may come from pandemic-related court congestion, Molot said. Judges have encouraged settlements to reduce case backlogs. Another possible reason: Fortune 100 companies are leaning on litigation finance more often. The financing, added to their size, can intimidate their courtroom opponents, creating an incentive to settle.

Burford builds a unique model for every case it invests in, Molot said. After the qualitative-heavy underwriting and the quantitative-heavy modeling, cases are reviewed and approved by a commitments committee.

"We price to risk," Molot said, "and we are very good at it."

The models continue to play a role as the case proceeds, he said. They also inform Burford's portfolio management, balance sheet and cash flow planning.

The models show the classic balance between risk and reward. As the chart shows, cases return on average 85% on invested capital when models predict the chance of a total loss is less than 10%. Cases average returns of 154% when the risk of total loss exceeds 25%.

At the end of 2024, Burford's weighted average return on invested capital was 87%, with an internal rate of return of 26%.

"We could never achieve these returns without our quantitative modeling," Molot said. "And I don't think anyone else has anything close to this. I don't even think they try."

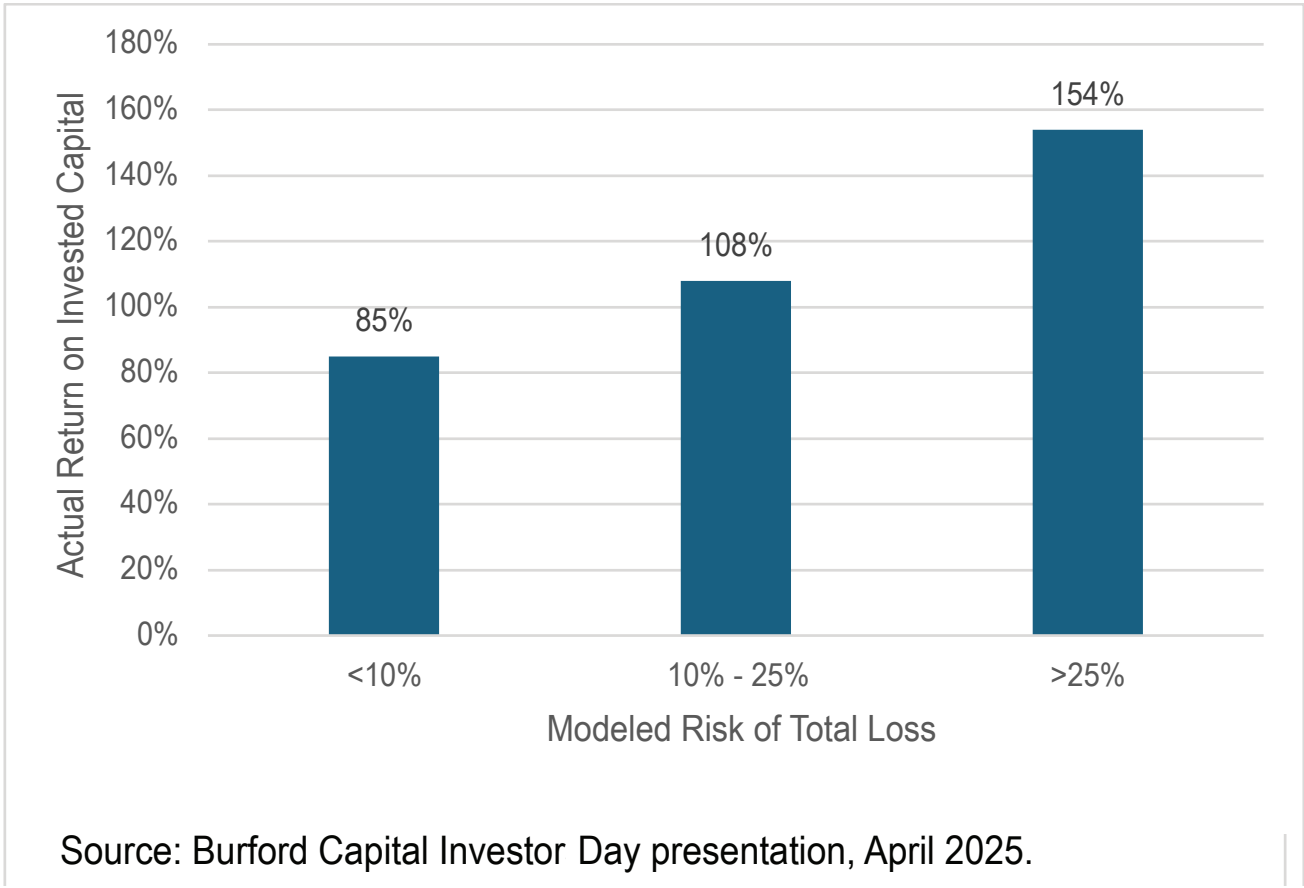
WTW, points out that the fat returns poke holes into the social justice/David-and-Goliath argument.[2] "If you're doing this [as a favor] for the plaintiff, then why do you need such a high yield?'"

The fat margins might leave less for the successful plaintiff. A typical case involves negotiations within a narrow range — 10% to 15% of a central estimate, said Dan Costello, managing partner of the defense firm of Costello, Ginex, and Wideikis. To post the margins they claim, financiers would be reducing the plaintiff's share.

Indeed, Swiss Re estimated that settlements with TPLF would have to be 27% higher, on average, for the plaintiff to be better off.

Higher settlements, of course, raise loss costs, which ultimately raise the price of insurance. Costello has seen the explosion in megaclaims. Five years ago, he had never seen a demand over $100 million. Last year he saw five, including one over $250 million.

[2] I retired from the Insurance Information Institute in 2021 and still do occasional consulting work for them. Porfilio and I have written and spoken in public several times on social inflation and related issues. I have always focused on documenting the presence of social inflation and left to Porfilio and others the task of divining its causes, including TPLF.



Source: Burford Capital Investor Day presentation, April 2025.

A 2024 RAND study found that between 2010 and 2019, trial awards per plaintiff grew at an annual compound rate of 7.6%, even after adjusting for inflation.

Milliman examined 60,000 hospital professional liability claims through 2023. Over the last five years the percentage of claims above $5 million is more than 400% higher than those from a decade earlier. Claims take longer to settle, too. Milliman found that the time from report to closure was 27% longer in 2024 than the 2017–2021 average.

The megaverdicts increase claim variability by flattening the tail of the distribution. That nudges insurance prices higher, too, either as a direct risk load or because insurers must sacrifice investment income to have enough current assets to cover potential megaverdicts.

The result: higher premiums. Ultimately, insurers say, the consumer bears the cost.

Insurance inflation can't be attributed solely to TPLF. Insurers also point to societal attitudes, erosion of tort reform, attorney advertising, and courtroom strategies.

These and similar phenomena are considered drivers of "legal system abuse," the term much of the industry has adopted instead of "social inflation."

"I think this is the biggest issue affecting the industry," said FCAS Brian Brown, a principal at Milliman.

Insurance industry response

Insurers might not like TPLF, but they acknowledge it won't go away.

Instead, they want to know when a plaintiff has received funding. That will help them develop a more effective strategy — whether to defend or settle and for how much to settle.

Right now, funding is rarely disclosed. When it is disclosed, sometimes only the judge finds out to ensure they don't have a conflict with the funding organization.

The insurance industry wants full disclosure. Zielezienski of the APCIA puts it simply: "Everybody should know."

Getting that to happen is a battle on many fronts. Federal and state courts make their own rules. That's more than 50 fronts. The courts' rules can be superseded by laws passed by federal or state legislatures. That's another 50-plus.

At the federal level, Rep. Darrell Issa introduced the Litigation Transparency Act of 2025 on Feb 7 (H.R. 1109). He has done this more or less annually going back to 2021.

As to the federal courts, the U.S. Supreme Court's Advisory Committee on Civil Rules agreed in October to create a subcommittee to look at disclosure. "It probably deserves a careful look, if for no other reason than we don't know what we don't know," U.S. District Judge David Proctor said in an article in "The American Lawyer."

Cheering all this on are more than 100 large companies, including Amazon, Google, Johnson & Johnson, ExxonMobil, and Ford Motor, all of which favor full disclosure, joining the classic insurance trade groups, RIMS, Lawyers for Civil Justice, American Tort Reform Association, Institute for Legal Reform and the National Federation of Independent Businesses.

At the state level, at least 35 bills regulating litigation funding had been filed in the first four months of this year, according to "Insurance Insider," a trade publication — 25 more than a year ago.

At the state level, at least 35 bills regulating litigation funding were filed in the first four months of this year, according to Insurance Insider, a trade publication — 25 more than a year ago. Many required disclosure of funding agreements.

Kansas enacted Senate Bill 54, which requires disclosure of the parties in the funding agreement and whether the funder has any control over whether the claim can settle.

Georgia Gov. Brian Kemp signed Senate Bill 69 in April. It requires the disclosure of the existence, terms, and conditions of funding agreements for payouts more than $25,000.

These states join Wisconsin, West Virginia, and Montana in having disclosure requirements. The oldest of these is Wisconsin's law, passed in 2018.

Insurance representatives say it is too early to determine whether any of the laws have had an impact. The laws are recent, and the states passing them are relatively small. Over time, insurers hope to build a dataset and predictive models that show how litigation financing affects a case.

At least one litigation financier has a dataset and predictive models (see text box on p. 32).

Current tactics

Changing laws and courtroom rules might happen one day. What are companies doing today?

First, they try to learn if any of the claims they are handling are being financed. That's not easy; remember, the TPLF agreement is rarely disclosed. The case can open, be argued, and settle, and the insurer will never know if it was funded.

There are clues, though.

Maybe one day, the defense counsel starts noticing "a bigger army of experts than you normally see," said Matthew Morrison, a vice president for litigation for American Family Insurance Group. Sometimes there are two or three experts in the same field or more subspecialists.

"Experts to the max," he said.

Or maybe an injured person is getting a significant amount of treatment outside of network, said Costello, the managing partner at Costello, Ginex, and Wideikis. He saw a recent case with $1 million in out-of-network treatment.

Or you're on the defense side of a claim that feels like it's a longshot for the other side. Costello handled an early case around Illinois' Biometric Information Privacy Act. The funding organization "took a flier on it." The first lawsuits were small — suing a tanning salon that required fingerprint identification. Then, they grew to monumental proportions, such as suing Six Flags and Facebook.

Or maybe there's an exorbitant ask, looking for more than $10 million plus. That used to be a red flag, Costello said, "but any more it gets so that all the cases are way out there."

Morrison and Costello are active in the CLM, a group for claims professionals. It has organized a subcommittee that looks at issues like TPLF and nuclear verdicts.

Megasettlements and any sort of inflation affect reserving work, noted William Finn, FCAS, senior vice president and chief actuary and data officer at Hanover Insurance.

The Consumer Price Index spike around 2021, the pandemic, and social inflation trends like TPLF have "disrupted" most companies' loss triangles and the loss development methodologies that depend on them, Finn said.

He suggested looking at the volume of outstanding claims and metrics like case reserve plus IBNR per claim. Those need to seem reasonable in light of recent trends.

Instead of using traditional loss development and backing frequency and severity statistics out from that, Finn suggested flipping the script — developing frequency and severity first, making sure the implied inflation is appropriate, and using that information to develop ultimates.

There are proactive approaches, too, in terms of underwriting and pricing.

Finn noted companies could proceed cautiously in hot spots, areas where more cases are filed — the proverbial judicial hellholes.

He recommended that actuaries avoid "soft-pedaling our trend assumptions." Trends from 8% to 12% annually might be normal.

Brown, the Milliman actuary, noted companies could write lower limits. Some companies have left TPLF heavy lines of business like commercial auto and hospital professional liability. And of course, actuaries can use their data skills to tease out where problems lie.

Porfilio said some actuaries have shown data on social inflation trends in their rate analyses. They might not select those trends, but their presence shows "there is a pressure going on beyond old school economic trends."

In the meantime, TPLF continues to shape the legal landscape insurers traverse. They will have to continue to adapt to the changing courtroom as it is changing while developing ways to detect and harness it.

Jim Lynch, FCAS, MAAA, is retired from his position as chief actuary at Triple-I and has his own consulting firm.

DEVELOPING NEWS

California CAT Model Approval Underway By SARA CHEN

This is an update to California Dreamin' CAT Models Into Reality published in Sept/Oct 2024.

Almost immediately after California's new regulation Section 2644.4.5 Use of Catastrophe Models went into effect on January 2, 2025, Verisk became the first to submit its wildfire model to the California Department of Insurance (CDI). Soon after, CoreLogic, AIR and Risk Management Solutions (RMS) filed their models for approval as well.

The new regulation expands the use of catastrophe models in California to cover more perils, most notably wildfire. Previously, the department only allowed the use of catastrophe models for earthquake and fire following earthquake.

This has been a long time coming, given that many states have been using catastrophe models covering a broad range of perils for decades. In a recent interview with NBC, the CDI indicated that it expects to conclude its review of catastrophe models pertaining to wildfire risk this year. Considering the "dozens of pages of criteria to be met," the newness of the regulation, and California's notoriety in lengthy review times, however, approval may take longer.

What this means for actuaries: For insurance companies that write in California, internal teams and management should discuss how to respond to the new regulation — whether that is adopting a third-party vendor model, adapting an existing wildfire model for California's new regulations, or developing a new model just for California. The CDI has published a Wildfire Catastrophe Model Checklist that details the specific requirements for companies' wildfire model filings. This checklist will enable insurance companies to meet the requirements of the regulation regardless of the route taken to adopt a model in California.

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So, Your Crypto Got Hacked…Which Insurance Pays for It?

By XUAN YOU

In Virginia, a man recently woke up to a nightmare: his crypto wallet was emptied overnight. Desperate for reimbursement, he turned to his homeowner's insurance policy, only to be denied by the court. According to the ruling, the loss of cryptocurrency did not constitute a "direct physical loss." This ruling raised a question for crypto holders everywhere: If your digital assets vanish, which insurance, if any, actually protects you?

Answering this isn't straightforward because crypto risks come in different flavors. Coverages provided by traditional insurance products — such as custody coverage for assets held by third parties, cold storage insurance for offline wallets, or hot wallet insurance for online accounts — typically apply to losses from theft or hacking incidents. However, losses caused by smart contract exploits or blockchain protocol breaches typically fall outside these traditional policies, prompting the rise of decentralized finance (DeFi) insurance, a specialized coverage explicitly designed for crypto-native risks like code vulnerabilities or protocol hacks. Yet, DeFi insurance introduces additional complexities, including cryptocurrency price volatility, liquidity constraints, and regulatory ambiguity, especially since premiums and claims are typically paid in cryptocurrency rather than fiat currency (government-issued currency, e.g., USD or EUR).

Today's crypto insurance market clearly reflects these challenges. While interest and investments are growing steadily, the crypto insurance market is estimated to be roughly $1.9 billion in 2024, compared to the total crypto market valued at approximately $2.5 trillion. Traditional insurers and reinsurers, particularly those in London or Bermuda, have begun offering limited solutions for digital assets. Meanwhile, decentralized platforms like Nexus Mutual, where coverage decisions and claims are managed by community governance rather than corporate entities, introduce innovative coverage for crypto-specific risks but still grapple with limited capital, scalability, and evolving regulations.

What this means for actuaries:
Though crypto and crypto insurance have remained relatively esoteric, interest and investment in the market is growing rapidly. For actuaries, the emergence of crypto insurance presents a unique opportunity to help their organizations meet the demand and stay relevant in the digital era. To do so, it's important to first understand the landscape and familiarize oneself with crypto-specific risks. Building fluency in topics such as blockchain, smart contract vulnerabilities, and crypto ecosystem dynamics is essential in building a crypto insurance product and accurately pricing the risks.

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DEVELOPING NEWS

GenAI Related Litigation Brings Fair Use into Focus

By JIM WEISS

Technology companies such as OpenAI, Meta and Anthropic face numerous litigations related to alleged copyright infringements in their conduct surrounding generative artificial intelligence tools (GenAI). Many large language models (LLMs) were trained using web archives such as Common Crawl, an over 9.5PB representative sample of the web scraped at monthly intervals for research purposes. The lawful existence of the LLMs and Common Crawl are premised in part on the idea of "fair use," a complex and evolving balancing test regarding the purpose, nature, degree, and effect of copyrighted works' use.

One bellwether case making recent headlines is Kadrey et al. vs. Meta Platforms, which surrounds the use of allegedly pirated libraries of fiction (which one Meta researcher wrote is "great" for training LLMs). Plaintiffs allege, "Meta stole Plaintiffs' copyrighted books to create a product that can mimic what it thieved." Defendants contend, "Anyone can read and learn from a book without permission — whether they buy it new (and the author is remunerated), or instead buy it used, borrow it from a friend, or find it on a park bench." Judge Vince Chhabria pushed back against defendants' motion for summary judgment, reportedly saying, "You have companies using copyright-protected material to create a product that is capable of producing an infinite number of competing products." A pro-plaintiff finding could necessitate greater attribution in what GenAI produces.

Insurers have generally been relatively open about borrowing each other's intellectual property, with "me too" filings of competitors' work

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relatively common. While many carriers license and adopt content from filings of advisory organizations such as Verisk or NCCI, others simply mirror competitor filings. This is consistent with most filings being public record and ideas or facts not being copyrightable (only their expressions). In the absence of copyright protections, insurers may seek confidentiality around certain trade secrets materials or, in some cases, patents for business methods.

What this means for actuaries: Actuarial Standard of Practice (ASOP) 41 on Actuarial Communications advises actuaries should disclose reliance on sources of data they do not develop (3.3.2). ASOP 23 on Data Quality provides further considerations related to such reliance as well as which data sources to select (3.2) — which include intended use, nature, and scope suitability. These considerations bear resemblance to fair use criteria described above. As actuarial reports and analysis directly or indirectly incorporate data generated by GenAI, actuaries will be challenged to apply their professional guidance to novel situations. Professionals in other disciplines such as lawyers have faced sanctions for reliance on hallucinated GenAI content. Actuaries should exercise care not to find themselves in similar situations, although such situations could find their way into errors and omissions claims data.

How Actuarial Science Can Benefit from AI…and Vice Versa

By CRAIG A. SLOSS

The 2025 Spring Meeting in Toronto, Ontario closed out with a general session on "How Actuarial Science can Benefit from AI…and Vice Versa," a panel discussion featuring three artificial intelligence (AI) experts — Frank Chang, Max Martinelli, and James Guszcza. The panelists provided their perspectives on how the actuarial profession will — or should — evolve in response to increasing usage of AI. Topics included the potential to streamline actuarial workflows by integrating new tools and the opportunity for actuaries to use their professional expertise to champion human-centered design of AI tools.

Changes to the actuarial role

Chang is a vice president of applied science at Uber and a former president of the Casualty Actuarial Society. He discussed the potential impact of AI on the actuarial profession on two axes: how much the role will evolve and how many actuarial roles will be needed in the future.

Chang began by presenting the argument that we are trending toward an "all robots" future, in which actuarial roles are replaced by AI. He recounted a story from his first job that involved manually entering data from 100 pages of paper into a spreadsheet. Today, a job like this could be done using optical character recognition and generative AI. Other tasks that could be automated using AI include creation of exhibits to support rate filings and data processing to support rate reviews.

AI could also play a role in analyzing the data. "[AI tools] could just pull out all the weird factors, all the things that are exceptional," said Chang. "You don't have to review all the cuts yourself. It can just pull up the cuts that you should look at."

AI "agents" can also break down tasks and carry them out in sequence. "It's pulling stuff from the web," said Chang as he showed a video of an OpenAI agent in action. "It's then using Python to graph it, to chart it, to make reasoning and judgment calls," leading to a recommendation.

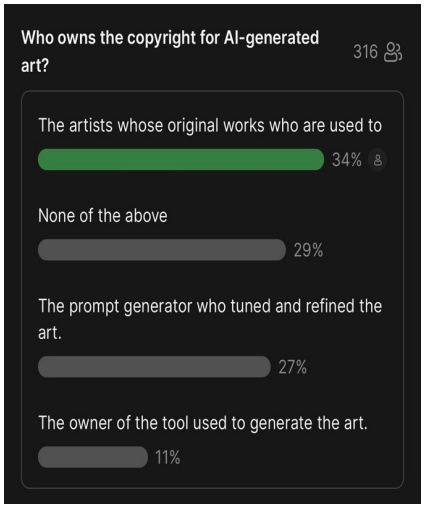
Chang counterbalanced this by presenting the case for an "all humans" future, describing limitations of AI that necessitate human supervision. AI can "hallucinate" nonsensical results — he pointed to an example in which the AI overview of a Google search recommended adding non-toxic glue to pizza sauce, to prevent cheese from sliding off a pizza.

Chang pointed to the complex legal and regulatory risk surrounding use of AI that would be mitigated by actuarial expertise in interpreting laws and regulations in the context of data and modeling. He recounted a story about a customer prompting a car dealership's chatbot to commit to selling a 2024 Chevy Tahoe for $1 and to include a statement that it is a legally binding offer. In some cases, courts have upheld commitments made by AI chatbots.

Legal issues related to ownership of data are prevalent when AI is involved. Chang introduced the audience to "the pile," a large open-source language modeling dataset created from sources such as academic articles, books, websites like Wikipedia, and YouTube subtitles. Use of the pile to train a model led to a lawsuit against the AI company Anthropic, based on the allegation that the data contained pirated books. (The books at issue have since been removed from the pile.) Ambiguity of ownership of some components of the pile further complicates the situation.

There is also ambiguity over ownership of the outputs of an AI model. Chang polled the audience for their view and found a mixed response, with a slight plurality of attendees having the view that copyright for AI-generated art belongs to the artists whose original works are used to train the model. (See figure below.) The U.S. Patent and Trademark Office has refused to grant copyright to AI-generated work, and a U.S. Appeals Court has rejected copyright for AI-generated work on the grounds that it lacks a human creator.

Chang closed by cautioning that



lazy use of AI can result in low-quality results but pointed toward an opportunity for actuaries. "What actuaries could provide is judgment," he said. "We can judge if something's good or not good. That is really our secret sauce. Using that actuarial judgment, you can actually make AI a lot more powerful."

Lessons from history

Martinelli is a lead actuarial data scientist at Akur8 and a close collaborator with the Casualty Actuarial Society, leading the CAS AI Fast Track Bootcamp and co-hosting the CAS Institute's new AI podcast, "Almost Nowhere." He drew on some lessons from history to explain three predictions for the future of AI.

Martinelli began by pointing out that, despite scientific advancement, industrialization, and computerization, fundamental aspects of the human experience have not changed. Thousands of years ago, "humans ate meals with their family and friends … they enjoyed song and dance, they engaged in trade and commerce," he said. "Powerful things can happen and change the world around you very quickly, but the world can still look very familiar. Humans will still be humans."

Martinelli emphasized that this doesn't mean we should "do nothing," but rather, we will need to continue to adapt and encouraged actuaries to become fluent in AI. "If you subscribe to the viewpoint that AI is a tool, we've been through this before." Actuaries used to use tools like slide rules, Merchant calculators, and columnar pads and have adapted to new technologies as they became available.

When Excel brought new efficiencies to actuarial departments in the 1990s, the actuarial function wasn't slashed. "The real value was in what we opened up," said Martinelli. "The profession actually grew, and we started doing a lot more stuff, and it was more meaningful. It was deeper analysis."

Despite these changes, actuaries are still concerned with the financial mathematics of risk just as they were 100 years ago. "If you think about what the role of the actuary is, it's not really a task," said Martinelli. "This idea of just understanding financial mathematics of risk looks really similar to 100 years ago. But the job looks unrecognizable."

Martinelli drew on some lessons from military history to explain the importance of pairing a new technology with a shift in strategy. "Technologies, on their own, are rarely the thing that's a big deal," he said. "It's kind of the strategy shift that makes them catalytic."

Illustrating by example, Martinelli pointed out that the stirrup was invented long before the time of Genghis Khan. However, the strategic shift his army made was to use the stirrup to allow archers to stand and steady their aim while riding a horse. Historians point to this use of the technology as what allowed his army to be successful.

Martinelli closed by offering three predictions based on these observations:

- AI will deliver and disrupt.
- The world will still look familiar, and actuaries will still be the gold standard if we continue to adapt.
- There will be winners and losers, with the winners being determined by strategy changes.

Actuaries as proponents of human-centered AI

Guszcza is a principal at Clear Risk Analytics and was the first person to be designated as Deloitte's U.S. chief data scientist. He explained the importance of designing AI systems in a way that allows them to be used effectively by humans and proposed that actuaries should have an expanded role in the design of these systems, going beyond the insurance industry.

Guszcza began by explaining that AI is an ideology as much as it is a technology. The way to view AI as a technology is the way that Chang presented it — that it is a tool that does specific things like automatically generating an R or Python script. The ideological aspects of AI come from the language that people use to talk about it.

"The way it's discussed is that it's going to become this kind of general-purpose intelligence that's essentially going to put us all out of work," said Guszcza. This ideology is embedded in the mission statements of some of the big AI players, which contain statements about AI being autonomous or outperforming humans.

Guszcza paraphrased author George Orwell as a caution to the audience: "Sloppy language makes it easy for us to have foolish thoughts." He identified two problems with AI ideology. First, it creates the illusion that AI is "just one thing," when it has already been around us for decades: in internet search, GPS navigation, autocomplete, and automatically generated subtitles. Second, it gives the wrong idea of how to think about AI — rather than viewing AI as a replacement for humans, Guszcza proposed that "we should really be thinking of AI as a component of a collective intelligence process."

Guszcza explained the idea of a collective intelligence process by describing a "centaur chess" tournament, in which

human players competed with the assistance of computers. The winning team consisted of two amateur chess players and three off-the-shelf chess programs, beating chess grand masters and the best computers of the day. Their success was attributed to having a better process for interacting with the computers than the other teams.

"Where is the intelligence in that scenario?" asked Guszcza. "Is it in one of the chess programs? Is it in these two amateur chess players? No. The intelligence is an emergent property of five entities working together in a smart way."

Human-centered design aims to facilitate effective human-computer collaborations. Guszcza introduced an analogy to explain the need for human-centered AI design. The success of Apple Computers resulted from the fact that Steve Wozniak's focus on technology was paired with Steve Jobs' focus on human factors: that people need to be able to use the technology without having to think too much about it. "Right now, I think the AI profession is full of Wozniaks and it's waiting for its Steve Jobs," said Guszcza. "We're waiting for that broader notion of AI to take root."

Guszcza made the case that actuaries are well positioned to fill this gap. Actuaries understand that data is usually messy, limited, and missing important information. "That's part of our heritage that predated the data science revolution," he said. "And it gets lost. It gets forgotten by people who have purely technical training." Moreover, human-centered design involves having conversations with the users of AI systems, understanding the decision they're trying to make, and incorporating that into the design of an algorithm. "By virtue of the fact that we're a profession, and we have this ethos of a duty to society, I think that puts us in a good position to build these kinds of systems," he said.

Guszcza closed by advocating for actuaries to have a broader role in designing predictive AI systems: "I kind of think we should own that space," he said. "I think we should be doing a lot more outside of the insurance industry. We should be the ones building hiring algorithms or child support enforcement algorithms or medical decision support algorithms. It's an expanded notion of risk, making decisions under uncertainty."

Craig Sloss, PhD, FCAS, FCIA, is an enterprise analytics consultant at Definity Financial Corporation. He is a member of the AR *Working Group.*

Developing Actuarial Judgment By ERIN OLSON

If you have been working as an actuary for more than a handful of years, chances are you've developed some actuarial judgment along the way, whether you meant to or not. Actuarial judgment shows up in many ways. Maybe you've gotten good at anticipating the outcomes of a calculation before it's done. Maybe you've developed a way of communicating technical concepts in simple ways that resonate with even a nontechnical audience. Maybe you're comfortable admitting when you're wrong and learning from your mistakes. These are all demonstrations of actuarial judgment.

Applications of actuarial judgment can be both technical and general. We use it when setting assumptions and testing model outcomes for reasonableness. We also use judgment in establishing prioritization. Discerning the appropriate time to call something "done" and move on is an essential professional skill that must be developed over time.

Expert judgment arises from developing skill, expertise, or specialized knowledge in a particular discipline. Because an actuary's work often involves predicting inherently unknown future outcomes, actuarial judgment is a bit broader and thus requires more rigor and discipline. Practitioners in any career field must develop expert judgment, but most do not have the same duty to the public that actuaries have. As a self-governing profession, the ABCD holds us accountable to use actuarial judgment in a responsible way. The Code of Professional Conduct is a great resource offering guidance on actuarial judgment. The Actuarial Standards of Practice (ASOPs) work in harmony with actuarial judgment. Annotation 3-2 of the Code of Professional conduct states, "Where a question arises with regard to the applicability of a standard of practice, or where no applicable standard exists, an Actuary shall utilize professional judgment, taking into account generally accepted actuarial principles and

practices." However, this does not give an actuary free rein to do anything they want under the sweeping umbrella of "professional judgment." It is important to document and disclose any deviations from the ASOPs.

Actuarial exams are the beginning of the journey to develop expertise that allows us to exercise professional judgment. Actuarial exams are just the start as we have a lifetime of continuing education requirements. We must realize what we know and what we don't know on any given project and disclose any relevant limitations. In general, actuaries should develop a basic understanding of whatever business they are analyzing. ASOP 53, Estimating Future Costs for Prospective Property/Casualty Risk Transfer and Risk Retention, provides a good checklist of issues to review to ensure you've taken everything into consideration before providing actuarial services, such as data quality, new coverages or exposures, and the treatment of catastrophes. In a 2025 CAS Spring Meeting session on the topic of "Developing Actuarial Judgment," Ronald Kozlowski, FCAS, MAAA, and Andrew Dalgaard, FCAS, offered four additional considerations that they would add to this list: accounting changes, climate change, bias, and contagion. Kozlowski emphasized the importance of knowing your data, proposing that "the data you use is more important than what you do with it."

Actuaries spend their entire careers continuously developing and refining their actuarial judgment. These critical thinking skills are a collection of experiences one accumulates over time and are largely unique to the individual. My toolbox that I call "actuarial judgment" will not look exactly like that of anyone else. However, there are a few tools that we should use regularly. Reviewing diagnostics and sensitivity testing of assumptions are crucial to developing actuarial judgment. Evaluating actual versus expected data emergence is a good exercise for keeping our judgment sharp. Performing a "smell test" on the results of an analysis to understand uncertainty, especially when using more sophisticated techniques, is another good practice.

Kozlowski and Dalgaard are advocates for mentorship in the advancement of actuarial judgment across our profession. Experienced actuaries can learn much by teaching their newer colleagues multiple ways to think about a problem. Hearing the thought processes of multiple qualified actuaries will help new and aspiring actuaries develop their own actuarial judgment much more quickly. And the teaching should go both ways! As technology evolves, it becomes imperative for experienced actuaries to rely on younger actuaries entering the field to teach them about what is emerging and how to implement new tools and techniques into their existing processes.

At the heart of all actuarial judgment is communication and ethics. Actuaries must be able to communicate their results and recommendations clearly in order to add value to society. And the decisions we make and the solutions we offer must be of the highest ethical integrity. The communities we serve are counting on it.

Look in the next issue of *Actuarial Review* for a more in-depth view on this topic.

Erin Olson, FCAS, is actuary lead at USAA. She is a member of the AR *Working Group.*

North American Catastrophes: Secondary Peril Events No Longer Secondary

By DALE PORFILIO

The 2025 CAS Spring Meeting in Toronto was a great opportunity to offer sessions comparing the P&C insurance markets in Canada and the United States, reinforcing the global mission of the CAS and educating the many actuaries who practice solely in one country.

The Tuesday morning general session featured an overview of secondary perils in both countries, which offered many more similarities than contrasts. Jason Machtinger of Aon opened by presenting the global and Canadian overview, followed by my overview of the U.S. markets.

Primary and secondary perils with catastrophes

Insurance industry convention is to define primary perils as earthquakes and hurricanes. These perils produce the highest severity of catastrophe losses (referred to as probable maximum loss, or PML), drive significant capital requirements, and are heavily modeled. On the other hand, secondary perils, such as severe convective storms (SCSs), floods, and wildfires, are more frequent but usually less severe.

When it comes to secondary perils, catastrophe models give us a useful — although incomplete — view of the exposure of a portfolio. For example, the Fort McMurray wildfire in 2016 was the largest in Canadian history, and yet wildfires are not commonly modeled in the Canadian market. Winter Storm Uri in 2021 caused an approximate USD $15 billion loss, but models missed its likelihood. Flood is a further challenge, with models being updated and improved regularly.

"Secondary perils, or as we call them here in Canada, perils."

—Jason Machtinger

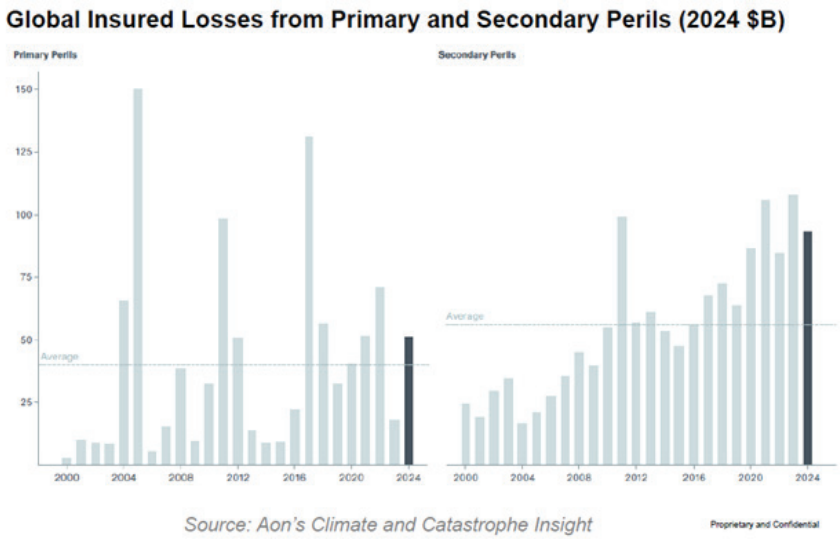
Machtinger highlighted the overriding theme of the session that secondary perils can no longer be dismissed as less important than primary perils. Secondary perils accounted for 100% of Canadian losses in 2024 and 95% on average from 2008–2024. Canada experienced record losses in excess of CA$9 billion, well above the prior record of CA$5 billion in 2016 and a 15-year average of CA$2 billion. In 2024, significant losses included the Calgary Hailstorm (CA$3.25 billion) and Jasper Wildfire (CA$1.23 billion).

From 2000–2024, the average global insured losses for secondary perils have been well above primary perils, as captured in the graphic below. Of greater concern, secondary perils have been steadily increasing for the last 20 years, driving the spread in averages to grow year-after-year. This was true in 2024 despite several hurricanes making landfall in the U.S.

What's driving these adverse trends in secondary perils?

Machtinger elaborated on three underlying drivers: urbanization, reduced protection gap, and climate-related effects. The 2024 Calgary Hailstorm was a record-setting loss event primarily due to urbanization. The event came across the northern portion of the city, which has undergone dramatic growth over the past four decades, resulting in a large concentration of property and auto risks, particularly around the highly exposed Calgary International Airport.

Protection gap is defined as the portion of total economic loss not covered by insurance contracts. Canada has



experienced a reduction in the protection gap over the last 24 years, and most notably in the last four years, from 52% since 2000 to 39% since 2020 to 30% in 2024. This is a credit to insurance carriers offering broader coverage for the right price on emerging perils, notably flood as a response to major losses in 2013 in Toronto and Calgary. Even with the progress, protection gap remains a systemic challenge for wildfire and flood risks.

What can be done to mitigate losses from secondary perils?

Effective mitigation strategies are essential to reduce the impact of secondary perils on communities and insurers. Machtinger captured these strategies in three timespans:

- Pre-event preventative measures like investments by insured and insurer for their mutual benefit.
- During events like early warning systems, evacuation, and specialist remediation.
- Post-event strategies involve the role of (re)insurance in recovery efforts.

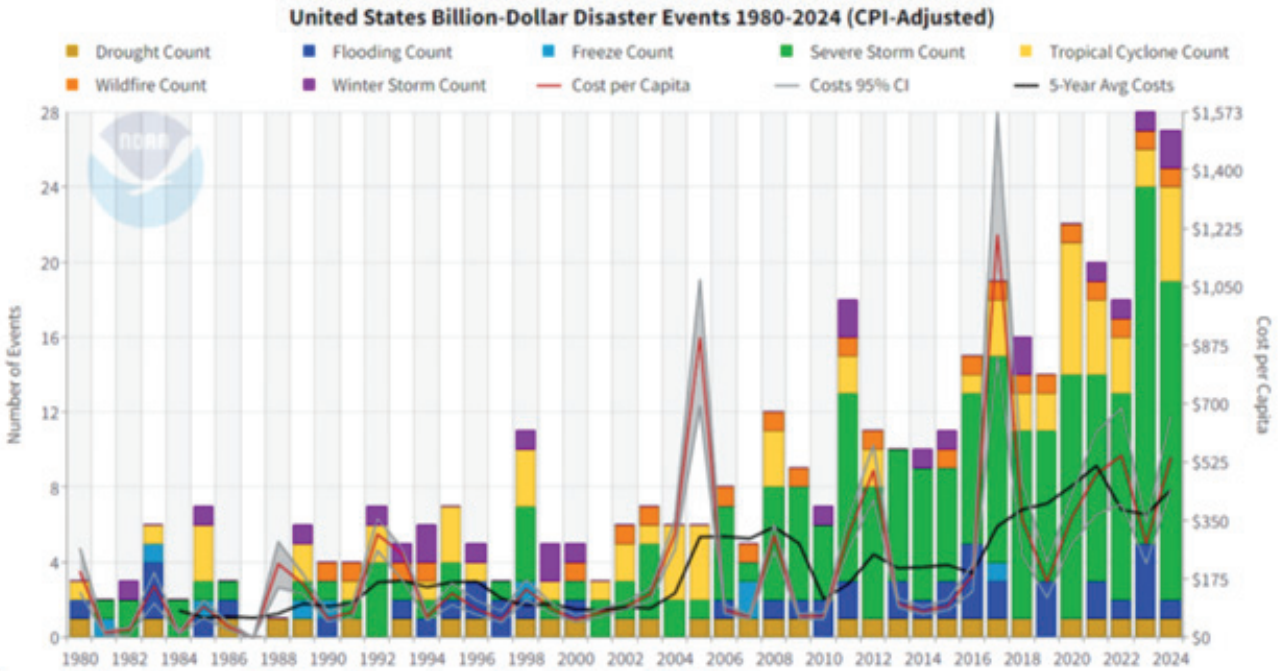
Preventative measures provide the biggest mitigation opportunity. This begins with policyholder education about the risks they face and what they can do to make a difference. Segmented insurance pricing and mitigation credits are a key signal of the education and incentive feedback loop. In a wildfire exposed area, fire-resistive roofs and removal of fuel sources like brush help reduce risk. Waterproofing and backwater valves help with other perils.

Transitioning to the U.S. perspective

Building on Machtinger's global and Canadian perspective, I jumped in with two opening comments before sharing the U.S. perspective. First, given the power in names, I concur with the misnomer of secondary perils. They may be secondary in the eyes of catastrophe models, but they certainly cannot be for property owners and insurers.

Second, I warned the audience to never take our data sources for granted. The U.S. National Oceanic and Atmospheric Administration (NOAA) is experiencing significant budget cuts in 2025. Many outstanding, knowledgeable staff and researchers have already departed, and budgets for much weather data collection and reporting have been impacted. This will likely affect pre-event predictions and warnings as well as data quality collected after events to improve modeling efforts.

I then transitioned to the overview of U.S. catastrophe experience, using two commonly referenced exhibits from NOAA. U.S. insured losses have increased 11-fold from the 1980s to the first half of the 2020s, from $8.9 billion to $104.1 billion. This includes a dramatic rise in the number of SCSs causing more than $1 billion in losses in the last 15 years. In 2024, the U.S. experienced 27



Source: 2024: An active year of U.S. billion-dollar weather and climate disasters | NOAA Climate.gov

billion-dollar disasters, with a total economic loss of $183 billion. This was the second highest number of events (after 28 in 2023) and the fourth worst loss in that timeframe.

Key drivers of climate risk

I highlighted multiple drivers behind the 11-fold increase in catastrophe losses.

- More homes and businesses being built in harm's way — a multidecade trend of people moving to higher-risk areas.
- Property replacement costs increasing faster than overall inflation — again, a multidecade trend, amplified by supply chain disruption during the COVID pandemic.
- Rising global surface temperatures — most notably since the 1970s.
- Legal system abuse — e.g., contractor-fueled excessive roof claims.

Severe convective storms and insured losses

SCSs have become a leading cause of insured losses in the U.S., with record losses reported in recent years. SCSs caused 48% of U.S. insured losses in 2024, more than the 39% caused by the above-average frequency tropical cyclone season. U.S. carriers paid a record $64 billion in SCS losses in 2023, followed by $56 billion in 2024.

Per studies by Swiss Re and others, the frequency of SCS events is stable, while the loss severity is increasing approximately 8% annually in the last decade. When they decomposed the 8%, they estimated 2.2 points from economic inflation with another 1.2 points from replacement costs above inflation. They estimated 2.3 points from economic growth, which includes urbanization and migration patterns to higher risk geographies, and 1.0 points for changes in the climate itself. This left 1.3 points for all other, inclusive of legal system abuse.

Wildfire risk and climate trends

The U.S. is experiencing increased wildfire risk and insured losses across the country. While California has the highest number of homes at risk of extreme wildfires due to increased building in the wildland urban interface (WUI), long-term trends of higher temperatures and low precipitation contribute to elevated risk across much of the western U.S.

Many are surprised to learn that 87% of U.S. wildfires are human-caused, but lightning-caused fires burn more acres on average and in total. Fortunately, the frequency trends from 2001–2023 have been declining for both cause types, but the trend in total acres burned has not declined due to average severities. The Palisades and Eaton fires in January 2025 are expected to be the two costliest wildfires in U.S. history, with the next four all occurring from 2017–2023.

Strategies for mitigating climate risk

Given that we cannot control or reverse most of the underlying causes in the short term, our efforts must focus on reducing the risk by improving the resilience of the homes, businesses, and communities impacted by all types of catastrophes. This will require individual homeowner accountability and broad collaborative efforts to drive behavioral change to predict, prevent, and reduce the severity of losses.

In parallel, insurance carriers and actuaries must work to maintain adequate rates and insured amounts, explore risk sharing with policyholders and reinsurance markets, and review coverage availability. All of these are causing and will continue to cause challenges with the affordability and availability of property insurance in high-risk markets. These are not easy times for consumers, insurers, or policymakers.

For a deeper dive on how to price for secondary perils, I refer you to the recently published CAS research paper on SCS pricing. Julia Hornack and Jeff Schmidt of Guy Carpenter presented a summary of their paper in the concurrent session that immediately followed our general session, and I wrote a summary of their session for this issue of the *Actuarial Review*. Their paper provides a good overview of the challenges and offers four methods for actuaries to consider when pricing SCSs and other secondary perils. May your learning always continue!

Dale Porfilio, FCAS, MAAA, is senior director, head of personal and commercial lines business development for insurance consulting and technology at WTW, beginning July 14, 2025. He was formerly chief insurance officer at the Insurance Information Institute and president of the Insurance Research Council.

AI Generates Single Point of Failure Rethink By JIM WEISS

At the CAS Spring Meeting in Toronto, members of Guy Carpenter's Cyber Analytics Center of Excellence (COE) discussed the multifaceted cyber threat posed by artificial intelligence (AI). The presentation included insights from a series of papers they developed on cyber aggregation risks posed by AI and the impact on industry catastrophe (cat) models.

One thesis explored during the session was that despite presenting a multitude of novel risks up, down, and across the technology supply chain, AI alone does not create the types of single point of failure[1] (SPoF) that typically concern catastrophe models. At the same time, AI is likely to increase the frequency and severity of cyber events in ways insurers should register and address — regardless of whether they even write cyber.

AI rarely says, "I don't know."

Despite its breakneck evolution and broad adoption, AI is at its heart a fragile technology like many others — in some ways, it's even more fragile due to its intricacy.

"There are a lot of recent developments around AI and these are very exciting, but we should all recognize that these developments are built on technology that has been evolving for more than 70 years," said Jess Fung, Guy Carpenter's head of cyber analytics. Fung pointed to a recent half-marathon of AI-powered humanoids in Beijing — where many of the robots needed humans to run beside them, change their batteries, and pick them up when they toppled — as a whimsical example of AI's present standing in the march of progress.

While some humanoid runners eventually got up and crossed the finish line, Fung pointed to the irreparable impact caused by some AI-related mishaps as a novel failure point. Academics such as Tom Johansmeyer have pointed to the reversibility of cyber events as a differentiating factor from other systemic risks that effectively puts a lower ceiling on maximum possible losses.

ChatGPT and other large language models (LLMs) may push reversibility to a breaking point. Fung cited the recent example of GDPR-related litigation related to an instance where ChatGPT reportedly hallucinated that a Norwegian man had murdered his own children while the chatbot recited a series of otherwise banal facts about the user.

"OpenAI apparently cannot even erase the incorrect data," Fung said when describing the incident. "They can only block it from showing up when certain prompts would lead that information to come up. The incorrect information still exists in OpenAI's dataset for training future versions of ChatGPT."

Matthew Berninger, principal cyber analyst at Marsh McLennan Cyber Risk Intelligence Center, observed how AI may be fraught with peril even when providing factually correct information.

"In the past, if somebody accidentally gave you access to a health care document, you might not even know about it," Berninger said, discussing workplace productivity tools such as Copilot. "However, if you ask AI about a certain health condition, it may tell you that your coworker has a similar condition. AI has the potential to inherit and expose security entitlements that are inappropriate."

"The machine will explore every nook and cranny of your organization and in some cases expose them, for better or for worse."

Could start to look like an aggregation

While doxing is potentially expensive and traumatizing, it is unlikely to be systemic. AI also cannot in and of itself perpetrate mass incursion, but it has the potential to empower many more individual attacks.

"Part of my background was offensive work," said Berninger. "When 'hacking' into an organization, I often had to solve little puzzles along the way — technologies I may not know, new coding languages. I had a laptop next to me to search commands to do different things."

LLMs such as ChatGPT can accelerate such learning. "LLMs are not an aggregation in the sense that they affect a thousand organizations at once," Berninger said. "But if an attacker who could once execute 10 attacks per week can now execute 100, that could start to look like an aggregation."

AI can also help exacerbate damages once an attacker has "secured a beachhead." From a social engineering perspective, Fung provided the example of a finance worker in Hong Kong who reportedly paid out $25 million to attackers after they created a deepfake video conference call posing as the company's chief financial officer and several other

[1] CyberCube defines SPoF as a cyber incident on a shared technology that may disrupt the business operations of a large swath of companies.

staff members. Berninger described this as "better lures and phishing" enabled by AI.

Rich McCauley, senior cat modeling advisor for Guy Carpenter, pointed to AI-enabled polymorphic malware[2] as another potential game-changer for attackers. "One of the trickiest parts of attacks is getting the data out, trying to hide that, and camouflage that in more normal looking transmissions," he explained. "Dwelling on a system for longer allows for a greater collection of data and can really expand an attack."

McCauley added that LLMs could also help attackers optimize time spent in a company's network, noting that in the 2017 Equifax breach, which was one of the largest in history, only 265 out of 9,000 queries returned personally identifiable information (PII). "AI could potentially use pattern recognition to identify more relevant data very quickly," he said.

You just brought that bug into your house

Systemic risks may also reside beneath the surface or adjacent to widely used AI tools. Berninger compares LLMs such as ChatGPT to a store.

"You're either leaving your house to go the store or having the store send something to your house," he says. "Either way, there's risk."

For the many organizations relying on externally hosted LLMs to power their websites, Berninger explained "if your operations are contingent on going to the store and it is temporarily closed, then you can't get the things you need. So, there may be some aggregation risk from ChatGPT going down," as it reportedly did in 2024 following an attack by a hacker group.

On the other hand, "if you take something like [Meta] Llama off GitHub, and that software has a bug or a backdoor in it, then you just brought that in your house," Berninger added. In these regards, AI assumes some of the same risks as standard software supply chain.

To the extent LLMs themselves don't create systemic risks, the conduct surrounding them may. One petabyte of data was required to train ChatGPT 4. The data used to train AI creates multiple aggregation risks on both sides of the table.

"Now, you are seeing [AI] companies aggregating a bunch of data in one place so they can train models on it. That is a security risk that can verge on an aggregation risk," Berninger said. "Additionally, if you're using any kind of third-party hosting solution, that becomes essentially a data bank that attackers can go after. If the host is breached, then the attacker may be able to access many different companies' data — and ransom all those companies."

He points to the 2024 Snowflake breach, which affected at least 100 Snowflake customers, as one example that gives a glimpse into the risks of migrating data into the cloud en masse.

Whole new avenue of risk

Insurers who do not (knowingly) insure cyber risk cannot necessarily breathe a sigh of relief. Some of the "silent AI" risks insurers are grappling with affect the directors and officers (D&O) and professional liability (E&O) lines.

"Imagine a company officer asking questions to a model as they make a decision, and down the road investors don't like the decision," said McCauley. "Suddenly, you have a very interesting intersection between insurance and AI products."

Fung also noted the usage of AI in the legal profession. "Software such as CoCounsel can help lawyers conduct research much faster than before," she explained. "It can search through case law, comb through evidence during discovery phase, review, and redline contracts, compare documents, or even prepare timelines for the lawyer to take a case to court." Instances of lawyers citing AI-hallucinated cases are reaching epidemic levels, often resulting in sanctions.

AI use also has the potential to create new product and operations liabilities.

"Previously, AI was largely contained in a digital box. The algorithms were largely run by data scientists to solve data science problems," Berninger said. "AI wasn't telling people how they should eat or behave or think about issues with their family. Now, we have a layer where AI is interacting in very personal way with people — and that opens up a whole new avenue of risk."

This has already been observed with "death by GPS," where the AI-powered technology specifically navigates drivers into oceans or over cliffs or more generally rots drivers' innate navigational and reasoning abilities over longer-term periods.

McCauley points to a potential need for affirmative coverage for AI-related risk, which has recently become more available in the marketplace.

"Existing policy wordings may not

[2] SentinelOne defines polymorphic malware is malicious software that can morph its code, making it difficult for traditional antivirus solutions to detect.

fully address losses that come from AI interactions, and sometimes when carriers start getting concerned, they develop exclusions," he said. McCauley observed that sometimes exposures aren't appreciated until an event sheds light on them.

"We saw this last year with the 2024 CrowdStrike outage [which was not AI-related], where cyber insurance covered business interruptions related to non-malicious attacks," he said. "We don't know how AI will play out, but insurers should be understanding and flexible in their wordings."

Amid all the uncertainty, it is reassuring that one point seems broadly agreed upon: Despite its many-tentacled nature, AI has not risen to the level of a SPoF.

In developing its research, the Guy Carpenter team communicated with both leading cyber catastrophe models, CyberCube and Cyence.

"Both agreed that the initial impacts are more in frequency and severity, in efficiency, in adding to existing attacks," McCauley said. "But AI is not implemented in a way that its footprint is broad enough, or it impacts organizations' revenue by enough, to be considered impactful as an SPoF. It is good to see agreement between model vendors who often have quite different views."

However, this is likely cold comfort to insurers who may be sitting on mountains of silent AI risk.

Jim Weiss, FCAS, is divisional chief risk officer for commercial and executive at Crum & Forster and is editor in chief for Actuarial Review.

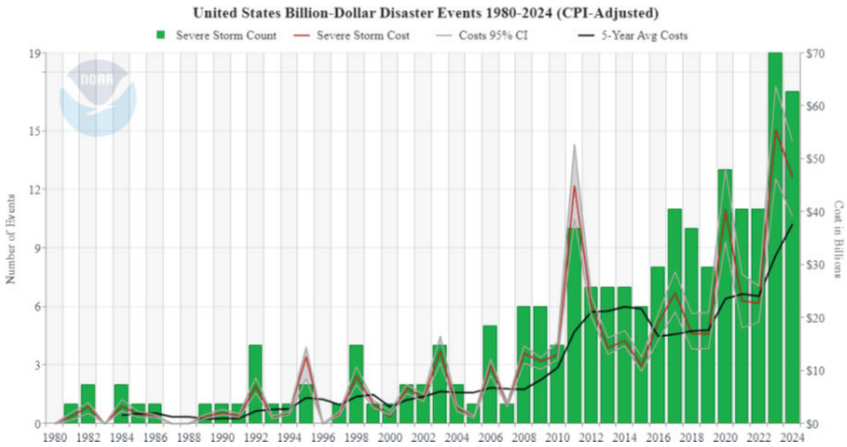
Rising Severe Convective Storm Losses Challenge Insurance Pricing Model

By DALE PORFILIO

Severe convective storms (SCSs) have emerged as the secondary peril with the most significant financial impact on the insurance industry, posing unprecedented challenges for actuaries developing adequate and well-segmented homeowners' insurance rates. Research presented at the Casualty Actuarial Society's 2025 Spring Meeting in Toronto reveals a concerning trend of increasing frequency and severity of these weather events.

The presentation by Julia Hornack, MBA, and Jeff Schmidt, ARe, CSCR, summarized a recently released CAS Research Paper entitled "Developing Rates for the Severe Convective Storm Peril in Property Insurance." The paper was co-authored by Julia Hornack, Jeffrey Schmidt, and Vadim Filimonov, FCAS, MS, all of Guy Carpenter. Schmidt opened the presentation with a recap of the historical SCS experience, followed by Hornack covering four ratemaking methodologies.

Per the National Oceanic and Atmospheric Administration (NOAA), 2024 recorded the second-highest number of billion-dollar SCS events in history, resulting in approximately $47 billion in insured losses. Perhaps more troubling is the consistent increase in "kitten" events — smaller storms causing less than $2.5 billion in losses that insurers are increasingly retaining rather than transferring to reinsurance. Schmidt explained, "As primary carriers retain more of these escalating high-frequency, low-severity events, accurate pricing becomes even more critical for maintaining insurer's solvency."



SCS catastrophe models, like hurricane and earthquake models, include three fundamental modules:

1. Hazard module generates the site intensity, defined as the pattern of physical disturbance from an event (for example, hail swath, tornado path, etc.).
2. Vulnerability module generates the damageability of the property, defined as how structural damage varies with exposure to differing levels of hazard (such as ground motion or wind speed).
3. Financial module generates the loss calculation, estimating insured losses given structural values as well as the applicable insurance and reinsurance structures.

Despite their strengths, SCS catastrophe models also have myriad limitations. Schmidt recapped a quick list of six before diving into deeper challenges:

1. Population Bias — More events reported with population growth and better observation tools with time.
2. Hazard Gradients — Damage can vary greatly from street to street in the same event.
3. Damage Modes — Variances between hail, tornado, and straight-line winds.
4. Urban Expansion — More homes and businesses at risk in growing metropolitan markets when SCS events occur.
5. Frequency and Severity — Shift from traditional Tornado Alley south and eastward.
6. Changing Baseline — Global average temperatures rising dramatically since the 1970s.

"Catastrophe models have a lot of strengths. They're the currency within our industry today for a lot of different applications, whether it's pricing, reinsurance structuring or accumulation management."

—Jeff Schmidt

Per Guy Carpenter's research, the data used by industry-leading SCS catastrophe models to calibrate their event sets only run through the 2010s, after which SCS events have escalated to new records. Schmidt explained, "New SCS catastrophe models scheduled for release in 2025 will help, but gaps will always exist between current climate risk and the latest model calibrations." Thus why Guy Carpenter has developed a proprietary Severe Thunderstorm Risk Magnitude Index for the continental U.S.

Hornack then transitioned to summarize Guy Carpenter's research of SCS ratemaking methodologies based on their review of historical rate filings. They distilled the menu down to four methodologies actuaries can employ to develop more accurate rates for perils impacted by SCS.

1. Catastrophe adjustment factors: Applying factors to noncatastrophe projected loss costs based on historical catastrophe-to-noncatastrophe loss ratios.
2. Catastrophe losses to amount of insurance years: Analyzing catastrophe losses relative to insured value exposure over time, with appropriate trend factors applied.
3. SCS pure premium analysis: Breaking down SCS losses into frequency and severity components to allow for more targeted adjustments based on changing patterns in each component.
4. Scaled catastrophe model outputs: Using catastrophe model annual average loss estimates but scaling them based on observed differences between modeled and actual losses.

Method #1 was commonly used when I started in the industry during

Catastrophe adjustment factors

$$\text{Catastrophe Load} = \frac{\text{[Many] Years of Catastrophe Losses}}{\text{[Many] Years of Non - Catastrophe Losses}} \times \text{Estimated Non - Catastrophe Losses Of the Current Portfolio}$$

Catastrophe losses to amount of insurance years

(a)	(b)	(c)	(d)	(e) = (c) x (d)	(f) = (e) / (b)
Accident Year ending	AIYs ($000s)	Non-Hurricane PCS Losses ($000s)	Loss Trend Factor	Trended Non-Hurricane PCS Losses ($000s)	Trended Non-Hurricane PCS Losses per AIY
12/31/2013	42,038,579	66,912	1.21	80,764	0.0019
12/31/2014	45,659,245	98,595	1.18	116,672	0.0026
12/31/2015	48,462,912	98,642	1.16	114,439	0.0024
12/31/2016	49,607,801	79,178	1.14	90,052	0.0018
12/31/2017	50,368,023	77,635	1.12	86,566	0.0017
12/31/2018	51,882,346	103,089	1.09	112,694	0.0022
12/31/2019	54,187,013	86,833	1.07	93,062	0.0017
12/31/2020	55,768,858	142,721	1.05	149,952	0.0027
12/31/2021	58,104,068	115,219	1.03	118,683	0.0020
12/31/2022	64,804,290	115,841	1.01	116,984	0.0018
		6/30/2023 Trend-to-Date 2% Historic Trend		10-Yr Avg	0.0021

Forecasted 2023 AIY ($000s)
$70,124,765

x

0.0021

=

Non-Hurricane Catastrophe Loss Load
$145,845,056

SCS pure premium analysis

$$\text{SCS Pure Premium per AIY} = \text{Frequency of SCS Claims} \times \text{Trended Avg Severity of SCS Claims}$$

$$\text{SCS Pure Premium per AIY} = \frac{\text{SCS Claim Counts}}{\text{AIYs}} \times \frac{\text{Trended Cost of SCS Claims}}{\text{SCS Claim Counts}}$$

$$\text{Expected SCS Loss Cost} = \text{SCS Pure Premium per AIY} \times \text{Forecasted AIYs of Future Period}$$

Scaled catastrophe model output

(1) Year	(2) Model 1 AAL for SCS	(3) Model 2 AAL for SCS	(4) Blended AAL for SCS	(5) Actual Loss for SCS	(6) Scaling Factor
2014	$ 55,637,890	$ 83,214,748	$ 69,426,319	$ 98,590,313	1.42
2015	$ 66,359,754	$ 99,250,892	$ 82,805,323	$ 79,237,176	0.96
2016	$ 69,665,754	$ 104,195,508	$ 86,930,631	$ 77,577,010	0.89
2017	$ 73,429,466	$ 109,824,699	$ 91,627,082	$ 103,115,013	1.13
2018	$ 78,545,322	$ 117,476,224	$ 98,010,773	$ 86,800,159	0.89
2019	$ 82,566,831	$ 123,490,988	$ 103,028,909	$ 142,702,289	1.39
2020	$ 85,558,861	$ 127,966,014	$ 106,762,437	$ 115,247,261	1.08
2021	$ 86,902,751	$ 129,976,003	$ 108,439,377	$ 115,794,660	1.07
2022	$ 87,095,346	$ 130,264,057	$ 108,679,701	$ 235,157,991	2.16
2023	$ 107,508,878	$ 160,795,533	$ 134,152,205	$ 184,603,954	1.38
	10-YR Avg Scaling Factor	1.24			
	2025 Blended SCS AAL	$ 131,267,803			
	2025 Scaled SCS AAL	$ 162,149,859			

(4) = ((2) + (3))/2
(6) = (5) / (4)

the early 1990s. This method is considered the easiest because it only requires internal company loss data; however, it is not responsive to a long list of changes across time: geographic distribution of exposures, vulnerability of the building stock, and coverage changes. When hurricane and earthquake models were adopted, this became the default approach for all other catastrophe perils.

Method #2 became common in the 1990s to overcome some of the limitations of Method #1. Using "Amount of Insurance Years" (sum of total insured value in a time period) allowed the method to reflect the increasing value of the building stock. The incorporation of loss trend allowed the method to reflect other factors impacting losses that arise over time.

Per Guy Carpenter, Method #3 was not commonly used due to the high volume of historical SCS loss data necessary to estimate credible frequency and severity metrics by geography. They only found this method used in filings by larger carriers.

When SCS catastrophes models developed to maturity, Method #4 became an industry standard. Carriers may have initially relied on the models without calibration because they provided valuable differentiation between properties and geographies. However, calibration became the norm when carriers backtested the models against their own loss experience. Calibration allowed carriers to leverage the prospective segmentation of cat models without underestimating overall SCS losses to achieve more adequate rates.

Hornack emphasized that no single method is ideal. Instead, they recommended combining approaches while ensuring thorough data collection and component analysis. Guy Carpenter's research found a 4.6% variance between expected and actual losses over time (1990–2023), suggesting insurers should consider incorporating this difference into their pricing models to remain financially resilient.

"When a persistent difference between expected and actual losses emerges, actuaries should follow ASOP No. 30 and incorporate an appropriate contingency provision in their ratemaking."

—Julia Hornack

SCS risk continues to evolve from a wide range of influences, with climate change one component of the larger story. Academic and industry research will continue to produce new insights to deepen our understanding of SCS risk. And yet, no single ratemaking method is sufficient to ensure adequate pricing for this increasingly significant peril. Thus, pricing actuaries need to consider multiple methods that work well with the internal and external data their carriers can obtain.

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When Does Covariance Matter? (And When Does It Not?)

By DAVE CLARK

"We had a large dataset and a pricing model that fit the data well. But then the results on our overall portfolio came in way outside the predicted range. What went wrong?"

One possible explanation for this hypothetical scenario is the assumption that our historical data is "independent and identically distributed" (iid). Most statistical models have a default assumption that all of the observed data points are independent. This is a convenience that helps with computation by keeping the math relatively simple.

In reality, the data collected for actuarial work are subject to multiple sources of dependencies. For example, a company's loss data is only from policies that the company wrote — business quoted, but not written, is not included in the data. There may also be dependencies for losses subject to similar inflation costs or methods for setting case reserves.

These dependencies can be difficult to model, but what do we lose if they are ignored and we make a naïve independence assumption?

Generalized least squares

The tool for including correlation in a regression model is to move from ordinary least squares (OLS) to generalized least squares (GLS).[1]

In OLS with independence assumption, for a response variable y and design matrix X, the model parameters are:

$$\hat{\beta} = (X^T \cdot X)^{-1} \cdot X^T \cdot y$$

If the observations for the response variable y are related by a known covariance matrix V, then the solution is generalized from the OLS calculation as:

$$\hat{\beta} = (X^T \cdot V^{-1} \cdot X)^{-1} \cdot X^T \cdot V^{-1} \cdot y$$

So, what happens if we should be including the covariance V, but ignore it to keep things simple?

The good news is that getting the covariance structure wrong does not introduce bias. The fitted parameters are not "wrong" in any systematic way. But it does mean that we are not using the best estimate of model parameters.

This has two implications for our modeled results:

1. We are not using our data efficiently: Too much weight is assigned to "noisy" parts of the data and not enough weight is assigned to the more stable parts of the data.
2. Standard errors on the parameters (and therefore also p-values) are understated, giving false signals about which predictors to include and overly narrow confidence intervals around predictions.

In practice, ignoring covariance means that the model parameters may change in surprisingly large ways when new data comes in.

A special case: compound symmetry

The GLS mathematics (or extensions into generalized linear models, or GLMs) give us a method of accounting for correlations in a predictive model, but the question of how much correlation to include is more difficult. This problem is addressed by selecting a parsimonious correlation structure with as few parameters as needed. The "compound symmetry" structure is a particularly interesting special case.

The case in which there is an equal correlation coefficient ρ between any two observations is called the "exchangeable" or "compound symmetry" structure:

$$V = \sigma^2 \cdot \begin{bmatrix} 1 & \rho & \rho & \rho \\ \rho & 1 & \rho & \rho \\ \rho & \rho & 1 & \rho \\ \rho & \rho & \rho & 1 \end{bmatrix}$$

In actuarial language, the compound symmetry covariance structure corresponds to a "common shock" or "common mixture" model. This idea has been described in papers by Wang (1998), Meyers (2007) and Ferrara and Li (2015). We can think of this as each risk in our model having a random component that is independent of other risks, plus a common random variable shared by all of the risks.

One way to think of this common shock (in a multiplicative model) is to suppose that I model a complete class rating plan and then, at the last minute, I am told that the data provided was in Euros rather than U.S. dollars, as I had assumed. I would not need to refit the whole model, because I could just rescale it for the correct exchange rate.

A feature of the compound symmetry structure is that the estimated model parameters $\hat{\beta}$ will be the same for GLS and OLS, regardless of the selected correlation value ρ. The only change in the

[1] These ideas also apply in GLMs, which become part of generalized estimating equations (GEE) when a covariance structure is introduced. The correlation matrix is included in the "iteratively reweighted least squares" (IRLS) step of the GLM calculation. Hilbe and Hardin (2013) provide a book-length treatment of GEE.

resulting statistics is that the standard error on the intercept term is greater when $\rho>0$.

So how much does it increase by? A lot.

The best way to see this is by considering the effective number of points in the model. In OLS, the variance of the parameter estimate decreases by dividing by the number of observed points, n. When correlation is introduced, we instead use n_{eff}. The relationship between the two under compound symmetry is given below.[2]

$$n_{eff}=n/((n\text{-}1)\cdot\rho+1)$$
$$\lim_{(n\to\infty)} n_{eff}=1/\rho$$

The effective number of points is constrained by an upper limit based on a positive correlation coefficient ρ. Specifically, $n_{eff}<1/\rho$. This means that even if we have a "big data" set with, say, n=1,000,000 observations, a small correlation of ρ=.01 will reduce the effective sample size to only n=100 points.[3] Even a seemingly small amount of correlation can greatly increase the standard error on the intercept term.

So, the good news under compound symmetry is that the rating relativities are all correct; the bad news is that the overall level (the model intercept) is highly variable. When there is a common shock — say, a spike in inflation — it is cold comfort to know that all segments of the portfolio are going bad at the same time.

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[2] A fuller discussion can be found in Faes et al. (2009).

[3] Meng (2018) has a similarly surprising result for "big data" cases where data may be subject to hidden dependencies because of nonrandomized collection. He coined this as the "big data paradox."

IN MY OPINION By JIM CHRISTIE

The following served as the Address to New Members at the 2025 Spring Meeting in Toronto, Canada.

Good morning. Welcome to Toronto. Bienvenu a Toronto. And an especially warm welcome to all new Fellows, new Associates, and their families.

For many of you, I also welcome you to Canada — the second largest country in the world spanning six time zones.

You have arrived in Toronto at an auspicious occasion. Every year at this time the city gets wound up in its annual hysteria of playoff hockey. Once again, the Maple Leafs are in contention to win the Stanley Cup, having won their division but finishing second to Washington in their conference. If you believe the local press, this is Toronto's year! Though if history is any guide, the Maple Leafs will not have a completely successful playoff run. They last won the Stanley Cup in 1967; 58 years of heartache which we perpetually forget each year as the playoffs begin. Perhaps some of you can relate after receiving a five or less on an exam.

It is also a time of tension between Canada and the U.S. caused by Trump tariffs — either actual or proposed. But this is a tension between countries, not between people.

I sat in your place some 43 years ago and listened to then penultimate CAS Past President, Steve Newman, give his presidential address. Of course, I was wearing a suit and tie, as were virtually all the new Fellows. It was 1982 after all, and dress codes were much more straight-laced.

There were only 12 new Fellows and 52 new Associates in my graduating class of November 1982. Today we welcome 85 new Fellows and 238 new Associates.

CAS membership was 97 when we were founded in 1914. By 1993 membership exceeded 2,000; by 2003 membership was almost 4,000; and in 2023 it surpassed 10,000.

Today we have over 11,000 members, with 9,000 (or 80%) residing in the U.S. and 1,400 (or 13%) living in Canada. What a change! When I became a Fellow in 1982 there were fewer than 10 casualty actuaries practicing in Canada.

Expand your knowledge. Increase your interaction with your family, friends, and community. Perhaps even give back to the actuarial community by volunteering with the CAS or mentoring those still studying for exams.

Today we are celebrating our newest members who have reached significant milestones in their lives.

For our new Associates, this is not just a step in your career. It is a major professional achievement. You have proven you have deep technical knowledge. Moreover, you have shown perseverance and resilience to reach this stage.

For our new Fellows, your designation is the culmination of years of hard work and a real commitment to the actuarial profession.

I want to acknowledge all the effort and dedication that not only you but, perhaps as importantly, your families have made to reach these milestones. I know in my own FCAS journey, I was delayed by the surprise appearance of twins. After a year of failures on my last exam, my wife and I agreed on an allocation of childcare duties that finally allowed me to pass and become an FCAS. I certainly would not have made it without her support and assistance.

Now that you have reached a milestone, I urge you new Associates who still have the energy and commitment to persevere toward Fellowship. For new Fellows and some Associates, this stage of your career is finishing. You will have huge gaps in your personal, professional, and family lives as you are freed from studying. Don't waste this newfound free time. Be curious. Continue to grow. Expand your knowledge. Increase your interaction with your family, friends, and community. Perhaps even give back to the actuarial community by volunteering with the CAS or mentoring those still studying for exams. After my Fellowship, I chose to begin a lifelong commitment to volunteering — for the CAS, for the actuarial profession at large, and within my local community. Volunteering was tremendously fulfilling, and I received much more from it than I ever expended.

In conclusion, enjoy these next few days of celebration and then look out for opportunities to grow and give back.

Jim Christie, FCAS, is a retired actuary, CAS Past President, and CIA Past President.

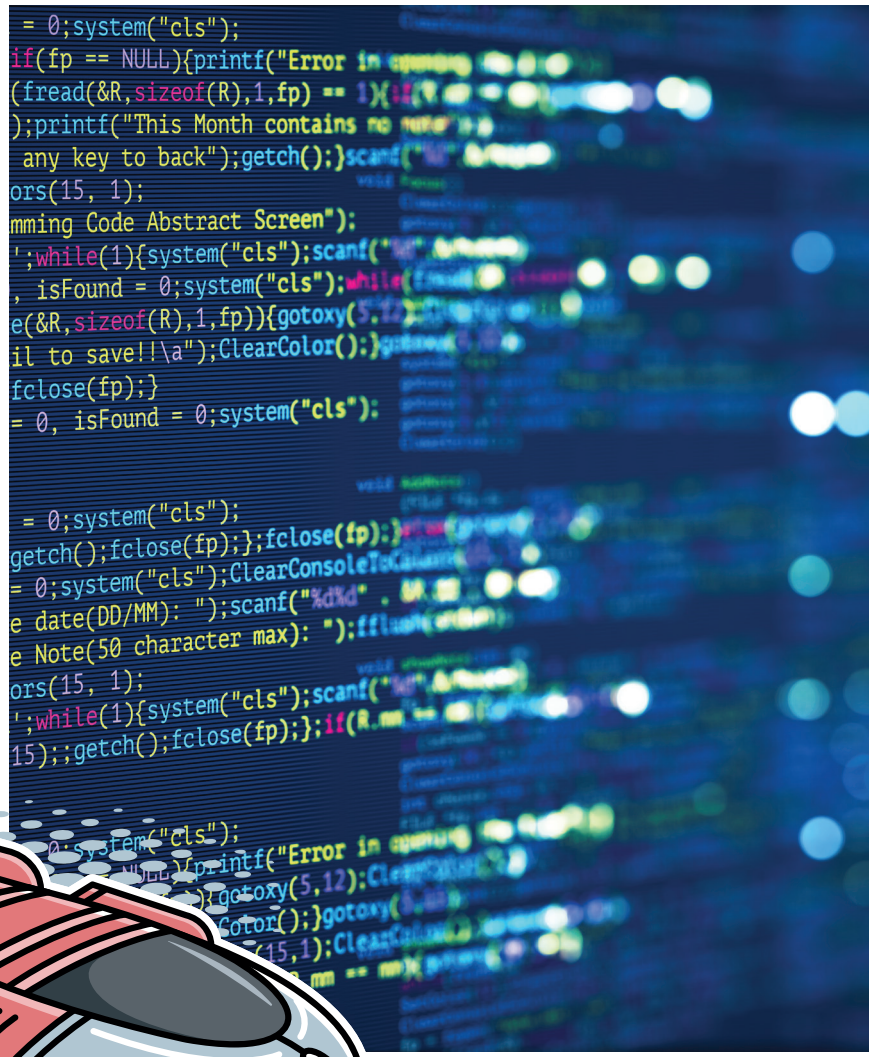
IT'S A PUZZLEMENT By JON EVANS

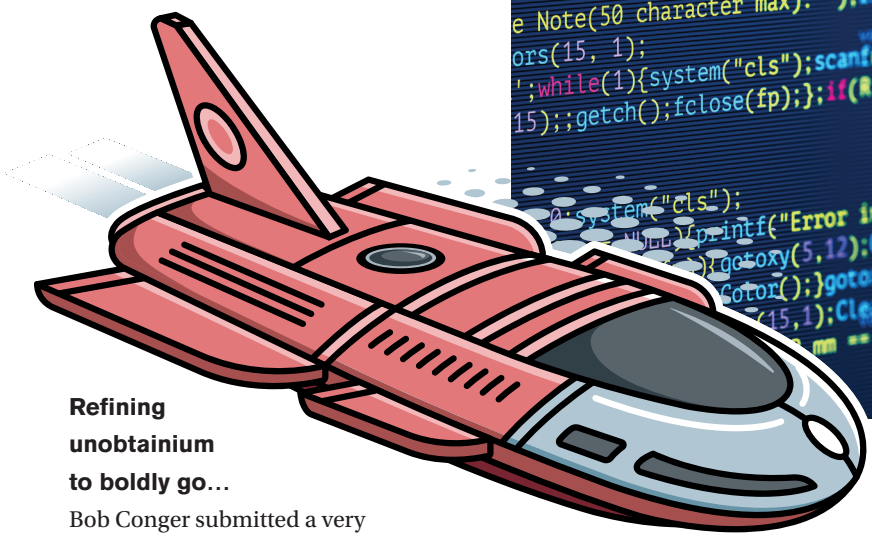
An Algorithmic Cooperation Dilemma

Claire and David, CEOs of rival tech companies, must decide whether to Share (S) or Keep (K) their algorithms. Profit payoffs (in $B for $billions) depend on a tech boom (probability p) or slump (probability 1 - p):

- **Both S:** Boom: $6B each; Slump: $3B each.
- **One K, one S:** K gets $8b (boom) or $0B (slump); S gets $2B (boom) or $1B (slump).
- **Both K:** Boom: gets $4b each; Slump: loses $2b each.

What do you think Claire and David should do?





Refining unobtainium to boldly go…

Bob Conger submitted a very detailed solution for this puzzle that we will post online.

He correctly noted that since there was no time limit to the main part of the puzzle, only one processing unit would be necessary, as the concentrate and tailings outputs could be re-input into the unit, according to various scheduled sequences, to produce the necessary purity of the final output. Of course, producing any meaningful quantity of sufficiently pure output would take an astronomically long time.

Conger estimated that he would need a little fewer than 3 trillion processing units given the constraints specified in the extra credit. See the online post of his solution for details.

Know the answer? Send your solution to ar@casact.org.

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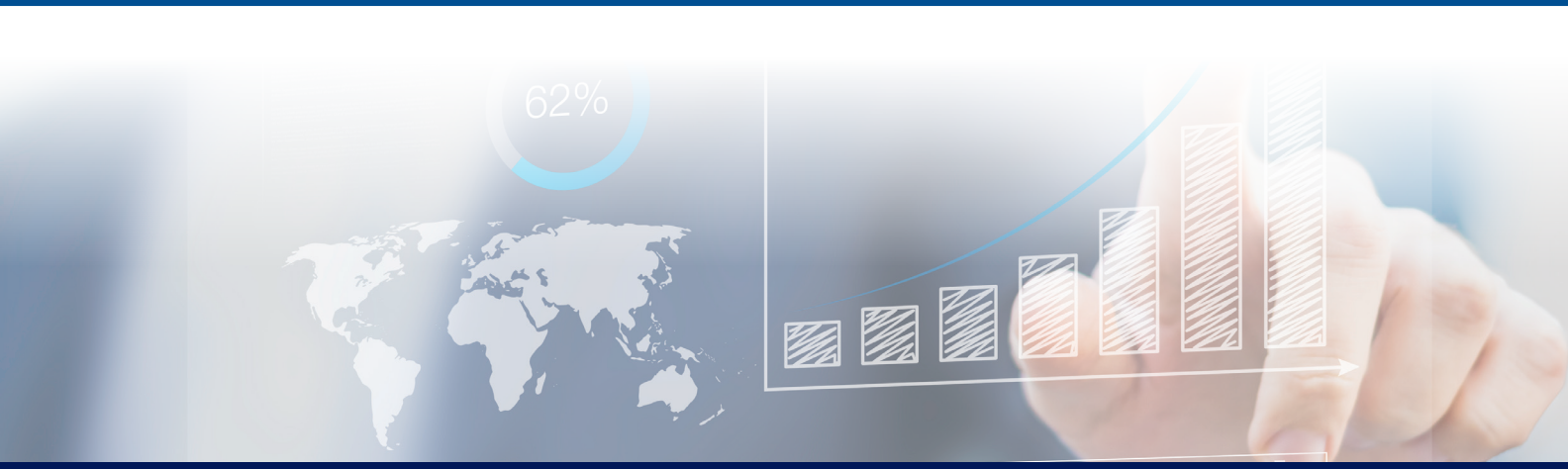

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The International Society of Catastrophe Managers (ISCM) and The CAS Institute (iCAS) have joined together to offer two credentials in catastrophe risk management. The Certified Catastrophe Risk Management Professional (CCRMP) credential is available to experienced practitioners in the field through an Experienced Industry Professional (EIP) pathway. The Certified Specialist in Catastrophe Risk (CSCR) credential is available both through an EIP pathway and an examination path.

Required assessments and courses for earning the CSCR include:

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Some exam waivers are available for specific prior courses and exams.

For more information, visit CatRiskCredentials.org.

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The CAS Institute's Certified Specialist in Predictive Analytics (CSPA) credential offers analytics professionals and their employers the opportunity to certify the analytics skills specifically as applied to property-casualty insurance. The program focuses on insurance as well as technical knowledge and includes a hands-on modeling project that challenges candidates to apply what they have learned throughout their studies to address a real-world scenario.

Required assessments and courses for earning the CSPA include:

- Property-Casualty Insurance Fundamentals
- Data Concepts and Visualization
- Predictive Modeling — Methods and Techniques
- Case Study Project
- Online Course on Ethics and Professionalism

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