## States

### AT: AI

### AI Defense---No Upsides Impact---1NC

#### AI laundry lists are nonsense. It can’t create a leap in capability, only produce mediocre writing.

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The summer of AI had returned, and it was all about neural networks. Six months after buying Hinton’s DNNresearch, Google unveiled a new tool at its developer conference: the ability to search your own photos using image recognition. That’s how quickly Google put deep learning to work. ‘We took cutting edge research straight out of an academic research lab and launched it, in just a little over six months,’ wrote Google’s head of the image search team in a blog post.

A year later, in 2014, Google bought DeepMind, a medical AI company, for £400 million, a massive sum of money for another company that hadn’t yet released a single product. As with DNNresearch, the aim here was to capture the people – in this case, Demis Hassabis, Mustafa Suleyman, and Shane Legg. Two years later, DeepMind’s AlphaGo algorithm beat the best human players. Around the same time, Ian Goodfellow, then at Google, came up with the generative adversarial network (GAN), where two different types of neural networks play a game: one makes output that looks real, while the other has to guess what data is made up, creating a positive feedback loop that makes better and better images (or other output) – yes, deep learning is weird.

In short, there was suddenly tons of money floating around for anything deep learning related – the amount of VC money doled out to pure AI startups leapt by 30 times from 2010 to 2014 when it topped $300 million – and breakthroughs were coming thick and fast.

At the core of machine learning is training. The AI systems are trained on sets of data – not every piece of data in the world, as that would be difficult and pointless – but we give the AI enough pictures of cats, it learns what a cat should look like, and then we show it a photo and it can tell us if there’s a cat or not. For that we need a lot of pictures of cats, and many sorts of cats, otherwise the system will only think that cats are orange or fluffy when they can also be calico and short-haired.

Reinforcement learning gives the system a reward for getting a decision right, though it’s difficult to teach the system which bits it got right and which it didn’t, as it may have made several decisions to create the final output. This results in it not knowing which individual instances were incorrect. It’s sort of like training a dog, how it’s important to give instant feedback rather than wait even a few moments, as the pooch might misinterpret its activities in the 10 seconds after rolling over as the reason for the treat, rather than the trick itself.

However bias sneaks into data sets in many ways. Humans need to make decisions on what data points to include, as a system with too many pieces or types of data will be slow, and leaving some out (or including others) introduces bias. Image sets, for example, may not have enough examples of people with black skin, meaning a system has fewer examples and is less good for those people.

Naturally, once AI started to be used in the real world for tasks more serious than spotting pictures of cats online, a mini backlash began. No one was demanding the removal of all AI, but there began to be calls for a better understanding of ‘black box’ systems such as AI-powered algorithms, especially when their results have serious implications for humans. AI is useful, there’s no question. Like any tool, it can be used well or incompetently, or be the wrong tool, or be used (intentionally or not) for outright evil. Take a hammer: perfect for smacking in a nail. You could also use it to dig holes in soil for seeds, though you’d do better with other tools; and it’s of no use with screws and even less use to decorate a cake; but if you want to break a window to rob a house, a hammer will do the trick just fine.

This is obviously a very childish way of looking at the world of technology – hammers don’t make their own decisions, or impact millions of people – though it’s a metaphor that’s trotted out with some frequency. But it’s worth noting that AI can do good work when applied appropriately and intelligently for relevant tasks; that the wrong type of AI, or even AI overall, simply can’t answer all questions or fulfil all tasks; and that when used maliciously or even just unthinkingly it can cause real harm, and even kill someone.

There are plenty of ways AI is used well, to good purpose, without much risk of harm if attention is paid – we’re talking hammer to nail, mind your thumb, here. Modern computer games couldn’t exist without AI to power the hyper-realistic images or reactive game play. Amazon’s Alexa and Apple’s Siri are both AI systems, and the reason smartphone images keep getting better is AI-driven processing. In healthcare, applied with ethics and caution, AI can save the lives of patients and ease the workloads of medical technicians, with deep learning taught to read eye scans, examine mammogram images and spot neck cancer. Alaskan wildlife researchers used facial recognition developed for a dog photo filter app to identify and track bears. Conservationists from the Zoological Society of London turned to AI to automatically analyse thousands of hours of sound recordings to pinpoint British animals as part of a biodiversity project, while deep learning models were trained to count colonies of seabirds and follow whales by their songs. AI has been tasked with everything from modelling the impact of climate change to fighting parking tickets and even unlocking protein structures, a long-running challenge in biology.

We don’t want to lose any of those helpful benefits. But it’s easy to see why people are so against AI when there are so many well-intentioned, poorly implemented instances – sometimes using AI to solve a problem is like using a hammer to ice a cake. Amazon trialled the use of AI to sift through CVs, and the system methodically stacked most of the women in the ‘not this time’ pile. ProPublica revealed in 2016 that software used to predict recidivism was biased against Black people, meaning they are recommended to be held in jail while white people with similar situations were let out on bail. Facial recognition tools can help policing agencies find criminals by comparing CCTV footage to image databases of previous criminals; this might be a time and budget saver, but incorrect arrests have led to innocent, predominantly Black, men spending days in jail. Some of these problems could in theory be solved by better-quality AI trained on unbiased, accurate data sets, but while we experiment with these tools, real humans are being hurt – and more often than not they’re from low-income or minority demographic groups.

And then there are the malicious uses of AI – picking up that hammer to smash windows or skulls. Hackers are turning to generative tools to churn out malware and spam that’s personalised, massive in scale, or simply better quality, all at lower cost. AI-powered image generation and editing tools have contributed to the rise in deepfakes – everything from the Pope in a funny jacket to the Ukrainian president announcing a surrender in the war with Russia – and revenge porn, with ex-partners’ faces superimposed on to porn stars’ bodies. Natural language generators can help churn out misinformation and disinformation, making it easier to sow confusion ahead of an election or flood the internet with so much nonsense that it’s impossible to understand what’s true anymore.

The most bewildering threats are known as adversarial examples. Neural networks don’t know what a cat is, they learn to identify a cat through characteristics that may make little sense to humans. By unpicking that, it’s possible to figure out how to manipulate them: in one example researchers meddled with images to make a picture of a turtle appear, to an AI system, to look like a rifle. Others have tricked driverless car systems into failing to halt at stop signs with the careful placement of a few stickers that tricked the AI vision system into misunderstanding what it saw.

And all of this is before we get into the so-called existential risks of AI, in which machine superintelligence overtakes our own and we can no longer keep up.

Figuring out how to use AI to benefit humanity while regulating misuse is no easy task, but it’s one that’s often superseded by that idea of existential risks. It’s hard for politicians to focus on one Black man incorrectly arrested or someone losing housing benefits or not getting a job at Amazon when billionaire tech geniuses are screeching about mass job losses and even the risk of human life being entirely extinguished by these systems. Though it’s fair enough to find both unsettling, only one set of problems is happening right now and it’s not the dramatic hypothetical.

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Much of the debate as I write this book has been spurred by the rise of a very specific type of AI: large language models (LLMs). These have hundreds of millions of parameters and chew up huge data sets – such as the entire internet – in order to be able to respond to our queries with natural-sounding language. Examples include OpenAI’s GPT, Google’s Bard and its successor Gemini, and Facebook’s Llama.

OpenAI was founded in 2015 – one of its co-founders being Hinton’s former student and DNNresearch co-founder Ilya Sutskever. Initially set up as a non-profit, it was partly funded by Elon Musk, who had a board seat before he ditched in 2018, as well as Reid Hoffman and Peter Thiel. Shortly after, OpenAI shifted away from a non-profit to a capped-profit model, allowing it to take on investment, and after operating relatively quietly for a few years, the company made an announcement: its GPT model was so brilliant – and therefore so terrifying – that it would only release a tiny bit of its capability, so it couldn’t be used by dark forces to meddle with society. Or as the company put it: ‘Due to our concerns about malicious applications of the technology, we are not releasing the trained model.’ Journalists – myself included – cheerfully had a go with the tool, mocking its mistakes and pointing out its inabilities.16

Two years later, the laughing stopped. OpenAI unveiled ChatGPT in November 2022 and journalists – inside tech and in the mainstream media – were astonished by its capabilities, despite it being a hastily thrown together chatbot using an updated version of the company’s GPT-3 model, which was shortly to be surpassed by GPT-4. The ChatGPT bot sparked a wave of debate about its impact and concern regarding mistakes in its answers, but also excitement, with 30 million users in its first two months. It has also triggered an arms race: Google quickly released its own large language model, Bard, and though it too returned false results – as New Scientist noted, it shared a factual error about who took the first pictures of a planet outside our own solar system – it was unquestionably impressive. OpenAI responded with GPT-4, an even more advanced version, and Microsoft chucked billions at the company to bring its capabilities to its always-abridesmaid search engine, Bing.

In response, thousands of industry leaders – including Musk – called in an open letter for AI labs to take a six-month breather on the development of systems more powerful than GPT-4, a very specific milestone that ensures OpenAI keeps its lead. Shared on the website of the Future of Life Institute we discussed at the top of this chapter, the letter does warn about harms happening now – in particular disinformation and the risk to jobs – but focuses largely on concerns about non-human minds replacing us and taking control of our civilisation. ‘Powerful AI systems should be developed only once we are confident that their effects will be positive and their risks will be manageable,’ the letter says.

Geoffrey Hinton didn’t sign that letter, but the so-called godfather of neural networks did something even more unexpected: he stepped down from his role at Google so he could more openly discuss the threats. To be clear, he didn’t quit because he was worried about Google in particular, but about the wider industry. Hinton’s warnings were twofold. One, he was concerned about how AI was being used in the here and now, for disinformation and the like. And two, he thought we ought to prepare for the consequences of when superintelligent AI arrived, which was now looming sooner than he’d always thought.

He rationalised his work, he told the newspaper, with the excuse that if he hadn’t developed these technologies, someone else would have – and that it’s difficult to prevent people from misusing AI to bad ends. His argument sounded reasonable among the shrill crowds, and given he actually understood the systems in question, was a welcome voice of concern.

At the time of writing, AGI, or super-intelligent AI or strong AI – whatever you want to call it – doesn’t exist. It might never exist, or it might have been created before this book is published. But there are a few things to note. One, LLMs aren’t AGI. They are good-ish at writing, and will presumably get better. But what they do is put one letter after another, based on a trawl of the internet and Wikipedia and other bodies of words.

They have no sense of what is true, so often write text that sounds good but isn’t accurate. That removal of meaning from language is worth noting; the whole point of writing is to communicate meaning, after all. People have referred to these inaccuracies as glitches or ‘hallucinations’, completely misunderstanding what LLMs do: they generate language, not truth. Despite this, some believe these systems are on the verge of becoming sentient and overtaking our capabilities of understanding, but it’s never really made clear how a system goes from putting one word after another to having a sense of self with wants and desires and the ability to take action.

Some argue LLMs are learning common sense: researchers at Microsoft, which as noted above has invested billions into OpenAI, published a paper arguing that GPT-4 is capable of reasoning and common sense, showing a real step towards AGI. To show that it’s learning rather than just regurgitating, they asked it to draw a unicorn multiple times over the span of a month, subsequently reporting that the images became more sophisticated. It’s hard to take people seriously when they’re arguing that they’ve spotted the seeds of nascent AGI in a frankly terrible vector drawing of a mythical creature.17

With regards to common sense, the researchers argued it can answer questions that require a basic understanding of how the world works – things like gravity, directions and so on. For this paper, the researchers used a classic example: ‘a hunter walks one mile south, one mile east, and one mile north and ends up right back where he started. He sees a bear and shoots it. What colour is the bear?’

The more limited ChatGPT declares the question unanswerable because no data is given about the colour of the bear. This is correct, and it’s a perfectly fine answer: for all the machine knows, before the hunter wasted his time taking this one-mile-each-direction stroll, he may have spraypainted a bear pink.

But according to the Microsoft researchers GPT-4, the more advanced version of the OpenAI system, methodically works out where the hunter is located, because the only place where that walk would bring you back to the same point is at the north pole, where the only bears are polar bears, and therefore white. (Aside from the one I just painted pink.)

Here’s the problem: GPT-4 doesn’t know if I’ve painted a bear pink, or if I’m referring to violence against a teddy bear, or something else equally weird. It’s answering a riddle that is widely found on the internet – a fact the researchers admit. How is that common sense and not regurgitation? So they come up with their own new puzzles to test GPT-4, and it figures those out too. I have basic common sense (feel free to disagree), and I couldn’t do most of these. The researchers assume that GPT-4 has a ‘rich and coherent representation of the world’ because it knows the circumference of the planet is (24,901 miles), as though having that fact to hand and seeing how it slots into this riddle is a sign of AGI. Riddles are just word algorithms, not real life.

It’s easy to laugh at this research, given the unicorns and bear hunts, but figuring out how AI understands our world is something academics have long considered. We don’t really know when humans pick up commonsense knowledge, such as understanding that dropping an egg on hard ground means it’ll smash into a mess. It’d be easier to tell if or when AI learns common sense if we had access to training data and models, but private companies aren’t keen to share those.

LLMs have other problems in the here and now, if that end-of-the-world stuff doesn’t do it for you. These massive models need to be trained on huge amounts of data. They’ve already pulled in the English-speaking internet, even though plenty of the words out there on the web are under copyright or are complete garbage, or both. To get more accurate, AI developers can tweak their systems, improving the model and the weights and how it all corrects itself, but the bigger the model, the more data is needed.

Where will it come from? Online publishers are pushing back: Reddit is asking to get paid to let LLMs mine its huge back catalogue of usergenerated content; newspapers are considering lawsuits for copyright infringement; and governments are looking at how to make AI companies pay for such data, perhaps using the equivalent of the ‘robots.txt’ tool system that tells search engines a page shouldn’t be crawled by their bots. It’s easy to think of other banks of data: digital books, email and messaging accounts, and voice assistants, which transcribe what you say into written text in order to understand it. Those data sets could be sold to the highest bidder or used by the companies that already own them – feeling nervous about your Gmail or WhatsApp yet? – though that may be a decision for the courts. Expect lots of data rights lawyers to be readying for battle.

This potential data grab is a problem for privacy, but most digital technology innovations have privacy implications, be it your phone, computerised medical records or online shopping. But it also has serious implications for people who write for a living, and as that includes me, you’ll understand the nervous tone of the next sentence. My publishers, current and former, own the copyright to my work, generally speaking. They will be more than happy to sell my out-of-date articles that no longer draw many readers to whom they can serve ads, but if I’m honest, they’ll also cheerfully let AI developers hoover up my more recent work too. Why? Because it gives them another much-needed income stream. While I wish my employers nothing but financial success, GPT and the like are already being touted as replacements for writers like me – why pay a person (however poorly), when you can pay a company for use of their LLM to churn out untold paragraphs for $20 a month? By analysing my work, these systems are learning how to replace me.

Well, sort of. They’re already capable of churning out dull marketing blog posts – ‘top ten reasons why our product is just what you need!’ – but real journalism, with its investigations, phone calls and going out in the world, can’t be regurgitated. News Corp is already using AI to automate local weather report stories, but all that does is arrange words to say it’s going to be hot and sunny today. Some people like a chart for that, other people want a sentence. It’s hard to get het up about that. Humans, on the other hand, are still needed for the research side of journalism, but also for surprising, intriguing writing.18

If we use well-designed LLMs carefully to automate the boring, repetitive parts of journalism, that would free up reporters to go out in their communities, investigate wrongdoing and take time carefully crafting their copy. It’s a cute fantasy, but as a journalist who’s been made redundant for budgetary reasons more than once, it’s always safe to assume that any money saved by technologies won’t be invested in better journalism but used to prop up profits (or cut losses) instead.

But this is how AI could impact me. If you want real criticism of LLMs and the great AI panic of the early 2020s, there’s one name you should know: Timnit Gebru.

When Hinton quit Google, he was awarded interviews in all the best publications, with glowing headlines dubbing him the ‘godfather of AI’. But Gebru left Google years before, in 2020 – also over ethical concerns.19

Gebru and five co-authors were set to publish a paper that examined the downsides of large language models – it raised concerns about environmental impact and bias, nothing too controversial, really – but managers at Google asked her to remove her name and those of her colleagues, leaving Emily Bender, director of the University of Washington’s Computational Linguistics Laboratory, as the only author. Gebru refused, and got told her job was gone, though Google’s version of the story differs and suggests she left of her own accord. Jeffrey Dean, the head of Google AI, told employees in an email that the paper didn’t ‘meet our bar for publication’. Whether Gebru quit or was forced out, her departure was followed by that of her colleague, Margaret Mitchell, coleader of the Ethical Artificial Intelligence team, reportedly because she ‘exfiltrated thousands of files’. Why do that? Again, reportedly because there was evidence of discrimination against Gebru, whom she was hoping to support.

Setting aside HR disputes, I’m going to point out something here that perhaps could be left unsaid: both of these individuals are, unlike Hinton, women. It’s an intriguing pattern in AI that the companies and research are often led by men – white and Asian, predominantly – but that so many of the AI experts raising concerns and suggesting solutions are women, and often women of colour (it’s worth also reading Joy Buolamwini and Ruha Benjamin on these subjects).

The paper written by Mitchell, Gebru, Bender and their colleague Angelina McMillan-Major was eventually published in 2021, though now only with four co-authors named. In the acknowledgements, the paper notes there were actually seven authors, but ‘some were required by their employer to remove their names’. Margaret Mitchell was in fact not listed as one of the four, though a ‘Shmargaret Shmitchell’ was.

Their paper raises a few risks about large language models and their quickly growing size. Google’s BERT language model in 2019 used a data set size that was 16GB; in 2020, GPT-3 required 570GB for training. All of that computing processing has a high financial cost, which limits who can build these systems, while the energy required has unquestionable environmental impacts, though the use of renewable sources is increasing in the sector. An average human’s carbon emissions are about 5 tonnes (11,023lb) annually, but the authors say that training a transformer model (a type of neural network) using a technique known as neural architecture search (NAS) emitted 284 tonnes (626,113lb) of carbon emissions.

And the climate crisis is impacting those least likely to benefit from these AI systems. The paper notes that the Maldives is expected to be underwater by 2100, and that 800,000 people were impacted by floods in the Sudan, asking if it’s fair they pay the price of developing LLMs that aren’t being developed in Dhivehi or Sudanese Arabic. It’s past time for energy efficiency to be included in such models.

Another challenge the authors raised is data: it should go without saying that the internet is full of bias. As the paper points out, training LLMs that will have a wide and varying impact on a data set that remains largely written by men in English – Wikipedia editors are at most 15 per cent women, for example – will naturally overrepresent those ideas, styles of writing and so on. And then in turn those LLMs churn out more content that’s identical, exacerbating the problem. Plus, as we rely on increasingly massive data sets, it becomes harder to document those data sets or even understand what they contain.

A third challenge concerns the very nature of LLMs: the paper dubs them ‘stochastic parrots’, meaning they mimic without understanding. The AI system is not applying meaning, that’s up to readers to do. This is why so many people were surprised by ‘hallucinations’ or ‘lies’ in responses from ChatGPT – they didn’t have the AI literacy to understand that such systems do not understand meaning or context, they merely spit out text that matches the pattern of our language. They do it incredibly well, and it fools us. These stochastic parrots create language without meaning. Any meaning in the output is supplied by the reader, and is therefore an illusion.

Bias, strengthening the status quo, misunderstanding the power of AI, environmental concerns and exclusionary costs – none of this is particularly controversial. But this was too much criticism for Google to handle – the same company whose CEO is doing the rounds warning about AI killing us all. What on earth is going on here? In response to that open letter from AI luminaries signed by Musk et al., the paper’s authors (Gebru, Mitchell, Bender, and McMillan-Major) issued their own letter, saying: ‘It is dangerous to distract ourselves with a fantasised AI-enabled utopia or apocalypse. Instead, we should focus on the very real and very present exploitative practices of the companies claiming to build them, who are rapidly centralising power and increasing social inequities.’

Surely the CEOs of AI-producing companies know all this too. So why are they signing open letters about how freaked out they are? There’s a twofold theory, according to which the motivations are marketing (if AI is going to kill us all, it must be really impressive – so your company should sign up now) and regulatory capture (distract politicians by focusing on a way-off-in-the-future hypothetical threat rather than anything that will impact us now). It’s a theory, anyway.

Now let’s step back a bit. We’ve seen AI go through a seasonal cadence of summer and winter, hype followed by backlash, then quiet, real progress before the loop begins again. Is this the point where the hype crash happens again? Perhaps, but hopefully not. Instead, it’d be preferable for AI to break out of this cycle and start to be truly useful, with a careful, close eye on the downsides.

Let’s ditch the historical hype cycle and build AI into a useful tool for people. Over the last several decades, we’ve refused to admit AI is narrow, when it is. Even before it could be built, we debated whether it could overtake human intelligence. And before we managed to put it to work, we shuddered over job losses. We should worry about existential threats and societal disruption, of course. But we need to fix the essential challenges facing us now, too – the costs (environmental and financial), the flaws we’re building in by not taking our time developing data sets, and the wider misunderstanding of how these systems work and don’t. People have been hyping AI abilities and threats for decades. Let’s stop wasting energy on marketing and take the time and effort to make AI work well for people.

How do we do this? Better funding models, openness in corporate research and taking our time. But what we shouldn’t do is listen to CEOs confounding regulators by screaming about existential risks as though the Terminator is standing right behind us. Lads, you’re the ones making it. If you’re so scared, stop what you’re doing – and stop sidelining the people pointing out problems.

## Bankruptcy

### Overview---2NC

<<LIMBACH FOR REFERENCE>>

Maturities seem manageable amid higher refinancing costs. About $1.35 trillion of nonfinancial corporate debt will mature in 2026, as of Oct. 1, 2025, 10% higher than at the same time in 2025. That said, the weakening dollar during the first half of 2025 increased the value of non-dollar denominated debt, when converted into USD. A significant portion of upcoming maturities were issued in the low-interest rate environment of 2020/2021. Consequently, European and U.S. corporate issuers with fixed-rate 2026 maturities may face higher funding costs, of about 150 basis points across the board, if refinancing at current yields.

Pockets of risk exist among the weakest-rated issuers. Most issuers have been able to roll over their debt in recent years despite higher funding costs, but those with weaker financial or economic fundamentals could face increased pressure in 2026. Recent strong speculative-grade issuance has pushed back maturities, though refinancing risk among issuers rated in the 'CCC' to 'C' categories is evidenced by their 2026 maturities, which are more than double that of 'B-' rated issuers, as of Oct. 1, 2025. What's more, bond prices in the secondary market for bonds rated 'CCC+' to 'C' with upcoming maturities reflect a more bearish view from investors on that category.

#### 2. Each conflict rapidly escalates to nuclear war.

Dr. Comfort Ero 25, PhD, President & CEO, International Crisis Group, "80 Years After Hiroshima, Nuclear Risks Are Rising," Foreign Policy, 08/05/2025, https://foreignpolicy.com/2025/08/05/hiroshima-nuclear-war-risks-russia-china/

Today, nuclear-armed adversaries are on different sides of conflicts and standoffs, from Europe to the Himalayas to the Korean Peninsula. And that’s just for now. Israel and the United States severely dented Iran’s nuclear capabilities with military strikes last June, but Iran could attempt to rebuild its program and race for a bomb. At a time when arms control talks around the world are adrift, it is essential to lower tensions between nuclear powers and construct frameworks to manage frictions between them.

No two conflicts are identical. In Europe, Russia has repeatedly used nuclear threats as it tries to keep the United States and its NATO allies out of its war with Ukraine and to limit their support to Kyiv. In Asia, a terrorist attack in Kashmir last April sparked armed conflict between India and Pakistan, which many feared could spiral out of control. In both cases, there is a danger that future hostilities will be even more intense.

The logic of nuclear deterrence may still limit how far such crises will escalate. At the same time that it has used nuclear threats, Russia has avoided steps—such as strikes on supplies bound for Ukraine through NATO territory—that could lead to an all-out war with those countries. Similarly, while the recent India-Pakistan crisis heated up uncomfortably fast, South Asian officials insisted that both India and Pakistan know the rules of the game for keeping their on-again, off-again clashes below the nuclear level.

While that may be true, but there is no guarantee that, intentionally or unintentionally, nuclear powers will not cross each other’s red lines—and no certainty on what happens after a nuclear weapon is used.

Dangers of escalation are increasing in some regions. In Europe, NATO and Russia seem to be embarking on a conventional arms race. While it is necessary that European states—uncertain about the future of U.S. security commitments—bolster their defenses, this may also spur more Russian nuclear saber-rattling. In return for North Korea’s support against Ukraine, Russia has effectively ended its limited cooperation with the United States to rein in North Korea’s military ambitions. Russian technical support risks making North Korea an even more dangerous military opponent, while Russia has used its veto in the United Nations Security Council to block U.N. monitoring of nuclear-related sanctions.

The existing nonproliferation regime has historically done a good deal of work constraining the spread of nuclear weapons. But it is now fraying and clearly only of limited use in situations where major powers are pulling in different directions. As a result, it is crucial that concerned states—including the United States—take steps to minimize the risks of individual crises escalating to the nuclear level. This involves addressing not only nuclear weapons, but also the political frictions and conventional military tensions that could lead to adversaries inching toward nuclear use.

#### 3. Turns every impact.

Dr. H.R. McMaster & Andrew J. Grotto 25, PhD, Senior Fellow, International Security, Hoover Institution, Stanford University, Fellow, Freeman Spogli Institute, Lecturer, Graduate School of Business, Stanford University; JD, MPA, Visiting Fellow, International Security, Hoover Institution, William J. Perry International Security Fellow, Center for International Security & Cooperation, Stanford University, "Economic Statecraft: The Need for an Integrated Approach," Hoover Institution, 03/04/2025, pg. 1-35. [error edited by Jordan]

Competition between the free world and authoritarian regimes will determine whether democracy and free-market economies prevail over authoritarianism and statist economic models. China and Russia have expanded their self-described “partnership with no limits” into an axis of aggressors that includes the dictatorships in North Korea and Iran, while advancing initiatives to displace US infuence and power. Chinese President Xi Jinping boasted that he and Russian President Vladimir Putin are driving “changes not seen for one hundred years.” If the United States and its allies do not prevail in this competition, the world will be less free, less prosperous, and less safe. The innovation ecosystems that produce and apply technology will prove decisive to achieving a favorable outcome.

Winning this competition and addressing other cross-border challenges and threats such as terrorism, climate change, and proliferation of weapons of mass destruction require a statecraft that draws on all sources of national power in an integrated manner. These sources of power include US military strength, its global diplomatic reach, the gravitational attraction of American ideals such as liberty and opportunity, and the economy.

US administrations consistently undervalue the degree to which strategic application of economic power is essential for advancing US vital interests. President Trump has a historic opportunity to correct this chronic shortcoming in US grand strategy with an integrated approach to economic statecraft oriented on securing the nation, reinforcing our technologyinnovation ecosystems, defending against unfair and coercive trade practices, and shaping fair, reciprocal trade and commercial relationships.

Although the strategy should apply American economic power to advance US geopolitical objectives, it should enable rather than constrain free enterprise and exploit weakness in rather than attempt to replicate the Chinese Communist Party’s statist mercantilist approach. The United States must act to counter Chinese economic aggression—nonmarket actions intended to harm American companies, impair US manufacturing, or coerce the United States and its allies. The US government must also foster market conditions that incentivize the private sector to fulfll critical national security needs in critical sectors such as semiconductors, critical minerals, and supply chains associated with the defense industrial base.

The Trump administration must recognize, however, that interventionist economic statecratf policies will result in trade-ofs and risk inefciencies, increased costs, less innovation, and other market distortions. Moreover, special interests can capture aspects of policies to advance protectionist or other parochial interests. An overarching framework of principles, objectives, and metrics—a strategy—is therefore essential to help policymakers decide among competing trade-ofs and ensure that actions align with the president’s agenda and vision.

The decision-support resources available to policymakers for economic statecraf are inadequate. The instruments of economic statecraf operate by triggering complex economic and geopolitical chains of events. Compounding this complexity is that many of the most important geopolitical challenges facing the United States involve an array of high technologies at various stages of maturity and intricate global supply chains. The Trump administration’s initiative to elevate economic power as an instrument of American statecraf requires better data collection and analytic capabilities to anticipate consequences, assess results, and adapt to maximize efectiveness.

This report has three goals:

1. Define economic statecraf as the use of economic power in pursuit of geopolitical objectives.
2. Contextualize economic statecraf in US grand strategy, with a focus on prevailing in the multidimensional competition with China, Russia, and other members of the “axis of aggressors” (i.e., Iran and North Korea).
3. Identify principles to guide economic statecraf strategy and recommend how the US government should organize to employ the instruments of economic statecraf efectively.

This report’s principal recommendation is that President Trump issue an executive order that implements the following:

* Directs the national security advisor and the director of the National Economic Council to coordinate the development of an integrated economic statecraf strategy
* Directs the director of the National Economic Council to make recommendations for improving the analytic resources available to practitioners of economic statecraft

In an appendix, the report also compiles an inventory of economic statecraf instruments and presents them as a menu of options for addressing the multidimensional challenge that China poses to US security, prosperity, and global leadership. The menu illustrates the breadth of the existing economic statecraf tool kit, but also its sprawl across dozens of agencies. The menu serves as a guide for policymakers to navigate among economic statecraf options, and through its complexity reinforces the urgent need for an integrated economic statecraf strategy. It can also aid in identifying policy gaps.

DEFINING ECONOMIC STATECRAFT

All forms of statecraf require resources and, therefore, rest on a shared foundation of a nation’s economic endowments. Economic statecraf, as the term is used in this report, is a country’s pursuit of geopolitical objectives using economic power. Economic power, as used here, is a function of a country’s attractive and coercive infuence over domestic and international market participants in the context of its international relations.

This report proposes simple categories for organizing the policy instruments of economic statecraf (see text box). From a strictly economic perspective, these categories overlap.1 The goal of this categorization, however, is to illustrate the breadth and diversity of the policy instruments that constitute the economic statecraf tool kit and present them in a manner that corresponds to how governments are organized to carry out economic statecraf.

When a country uses an instrument of economic statecraf, it aims to produce an economic efect within its domestic market or in global markets to achieve a geopolitical objective. Some instruments shape general market conditions, while others attempt to exert targeted impacts on specifc sectors or market participants such as individual frms or countries.

One major focus of economic statecraf is addressing what economists call externalities, or the indirect costs or benefts to a third party that result from the actions of another party. When one party’s actions impose indirect costs on a third party, it results in a negative externality. Pollution is an example: If the efuent from a factory’s manufacturing operations poisons a community’s groundwater, the factory has imposed a negative externality on the community. When a third party indirectly benefts from the actions of the frst party, they are the benefciary of a positive externality. If a self-interested frst party does not perceive the cost/beneft trade-of as worth it, however, they will not act—even if the indirect benefts of acting for third parties are signifcant.

Many instruments of economic statecraf attempt to incentivize private actors to factor those indirect costs or benefts into their decision making to advance a geopolitical objective. For example, without export controls, private actors motivated by purely commercial considerations are unlikely to weigh national security or other geopolitical factors in their business decisions as strongly as policymakers would prefer them to and might otherwise sell sensitive technologies to adversaries (or at least not perform adequate due diligence on customers to make sure they are not adversaries). Export controls aim to address the negative externalities to a country’s geopolitical interests that private transactions can impose.

Certain industrial incentives policies attempt to incentivize provision of public goods. In the minerals example above, the military’s national government could attempt to attract investment in domestic rare earth mining and processing by compensating the investor for the indirect national security benefts the government would receive. The compensation could take many forms, including tax incentives, fnancing on preferential terms, a guaranteed market in the form of long-term purchase and price guarantees for a certain quantity of production, and direct subsidies.

Other industrial incentives policies aim to reduce market frictions so that proft motives drive industry to meet policymakers’ geopolitical objectives. For example, deregulation and permitting reform could make extractive, processing, and manufacturing industries more costcompetitive, while relaxed antitrust enforcement could facilitate mergers and acquisitions that enable companies to achieve better economies of scale and scope, improved synergies and market share, and other potential benefts that improve competitive advantage.

The dollar’s status as world reserve currency gives the United States a power that no other country possesses: gatekeeper for the dollar-denominated global payments system. In this role, it has leverage to demand that fnancial institutions and even other countries that want to use this system fulfll anti–money laundering, sanctions compliance, and other US policy requirements or face banishment. It can also use the power in attempts to deter, disrupt, or punish objectionable actions by state or nonstate actors.

Regardless of the goal, market participants serve as intermediaries for these infuence attempts. Economic sanctions and export controls, for example, operate primarily by deterring intermediaries from transacting business with sanctioned persons or exporting controlled items without a license. The intermediaries experience the frst-order efects, and the sum of their decisions coalesces into an overall market response to the measure.

That market response, in turn, potentially afects geopolitics. If those efects achieve the country’s intended geopolitical objective (for example, by obstructing an adversary’s military modernization eforts) at an acceptable cost, then the country’s use of the instrument was a success. The signature role that market participants play as intermediaries for economic statecraf means that policy analysis for economic statecraf will ofen involve two interrelated, complementary disciplines: economics and geopolitics.

STRATEGIC CONTEXT FOR ECONOMIC STATECRAFT

The US economy is the source of power for US economic statecraf. That power derives from a set of attributes about the US economy including the following:

* The US economy is open, dynamic, and the largest in the world, with a commitment to property rights and the rule of law.
* The US system of higher education is a source of basic and applied research, ensuring a steady fow of emerging and foundational technologies for US industry and defense needs, and trains the next generation of science, technology, engineering, and mathematics (STEM) practitioners.2
* The US innovation ecosystem rewards risk-taking and entrepreneurship, attracting the best and brightest talent from around the world and incentivizing investment in technologies and new businesses.
* The US innovation ecosystem produces many technologies that have essential applications in various domains, making the United States a critical node in global supply chains.
* The dollar is the predominant currency of the global economy in international reserves, as a currency anchor, and in transactions,3 and there is no practical alternative to it for the foreseeable future.4
* The United States is an energy superpower, with energy production exceeding consumption since 20195 and 2023 marking the widest gap yet.6

The United States complements these economic and fnancial qualities with military and diplomatic power. For example, it has a standing network of alliances composed of market-oriented democracies committed to peaceful resolution of conficts, free and fair trade, respect for citizens’ fundamental rights, and rule of law. It marshaled this alliance to build the Russia sanctions coalition following Russia’s full-scale invasion of Ukraine in 2022.

THE CRITICAL ROLE OF TECHNOLOGY INNOVATION TO SUSTAINING US ECONOMIC AND MILITARY ADVANTAGE

At the same time, advancements in artifcial intelligence, advanced computing, and other critical and emerging technologies have the potential to unleash new waves of productivity, growth, and innovation in the US economy,7 and to contribute to US national security and military capabilities. The United States has a leadership advantage in many of these areas, with American companies, universities, and laboratories producing research and products at the cutting edge. Sustaining these leadership advantages is a national security imperative.

VULNERABILITIES EXIST IN THE US ECONOMY

Although the US economy is strong, history includes hard lessons about misguided policies and complacency about vulnerabilities. For example, tarif conficts in the 1920s that culminated in the Smoot–Hawley Tarif Act of 1930 exacerbated the Great Depression. In October 1973, the Organization of Petroleum Exporting Countries (OPEC) imposed an oil embargo on the United States and other countries that had supported Israel during the 1973 Yom Kippur War. The United States was highly exposed to the embargo due to its reliance on OPEC for oil imports—a development that US energy policies had encouraged over the preceding decade. The embargo triggered gasoline shortages in the United States, price increases worldwide, and eventually a global recession.

China’s industrial policies pose national security and economic challenges to the United States, as described in further detail below, but the policies have also fueled corruption and waste within China—an important reminder about the potential costs of industrial policies and their vulnerability to capture by special interests.8

The growth rate of the US economy has slowed over the past several decades, while the proportion of US GDP devoted to mandatory government spending and interest payments on the federal debt has grown. As a result, the proportion of national resources left over for spending on defense needs and other national security–related public goods has declined over the same period.9

#### 5. Outweighs every other impact.

DSV 25, DSV is creating a future where humanity and the planet thrive, combining available scientific knowledge and founder-type scientists into high-impact ventures. Deep Science Ventures operates in 4 sectors: Agriculture, Climate, Computation and Pharmaceuticals, tackling the challenges defining those areas by taking a first-principles approach and partnering with leading institutions, "Toxicity: The Invisible Tsunami How pervasive toxicity threatens human and planetary survival," 2025, https://www.deepscienceventures.com/toxicity

On the surface it may appear that there is no emergency, since societies around the world and the global economy are so far able to function despite increasing production of toxic chemicals. Given this apparent indifference or resilience to chemical pollution, would it be a wise allocation of resources to focus on this problem when there are so many other pressing demands on societies such as military defence, pandemic preparedness, ageing populations, climate change mitigation and adaptation, and the threats and opportunities from artificial intelligence and quantum computing?

The answer is a resounding “yes”. Societies began slowly changing their behaviour and allocation of resources in response to climate change from the 1990s onwards, despite the fact that very few of the predicted effects had yet materialised. What could have been mistaken as an Earth system which was surprisingly impervious to greenhouse gas emissions, was of course an Earth system with finite resilience and a time lag between pollution and its effects, which we see all too clearly today. While it is difficult to objectively compare two all encompassing and complex phenomena, toxicity appears to be a threat to the thriving of humans and nature of a similar order as climate change. However, with toxicity we are still in the 1990s in terms of public awareness and action, but we’re in 2025 in terms of consequences.

Nonetheless, the public is gradually becoming aware that the population is experiencing chronic health conditions at a higher frequency and at earlier ages than in previous generations, despite increasing life expectancy.

Of particular concern are the increases in the age adjusted rates of several cancers as shown in the table below. Of course some cancers are decreasing, but most concerning is a 79% increase over two decades in the incidence of all cancers below the age of 50.

But cancer is not the only concerning health trend. Between 1990 and 2022, the global rate of childhood obesity more than quadrupled, while in the UK the incidence of youngonset type 2 diabetes increased by 40 % in only five years. In the UK, obesity costs the National Health Service £6.5 billion per year, which is 3.6% of its entire budget. Rates of immune system related diseases asthma, type 1 diabetes, celiac disease, and inflammatory bowel disease also sharply increased in recent decades, as have the neurological conditions Alzheimer’s, Parkinsons, depression, ADHD, and Autism. Of course, in some cases some increased incidence may be explained by improved diagnoses and detection, however this would appear to be unlikely to account for all of the increases.

Perhaps even more consequential than increasing obesity and cancer rates is declining reproductive capacity. One in six people globally experience infertility at some point in their lives. As is now quite well known, sperm counts appear to have decreased globally by 52% between 1973 and 2011, with the rate of decline per year having increased from 1.2% per year between 1972 to 2000 to 2.6% per year from 2000 to 2018. It is important to note that some studies have not found decreases, but overall it appears more likely than not that a decrease is taking place and given the potential severity of a fertility collapse this prospect should be taken seriously.

Although not as easily defined by a single number, there has also been a decline in female fertility, which may be even greater than the decline for males: between 1990 and 2017, the global age-standardised prevalence of infertility increased by 0.37% per year for females and by 0.29 % for males. Declining fertility is accompanied by a general worsening of reproductive health with declining testosterone and increasing rates of genital birth defects in males, and increases in polycystic ovary syndrome, endometriosis, and uterine fibroids in females.

Decreasing reproductive capacity may be compounding the effect of people waiting until they are older before trying to conceive, leading to a fertility gap. For example, in the UK only two babies are born for every three babies wanted. Declining birth rates are a serious social and economic problem for many countries faced with rapidly ageing populations in which working age citizens struggle to support a large elderly cohort. Today, two-thirds of the world’s population live in countries where the number of births per woman is less than the replacement rate of 2.1, which leads over time to shrinking populations. Already today, some of the world’s largest economies: China, Japan, Italy, and Poland, have shrinking populations, while on the extreme end of the scale South Korea has the lowest fertility rate in the world of 0.72, which will result in its population halving in just fifty years. The combination of people living longer, experiencing chronic health conditions from an earlier age, but with fewer babies being born constitutes a perfect economic storm.

These human health trends are concerning enough on their own, but they are unfortunately accompanied by equally concerning ecological trends. The total population of wild animals has decreased by 69% since 1970, with the population of migratory fish declining by a stunning 81% over the same period. Concerningly for food security, 40% of insect species are now threatened by extinction and 16% of global soil has a lifespan of less than 100 years.

These threats to human and ecological thriving of course have many causes. For example, obesity, cancer, and infertility are affected by diet and other lifestyle factors, while the expansion of farmland and cities in conjunction with climate change has affected wildlife populations.

However, as is explained in the coming pages, researchers have amassed correlational and causal links between exposure to toxic chemicals, and many health and ecological problems. While toxicity is rarely the only cause, it is very often a major contributor.

There are correlational or causal data linking toxic chemical classes with direct thriving threats, including to: reproductive, immune, neurological, cardiovascular, respiratory, liver, kidney, and metabolic systems, and with indirect thriving threats, including: trophic chain collapse, soil fertility, and the socioeconomic burden of disease.

Our conclusion is therefore that there is sufficient evidence for the harms caused by toxicity that this issue should be taken very seriously.

It is famously challenging to make accurate estimates of the economic costs associated with public health problems, and even harder when attributing cause to chemical exposures. Nonetheless, it is thought provoking to consider the following studies, the results of which would be startling even if they were overestimates. The economic costs to the USA of disability and disease from phthalates alone are estimated to be $67 billion per year, while PBDE exposure is estimated to cost the USA a total of 162 million IQ points across its population. Globally, it has been estimated that reductions in exposure to BPA, PBDEs, and phthalates would have constituted $1.5 trillion in economic benefits. It is estimated that lead exposure from leaded gasoline reduced the average IQ of children in the USA by between 2-5 points, increasing the number of intellectually disabled people by over 50 % and that the subsequent banning of leaded gasoline resulted in a cumulative economic benefit of over 8 trillion dollars since 1980. While regulation can bring enormous benefits, the cost of cleanups when they fall short can be eye watering. The cost of environmental PFAS remediation if production continues unabated may even exceed global GDP, while the annual indirect health costs from PFAS exposure are estimated to be between 52 and 84 billion euros in Europe and 37 to 59 billion dollars in the USA, which omits out the health costs in Asia which now houses the majority of production.

It is well established that the timing of chemical exposures in particular developmental windows is one of the most important factors for eventual health outcomes which can be understood through the lens of the developmental origins of health and disease (DOHaD). It was previously believed that genes and environment were the main determinants of lifelong health, but a new understanding is emerging that conditions in utero and in early infancy, including exposures to endocrine disrupting chemicals, can have an outsized effect on lifelong health. As the world’s population ages and life expectancy increases, reducing exposure to toxic chemicals in critical developmental windows and thereby improving the health of future generations could have considerable long term economic benefits. Aside from the economic costs of poor health, since governments are already offering generous financial assistance to increase birth rates amid warnings that shrinking working-age populations could reduce GDP per capita in Western Europe by $10,000 per year, reducing toxic exposure to improve reproductive health would likely be economically advantageous.

But more fundamentally, eliminating toxicity is a worthwhile goal for its own sake. It would improve our population’s health and the state of our natural environment.

#### 6. They dropped it's specifically key to chemical pollution---extinction!

Julian Cribb 21, Fellow of the Australian Academy of Technological Sciences and Engineering, “10 Preventing Catastrophe,” Earth Detox: How and Why We Must Clean Up Our Planet, 1st ed., Cambridge University Press, 07/29/2021, pp. 246–252 DOI.org (Crossref), doi:10.1017/9781108946414

Though larger than global warming in emissions and more deadly than either famine or pandemic disease, the poisoning of Earth is but one of ten catastrophic threats brought on humanity by our own numbers, actions and heedless overuse of our Planet’s resources. It does not stand alone as an issue but is an interconnected part of a growing menace to the very existence of the human species.

To make the distinction clear, a catastrophic risk is one that threatens all or most of civilisation with disaster; an existential risk is one that threatens our actual survival as a species. Of the ten, only two - climate change and nuclear weapons - qualify as specific existential threats to humanity in that, on their own, they can wipe us all out. The other eight, such as pandemic disease, food insecurity, ecological devastation and global poisoning, represent catastrophic risks to civilisation at large. Taken together, however, all ten risks constitute the greatest existential emergency ever to face humans in the million years of our tenure on the Planet. Global poisoning with chemicals is not merely a catastrophic threat to human health and wellbeing; it also gravely undermines our fitness to survive.

The ten risks are described in Surviving the 21st Century1 along with the science behind them, the causes and what humanity as a whole and we as individuals can do about them. These risks are:

• Decline of key natural resources and an emerging global resource crisis, in water, soils, forests and the oceans especially.

• The widespread decline and collapse of natural ecosystems that support all life, including our own, and the sixth mass extinction of wild animals and plants.

• Global heating, sea level rise and increasing turbulence in the Earth’s climate affecting all human activity, especially our ability to produce food.

• Universal contamination of the Earth system and all life by emitted chemicals - the topic of this book.

• Rising food insecurity, declining nutritional quality and increased risk of conflict.2

• Nuclear weapons and a new global arms race.3

• Megacity collapse, linked to population overgrowth and resource failure.

• The increasing frequency of outbreaks of new and old pandemic diseases generated by human activity.

• The introduction of uncontrolled and dangerous new technologies.

• Widespread delusion and ignorance across society about the scale and nature of the risks we now face, leading to inaction.

The central message of Surviving the 21st Century was that all these risks are interconnected. They cannot be solved on their own, or one by one. To secure the human future, they must all be solved together, in a systemic way, and by methods that make none of them worse. The following commentary explains how the chemical threat interconnects with the nine other risks and points to possible ways forward.

1. Climate change is the largest recognised impact of unrestrained human chemical emissions. It is driven mainly by the burning of fossil fuels, but also by a host of other insults including fertilisers, pesticides, plastics, synthetic textiles, refrigerants, HFCs, PFCs, methane, nitrous oxide, nitrogen trifluoride etc.4 However, warming chemicals account for less than one-quarter of total human chemical emissions, leading to the question: if greenhouse chemicals can cause so much world havoc, how great is the risk from all the other substances released by human activity? Unquestionably, the elimination of climate emissions (involving the closure of the coal, oil and gas sectors and their replacement with renewable energy and other substitutes) will also eliminate the primary source of toxic chemical pollution on the Planet and a major risk to human life and health. It must therefore proceed with added urgency because of the millions of lives now being sacrificed. However, care must also be taken not to simply exchange one form of pollution for another, such as nuclear radiation, toxic mineral processes or new, untested substances. Accelerated action on climate will help significantly to detox the Earth - and accelerated action on global pollution will help limit climate change.

2. The Sixth Extinction of life on Earth has several main drivers, including land clearing (for industrial agriculture), urban expansion, wild harvesting and the poisoning of all wildlife by human chemical emissions, notably pesticides and endocrine-disrupting chemicals. The chemical flood therefore plays a key role in the world ecological crisis and the rendering of Earth less habitable for humans and other animals. The withdrawal of these chemicals from use will not only save millions of human lives but also reduce extinction risk for critical life forms such as insects, which support birds, frogs, fish and other animals. Ecosystems support the wild world in supplying the clean air, water and food which are also indispensable to human survival. It makes no sense to poison them. Reducing the chemical flood will arguably constitute a major step towards ending the Sixth Extinction and restoring the world’s life-giving ecosystems to health.

3. Food security. Chemistry is now intimately interwoven with the production and processing of more than half of humanity’s food supply. Because chemicals are cheap and easy to use, Western agriculture, food processing and packaging have developed an addiction to them which, additively, poses sharply escalating risks to humans, wildlife and to the environment. This has fuelled a dangerous paradox, in which chemicals are key to maintaining a high output of poor quality industrial food, yet are increasingly implicated in both chronic and acute poisoning, and in the rise of lifestyle diseases - among them diabetes, obesity and cancer. It is now imperative to purge the food chain of chemicals with known toxicity to humans and wildlife and replace them with alternative technologies or softer chemistry. The existing model of world food production is unsustainable (as explained in Food or War) and must be replaced by one that consists of (i) regenerative farming, (ii) renewable urban food production and (iii) deep ocean aquaculture. This novel food system will minimise the use of chemicals and will help greatly to detox the Planet. A renewable food supply will also help end the Sixth Extinction and will reduce the threat of war.

4. Nuclear weapons. Chemistry is a fundamental component in the design of materials used to make advanced nuclear weapons and is thus a prime contributor to Armageddon. The only solution is to ban nuclear weapons, along with all the materials and processes by which they are made, and to eliminate all supplies of fissile material, as proposed in the UN Treaty on the Prohibition of Nuclear Weapons. Chemistry can also play a vital role in making these substances safe and recycling them beneficially. However, the ethics involved in the creation of weapons of mass destruction must also be the subject of serious selfexamination by the chemistry profession: doctors do not plan the mass death of humans on a global scale. Some chemists and physicists do - and it is time they were held to account and required by their profession and society to behave in a more humane and ethical manner.

5. Resource scarcity. Growing shortages of soil and clean water, the loss of forests, the decline in global fish stocks and ocean health as well as scarcity of key minerals are all linked in different ways to the chemical flood. Major drivers include industrial agriculture, industrial forestry and fishing, climate change, the universal pollution of fresh waters and the oceans, the poisoning of wildlife including fish; all these sectors depend on or derive from chemistry. The harmful role of chemicals in each of these looming resource crises needs to be clearly mapped and mitigated. On the other hand, the role of chemistry in recycling, in building the global circular economy, in developing safe and sustainable alternative materials, in ending pollution and locking up poisons and in cleaning up contaminated regions needs to be ramped up. This will involve the chemical profession and industry shifting from a harm-inflicting to a healing, regenerative mindset, helped by universal consumer demand to motivate it. Female leadership may be essential to this transition. Consumer support for green chemistry certainly will be.

6. Megacity collapse. Megacities are the fruit of the human population explosion which, aided by modern chemistry in food and medicine, now far exceeds the ability of the Earth to support it.5 Megacities are themselves living far beyond their means. As described in Food or War,6 no megacity can feed itself, and all rely heavily on long, chemical-driven food chains to supply their needs. Failure in those chains, due to climate change, resource depletion and eco-failure, spells disaster for billions of people. The solution is ‘renewable food’ - the adoption of advanced urban food production, which uses almost no artificial chemicals and depends on recycling water and nutrients, and deep ocean aquaculture.

7. Pandemic disease. Pandemic diseases arise chiefly from human destruction of wilderness for industrial agriculture and urban sprawl, combined with the overgrowth in our population. These bring us into close contact with the animal hosts of new and unknown diseases, allowing them to jump species. They then spread by world travel, urbanisation, food chains and human behaviour. Chemistry is involved in all facets of their genesis - and is also deeply engaged in trying to combat them with new drugs, vaccines and protective materials. The role of chemistry in helping to start pandemics has not been deeply considered, and must be, for the sake of preventing new ones in future. Its role in developing safe, sustainable solutions for existing pandemic diseases must be accentuated.

8. Uncontrolled technologies. These include things like the spread of universal surveillance by governments of their citizens, and corporations of their critics and consumers, the adoption of artificial intelligence, killer robots, nanotechnology and the engineering of new life forms.7 All of these are proceeding without public oversight or permission and, like chemicals, are now being released onto the world without control and without due consideration of their larger consequences. Chemistry is an essential input to all of them and so bears moral responsibility for helping to limit the threats they pose to the human future. Universal surveillance (enabled by quantum computers, AI etc.), in particular, can be used to silence concerned citizens and gag scientists who wish to warn about the harms inflicted by the institutions that wield these tools of tyranny. The suppression of scientific truth and free speech has been common practice by the chemicals sector since Minamata. Reform and public transparency are now imperative.

9. Mass delusion. Perhaps the most dangerous element in the ability of human civilisation and our species to survive in future is our capacity for self-delusion - for believing whatever we fancy, in spite of the evidence. This risk is discussed and explained in Surviving the 21st Century. Delusion is the mortal enemy of rationality and truth, and hence of our ability to survive the real threats we face, including the chemical flood. The chemicals sector - along with fossil fuels, tobacco and pharmaceuticals - has been a skilled disseminator of misinformation about chemical risks, and hence a feeder of public beliefs that they are an insignificant or, at worst, a second-order risk to human life. The science flatly contradicts such a view. It is time that based its assessment on independent scientific fact, not on self-serving industrial propaganda, denialism or attempts to distort the science. Only if told the truth will consumers and citizens fully understand the necessity to choose the products that empower clean chemistry and eliminate the substances that will poison generations of humans yet unborn.

In summary, our ability to survive and prosper through the twenty-first century and beyond depends on how successfully we can solve the ten interconnected threats, the gravest existential emergency our species has ever faced.

Humanity’s ability to inflict mass harm on itself has been accelerating for the past hundred years. Worldwide trends in population, industry, politics, warfare, climate, environmental destruction and high technology have delivered an entirely new level of risk, one unseen in history. The risk is global, complex and potentially existential.

The answers lie not only in sound governance and ethical corporate and scientific behaviour but also in the willing combined actions of billions of individuals in their daily lives. Much of our present behaviour has to change - but changing it will bring fresh opportunities for health, prosperity, work and fulfilment.

Together, we now face unarguable proofs that our combined chemical outpouring threatens human civilisation, placing in jeopardy the health, happiness, intelligence and wellbeing of all.

#### 7. Bankruptcies turn the case---destroys wages and worker power.

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Researchers have long studied the costs to workers of major shocks to businesses like plant closures, new regulations, or international trade. Less understood, however, is how one common and frequent shock plays out in the lives of thousands of workers each year: The several dozen bankruptcies of publicly traded corporations that happen annually in the United States.1

In a forthcoming article in the Journal of Finance co-authored with John R. Graham of Duke University, Si Li of Wilfrid Laurier University, and Jiaping Qiu of McMaster University, we quantify a significant, long-term decline in worker earnings that results from bankruptcy. Further, while some workers demand and receive higher wages before bankruptcy, this “wage premium” isn’t always large enough to offset future losses for workers, especially for those with more limited alternative job prospects.

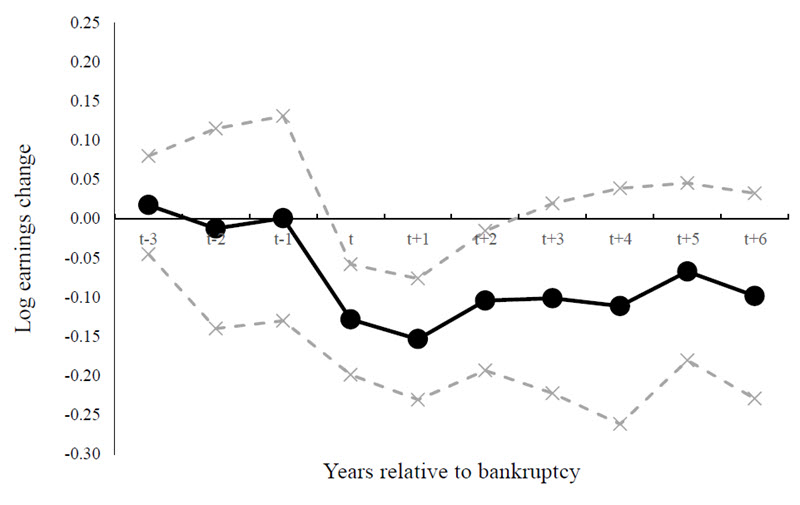
As the first study that uses microdata on U.S. bankruptcies and affected workers to quantify these outcomes, we hope to shed light on how bankruptcies can affect both workers and corporate decision-making.

When companies go bankrupt, employees see short- and long-term earnings losses

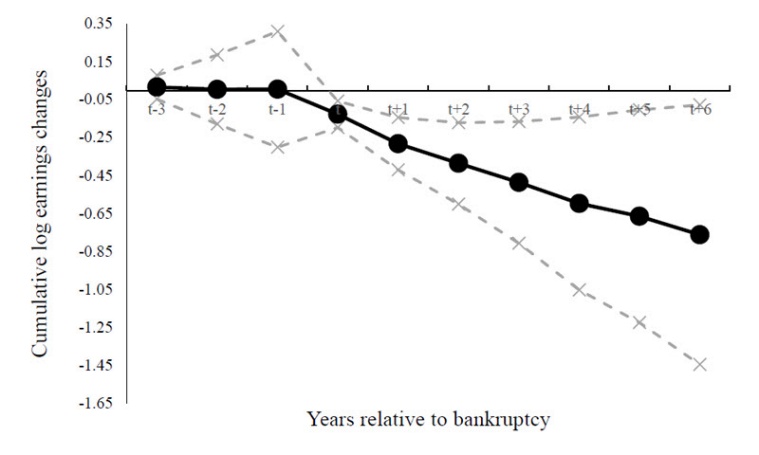
To understand how bankruptcies affect a company’s employees, we built a dataset of 130 bankruptcy filings by U.S. public companies from 1992 to 2005 and followed, for up to six years, approximately 234,000 workers who were employed by the bankrupt companies one year before bankruptcy.

Our findings suggest that the average employee sees a 13% drop in earnings the year the company files for bankruptcy. The cumulative lost earnings over the next six years, which take into account state unemployment insurance benefits employees receive, amount to 87% of what similar workers make annually at similar companies that did not declare bankruptcy.

How Employee Earnings Fare after Corporate Bankruptcy: Changes



How Employee Earnings Fare after Corporate Bankruptcy: Cumulative Changes



Importantly, we find that employees who leave the company or industry post-bankruptcy, and who worked in labor markets with fewer workers before bankruptcy, see much larger earnings losses. This suggests that for workers whose skills are company or industry-specific or who need to relocate to find similar work, corporate bankruptcies can be especially detrimental.

### Turns Case---Top

#### And collapse obliterates the case as companies circumvent unenforced legal regulations.

Robert Blanton et al. 15, Professor/Chair of Government at University of Alabama Birmingham, December 2015, “Financial Crises and Labor: Does Tight Money Loosen Labor Rights?,” World Development, Vol. 76, Pages 1-12, https://www.sciencedirect.com/science/article/pii/S0305750X15001473

6. CONCLUSIONS

Financial crises are ubiquitous in the global economy, and they inflict substantial damage upon many countries. However, there are many facets of crises that remain overlooked and poorly understood. In this study, we examined the effects of these crises on collective labor rights. In addition to providing insights into some of the socio-economic effects of financial crises, our study improves our understanding of the linkage between crises and the distribution of power between the state, capital, and labor.

Our results indicate a consistent, and negative, relationship between financial crises and labor rights practices. Labor laws remain largely unaffected by financial crises. Yet worker rights – in practice – decrease as states decouple laws and regulations protecting labor. These findings imply that financial crises are likely to impede the ability and willingness of states to protect collective labor rights. Corporations, for their part, do not feel compelled to protect these rights in the absence of government supervision. Indeed, they may actively seek to subvert labor rights to their own interests. Moreover, we find this effect to be persistent across time, as crises are a significant determinant of poorer labor practices several years after they occur. This suggests that financial crises are pivotal events that fundamentally call into question the balance that exists between the state, capital, and labor, and that labor loses power in both the short and medium terms.

More broadly, our findings also provide insights into the complex dynamics underlying the relationship between globalization and labor rights (Blanton & Blanton, 2012; Kucera, 2002; Mosley, 2011). As is the case with other facets of the global economy, the impact of financial crises on labor rights is complex. Namely, the challenges that crises pose to labor rights are not so much in the “exceptional opportunity” (Caraway, 2009, p. 153) they present for dismantling labor laws but in the manner in which they limit the capacity of the state to enforce them and thus empower corporations to circumvent existing legal protections.

### AT: Productivity Turn---2NC

#### The link outweighs the turn:

#### 1. RISK-NEUTRALITY. Bond prices give greater weight to costs occurred in bankruptcy than the probability of bankruptcy occurring in the first place. That trumps the turn, even if they are correct.

The market doesn't price bonds using actuarial tables. It prices them assuming defaults happen in the worst possible states—recessions, credit crunches, systemic crises. That's why risk-neutral default probability is 12% when historical default probability is only 1.6%. Any increase in what happens during bankruptcy gets multiplied by that inflated weight. Their productivity argument operates on the wrong margin: shaving points off an already-small default probability matters less than what happens in the states where defaults actually occur.

Nora note:bond assessments based on magnitude not probability. you're a diversified investor. if company experiences idiosyncratic risk, if rest of holdings fine, no care much about it. care more about--"assuming there's broader econ downturn, how bad would it be within this company."

if aff = we reduce probably if default.

Murillo Campello et al. 18, Campello Johnson Graduate School of Management Cornell University, Jiaping Qiu DeGroote School of Business McMaster University, Janet Gao Kelley School of Business Indiana University, Yue Zhang Universite Catholique de Louvain, “Bankruptcy and the Cost of Organized Labor: Evidence from Union Elections,” The Review of Financial Studies, Volume 31, Issue 3, March 2018, Pages 980–1013, https://doi.org/10.1093/rfs/hhx117

The last element we need to consider is the probability that firms default. We estimate default probabilities according to firms’ credit ratings, and we employ two measures of default. We first use historical default probabilities from Moody’s (Moody’s (2007)), which are simple statistics of past observed default events. We also use risk-neutral default probabilities, which account for investors’ risk preferences and are higher than historical occurrences. Our sample firms have an average credit rating of A3. These firms have a historical default probability of 1.6% and a risk-neutral default probability of 12%.

With these default probability statistics, we estimate an expected explicit bankruptcy cost of around $5.5 million for our sample firms under the historical default probability (= 1.6% × $343 million), a negligible portion of the $51 million total bondholder loss. Under the risk-neutral default probability, however, we expect bankruptcy costs to be $41 million (= 12% × $343 million), which accounts for a large proportion of total losses.

The estimates above point to two possible channels through which bondholders’ wealth is dissipated in bankruptcy. Modern asset pricing theory suggests that risk-neutrality underlies the calculation of bond prices (Duffie and Singleton (1999) and Elton et al. (2001)). If bond investors price their claims using risk-neutral probabilities, then our results imply that over 80% of observed losses to bond values stem from expected court costs (wealth that is in great part transferred to professionals involved in the litigation process). If one relies on historical default probabilities, on the other hand, then a plausible conclusion is that only a small percentage of bondholder losses are due to in-court expenses, and the rest of the losses are likely to be captured by unionized workers, potentially due to improved job security and preserved wages and benefits (Abowd (1989)).

7 Concluding Remarks

Using a sample of union elections spanning four decades, we find that union election victories are associated with increased bankruptcy costs, which lead to declines in bond values. As we investigate channels through which unionized labor affects bond values, we find that unionization is associated with increases in bankruptcy costs, yet no apparent changes in the probability of bankruptcy. The impact of unionization on bond values are stronger for financially distressed firms, for firms with underfunded pension plans, and in jurisdictions where unions are deemed to be better funded (non-RTW states).

Overall, our paper sheds new light into how organized labor interacts with financial stakeholders of the firm, unsecured creditors in particular. We show that unions can make bankruptcy more costly, prolonged, and convoluted through the way unionized workers’ rights are assigned under Chapter 11 proceedings. Our study shows that these dynamics are recognized by creditors, who in turn price it into firms’ funding costs. The analysis we put forth may provide new insights for researchers and policymakers in better understanding how firm–labor relations shape corporate access to credit.

#### 2. STUDIES. Our studies assume changes in bankruptcy risk and cost changes within bankruptcy. The net effect of unionization is still to massively drive up yields.

Murillo Campello et al. 18, Campello Johnson Graduate School of Management Cornell University, Jiaping Qiu DeGroote School of Business McMaster University, Janet Gao Kelley School of Business Indiana University, Yue Zhang Universite Catholique de Louvain, “Bankruptcy and the Cost of Organized Labor: Evidence from Union Elections,” The Review of Financial Studies, Volume 31, Issue 3, March 2018, Pages 980–1013, https://doi.org/10.1093/rfs/hhx117

4 Bankruptcy Likelihood and Bankruptcy Costs

Our results show that unionization affects bond values, an outcome that may arise from an increase in the likelihood of bankruptcy or higher bankruptcy costs. We set out to investigate these two channels. To gauge the effect of unionization on bankruptcy likelihood, we use our bond–union matched dataset and track the evolution of firm performance and financial health for several years after union elections take place, comparing close winners and close losers over time. To gauge the effect of unionization on bankruptcy costs, we gather additional data on bankruptcy proceedings from several sources and examine whether unionized firms experience longer, costlier bankruptcies. We also examine the effects of union actions and powers in bankruptcy on bondholders’ recovery value. Across these sets of investigations, we employ a variety of empirical approaches to accommodate the characteristics of the datasets we use.

4.1 Unionization and Bankruptcy Likelihood

For every firm in which an election takes place, we compute performance measures such as return on assets, book-to-market ratio, firm size, liability ratio, cash holdings, tangibility, Z-Score, O-Score, and distance to default. For benchmarking, we subtract industry medians from these variables. We then track the evolution in these industryadjusted measures for the five years following the election year, comparing the difference of these measures to their original level in the year prior to the election. Finally, we use local linear regressions similar to Eq. (6) to test whether changes in those performance measures differ across close union election winners and losers. To ensure that the power of our results is not limited by the bond–union matched sample, we repeat the test in a larger sample that includes all firms with a union election, regardless of the availability of detailed bond trading data; that is, we use a super set of our base sample.

Table 5 reports RDD estimates associated with close union victories on each of the industry-adjusted metrics we consider. Panel A displays the results from our main sample, which admits firms with both union election data and sufficient information to calculate bond returns. Panel B shows results from a broader sample that includes all publicly traded firms with union elections. In both panels, the coefficient for union victory is rarely significant, indicating that close union winners and losers experience similar postelection performance.

The lack of performance deterioration for the close union-winning firms within five years following the election could indicate that the effect of unionization may only materialize in the longer term (more than five years). If this is the case, bonds that mature within five years following the election should not be affected by unionization. We investigate this possibility by examining whether bonds with less than five years to maturity at the election year experience any difference in returns across close winners and close losers. Table 6 repeats the RDD analyses of Table 4 for the subsample of bonds with less than five years to maturity. Even for this subsample, close union winners experience declines in bond CARs. In other words, shorter-term bond values drop in the aftermath of unionization even though there is no evidence that unionization will affect the odds the firm will go bankrupt in the short term. The value estimates are statistically significant, yet sensibly smaller in magnitude compared to those from the full sample analyses.

The results from Table 6 seem to rule out the argument that unionization only affects bond prices in the long term (more than five years after the union election). At the same time, the results from Table 5 suggest that unionization has no measurable influence over a firm’s probability of default in the foreseeable future. From the declining prices of soon-to-mature bonds (within five years of union election), one likely inference is that the decline in bond value following elections is caused by higher bankruptcy costs, conditional on that event. We consider this argument in turn.

4.2 Unionization and Bankruptcy Costs

We conduct a host of analyses to gauge the effect of unionization on the bankruptcy costs born by bondholders. To do so, we focus on information regarding costs documented in actual Chapter 11 case proceedings. We begin by examining whether unionization leads to steeper loss rates for bondholders. We then utilize detailed evidence of bankruptcy expenses to examine whether unionized firms experience longer, more complicated, or costlier bankruptcy proceedings. In the last set of analyses, we explore discrete variation in unions’ statutory powers under the U.S. Bankruptcy Code, estimating bondholders’ losses in relation to unions’ court-assigned committee powers.

4.2.1 Bondholders’ Loss Given Default

The significant drop in bond prices that we document seem not to be explained by an increase in the likelihood of bankruptcy brought about by worker unionization. As bond prices are highly sensitive to loss rates that bondholders effectively suffer in default states (Duffie and Singleton (1999)), we set out to verify whether bondholders’ losses in bankruptcy could justify the negative bond CARs that we observe following unionization. We do so via an RDD test where we regress bondholders’ losses in bankruptcy on the outcomes of union votes that occurred prior to the host firms’ bankruptcy filings. This test strategy is pointed in that it only considers firms that did file for bankruptcy; it holds fixed the relationship between unionization and the occurrence of bankruptcy. For the purpose of this test, we focus on elections that happened up to three years prior to bankruptcy, as they seem most relevant for meaningful inferences. Notably, a standard McCrary test on the firms considered point to continuity of the forcing variable, suggesting that firms that eventually went bankrupt were smoothly distributed around the vote share cut-off determining unionization. Likewise, the distributions of standard distress risk measures, such as Z-Score and Distance-to-Default, are continuous around the unionization cut-off.

To gauge bondholders’ loss rates in court, we use Moody’s loss given default (LGD) rates for creditors in Chapter 11 bankruptcies. Moody’s LGD measures the percentage value of borrowers’ claims that is lost in formal default. In our setting, it represents the portion of bond par values that cannot be recovered from bankruptcy proceedings. Moody’s describes its three methods of calculating LGDs as: “1) settlement method, whereby the value of the settlement instruments is taken at or close to default, 2) liquidity method, whereby the value of the settlement instruments is taken at the time of a liquidity event, and 3) trading price method, whereby the value of the settlement instruments is based on the trading prices of the defaulted instruments at or post-emergence.” Moody’s recommends using the valuation method that is most representative of the actual recovery case. We follow that recommendation in our calculations.

Matching the LGD data for bonds to the election records of the corresponding bankrupt firms, we obtain a sample of 309 bond-election observations from 1990 through 2009. The matching yields a super set of our base data in that it does not require detailed bond trading information over numerous months around a union vote. The RDD model estimation resembles the local linear regression of Eq. (6), but features LGD as the dependent variable. It shows that worker unionization that takes place within a three-year horizon prior to bankruptcy leads to a 32% increase in the loss rates of bondholders in bankruptcy court (t-statistic of 2.21). To interpret the economic magnitude of this estimate, we use risk-neutral default probabilities estimated by Almeida and Philippon (2007), who account for investors’ risk preferences.17 Given that our sample firms have an average credit rating of A3, they have a risk-neutral default probability of 12%. Our RDD test of LGD rates thus implies that, following unionization, bondholders should expect an in-court loss rate of 3.8% (= 12% × 32%). This result is interesting in showing that our LGD estimate is in line with the baseline results that unionization leads to a 2% to 4.7% decline in bond value. Put differently, the bond price reactions that we observe upon news of worker unionization map into the expected value losses bond claims observe in bankruptcy states. In the remainder of this section, we set out to characterize the role of unions in generating losses in bankruptcy court.

### Link---2NC

#### 1. Creditor power. CBR gives unions the right to demand a larger share of the pie during the firm restructuring process. Unions can block asset sales, control reorgs, and force payroll, which pushes the firm into more loans and creates an irrecoverable cycle of debt, that’s Campello.

<<FOR REFERENCE>>

Despite their declining prominence, labor unions still shape workers’ participation in corporate activity. Over eight million private-sector workers in the U.S. today are represented by unions and of the largest 100 industrial firms, 33 have a unionized work force. Unions are known to use collective bargaining power to protect workers’ interests such as wages, health care, and job security (Freeman (1980) and Lewis (1986)), but less is known about the role they play in bankruptcy. At the time when workers’ investment in firm-specific human capital is most threatened, the U.S. Bankruptcy Code only safeguards wages and benefits for work already performed.1 To protect their members’ long-term interests, unions must become active parties in bankruptcy states (Haggard (1983)).

Unions are able to protect their members’ interests in several ways in bankruptcy and this paper shows that worker unionization bears significant wealth consequences for other stakeholders of the firm. As recognized creditors, for example, unionized workers may be eligible to seats on unsecured creditors’ committees under Chapter 11.2 Those committees are favored by the courts and have broad powers to (1) formulate reorganization plans, (2) request the replacement of managers, (3) block asset sales, and (4) move to convert the case into Chapter 7. Non-unionized workers with separate, small claims are not eligible to seats on creditors’ committees.3

#### 2. Bargaining costs. Unions force firms into costly negotiations in bankruptcy court that cause them to re-enter bankruptcy, that’s Campello.

<<FOR REFERENCE>>

Beyond receiving debtor-like recognition under Chapter 11, unions resort to other tactics to empower workers in bankruptcy. They organize strikes, boycotts, and public denouncements with the goal of forcing managers to acquiesce to their demands, so as to avoid disruptions that invite creditor control (Atanassov and Kim (2009)). When convenient, unions use their leverage in court so that bankruptcy proceedings allow for disruption of absolute priority rules (APR), whereby unsecured creditors’ claims lose seniority (Adler (2010)). Unions can also make bankruptcies last longer, using the courts to force parties into repeated, costly negotiations over workers’ demands. In securing continued employment for their members, unions often favor inefficient reorganizations in lieu of liquidation (Korobin (1996)). This is a key concern since firms that emerge from reorganization often re-enter bankruptcy, as unions resist asset sales and worker layoffs.

<<FOR REFERENCE>>

We then set out to investigate the effects of unionization on bankruptcy costs. This is a difficult task and our analysis is limited by the fact that we focus on explicit bankruptcy costs. The examination necessitates data from actual bankruptcy events and we first expand our dataset to include information from the UCLA-LoPucki bankruptcy database. In this investigation, we use non-local linear regressions to compare the duration, costs, and outcomes of court proceedings across bankrupt firms with unionized workers and those without. We find that unionized firms experience more prolonged court proceed ings and are also more likely to go through inefficient reorganizations, as evidenced by a higher likelihood of emerging from bankruptcy and refiling for bankruptcy shortly thereafter. Unionized firms are also more likely to reorganize under debtor-in-possession (DIP) financing.6 In addition, firms with labor unions incur significantly higher expenses and fees paid in bankruptcy court. The results we report are consistent with the notion that unionization is associated with higher in-court bankruptcy costs. Admittedly, nonetheless, these tests could allow for a non-causal interpretation.

#### 3. Link is fast. Bondholders immediately perceive the increased risk of lending post-unionization. They’ll demand higher yield when loaning preemptively because they know in the event of a bankruptcy, they’re now more likely to lose money, that’s Campello.

<<FOR REFERENCE>>

We study the impact of worker unionization on corporate creditors by looking at the price reactions of publicly traded bonds to union elections. Bond prices represent a unique value metric with which to gauge the impact of unionization onto financial stakeholders of the firm. Unlike other creditors (e.g., banks and syndicated lenders), it is difficult for investors of diffusely held bonds to renegotiate with borrowers. Bond investors, instead, dispose of their securities in the market in response to innovations to the expected value of their claims. Given the concave structure of bond payoffs (capped at the issue face values in non-bankruptcy states), bond prices are sensitive to expected losses in bankruptcy states. In particular, as their claims are senior, yet unsecured, bondholders’ expected wealth declines sharply in the face of high bankruptcy costs.4 Deviations from an orderly bankruptcy process will increase expected bankruptcy costs and lead to declines in the secondary market price of corporate bonds.

#### 4. The effect is HUGE---in just the year after the plan, bondholders expect to lose $50 million per firm!

Murillo Campello et al. 18, Campello Johnson Graduate School of Management Cornell University, Jiaping Qiu DeGroote School of Business McMaster University, Janet Gao Kelley School of Business Indiana University, Yue Zhang Universite Catholique de Louvain, “Bankruptcy and the Cost of Organized Labor: Evidence from Union Elections,” The Review of Financial Studies, Volume 31, Issue 3, March 2018, Pages 980–1013, https://doi.org/10.1093/rfs/hhx117

6 A Discussion of Economic Effects

We end our analysis with an assessment of the economic magnitudes implied in bondholders’ reactions to news of worker unionization. We have shown that worker unionization leads to increased costs from in-court bankruptcy proceedings for unsecured creditors. It is important to put those costs (total bond losses and court costs) into perspective, fleshing out magnitudes and assessing the consequences they bring to workers and credi tors. Notably, the bankruptcy process allows — even if only temporarily — for workers to continue receiving wages and enjoying benefits. Continuation of employment can be seen as a wealth transfer amongst corporate insiders. This welfare effect stands in contrast to transfers from firm insiders to outside parties, such as attorneys, financial advisors, and other professionals involved in court litigation. While it is difficult to measure all of these wealth effects, our setting allows us to perform a back-of-the-envelope calculation regarding a “partial” equilibrium based on our localized estimations. This helps us tease out some of the magnitudes involved.

We start by calculating the total value loss to bondholders induced by unionization. From our estimates, a close union winner experiences a 470-basis-point decline in bond CARs over the 12-month post-election period following the union election (see Table 4). Given that the average firm in our sample has $1,087 million in bonds outstanding, this estimate translates to an average of $51 million total value loss for bondholders.

Next, we estimate bondholders’ losses that arise directly from the increases in court costs attributable to unionization. Estimates of direct bankruptcy costs range from as low as 2.8% (Weiss (1990)) to 6% (Altman (1984)) of firms’ total asset values. We choose the conservative figure of 2.8%. The estimates in column (5) of Table 7 suggest that unionization is associated with 57% higher bankruptcy costs. Accordingly, we take that unionization is associated with a higher bankruptcy cost equivalent to 1.6% of a firm’s total asset value (= 57% × 2.8%). The average firm in our sample has a total asset value of $21.5 billion; thus, we estimate that bankruptcy is likely to cost $343 million more for unionized firms (= 1.6% × $21.5 billion).

#### 6. Pro-labor government intervention amplifies the risk in bankruptcy---bond markets immediately react by pricing in a risk premium which increases borrowing costs.

Bradley Blaylock et al. 15, Blaylock is at Oklahoma State University, Spears School of Business; Edwards is at University of Toronto, Rotman School of Management; Stanfield is at UNSW Australia, UNSW Business School, "The Role of Government in the Labor-Creditor Relationship: Evidence from the Chrysler Bankruptcy," The Journal of Financial and Quantitative Analysis, vol. 50, no. 3, June 2015, pp. 325-348, JSTOR

We examine the role of government in the labor-creditor relationship using the case of the Chrysler bankruptcy. As a result of the government intervention, firms in more unionized industries experienced lower event-window abnormal bond returns, higher abnormal bond yields, and lower cumulative abnormal bond returns. The results are stronger for firms closer to distress. We also observe the effect in firms in which labor bargaining power is stronger and those with larger pension liabilities. Overall, the results underline the importance of government as a significant force in shaping the agency conflict between creditors and workers.

I. Introduction

An extensive literature explores how agency conflicts affect contracting relationships between various firm stakeholders. For example, Jensen and Meckling (1976) argue that shareholders have incentives to make risky investments that increase the value of equity, but this is done at the expense of debtholders. Subsequent literature examines how other managerial actions can transfer wealth from debtholders to shareholders (see Shleifer and Vishny (1997) for a survey of the corporate governance literature) and how bondholders consider the incentive structures of top management in the prices of new bonds (Ortiz-Molina (2006)). Chen, Kacperczyk, and Ortiz-Molina (2012) examine how powerful nonfinancial stakeholders (unions) can affect the contracting relationship and agency conflicts between equity and debt. Like debtholders, labor has strong incentives to keep a firm solvent because workers have substantial human capital invested in the firm. Consequently, Chen et al. (2012) find that firms with a strong union presence have lower borrowing costs ceteris paribus.

Prior research examines contracting relationships between various stakeholders and the firm in settings (typically the United States) that are viewed as having stable legal environments. However, this research ignores the effect that the government can have on these contracting relationships. Our paper examines how the contracting relationships between stakeholders can shift if there is a perceived change in the legal environment caused by government intervention. This is an important issue because the government can influence the contracting environment when ithas an interest in preferentially helping one stakeholder over others.

During the financial crisis of 2008, the U.S. government became involved in the reorganization process of distressed nonfinancial firms such as Chrysler LLC (Chrysler) and General Motors (GM).1 Given the state of the economy, the government was concerned about the consequences in the auto sector if Chrysler was liquidated. Consequently, the government became involved in Chrysler's bankruptcy and orchestrated a sale of Chrysler's assets to "New Chrysler." Chrysler received a $2 billion payment from New Chrysler in exchange for its assets and used these funds to pay secured creditors' claims of $6.9 billion (payment of $0.29 per dollar of secured liability). The United Auto Workers (UAW) Trust, an unsecured creditor with a $10 billion claim for unfunded post-employment health care costs, received $1.5 billion in cash, $4.6 billion of unsecured debt, and a 55% equity stake in New Chrysler. At the time, the consensus in the popular press was that the government's involvement in the bailout and reorganization and its support of the UAW were intended to preserve jobs.2 While this intervention likely benefited labor and the auto sector in the United States more broadly, we hypothesize that the government's intervention in the Chrysler bankruptcy harmed bondholders by unexpectedly weakening absolute priority rights in the bankruptcy proceedings. We hypothesize that the government's intervention resulted in increased debt costs for firms with a strong labor presence because lenders of other firms perceived a weakening of their absolute priority rights or anticipated increased bargaining costs with labor in the event of distress.

We test for a change in the cost of debt for firms with a strong labor presence by examining changes in public bond prices and yields around the key events of the government's intervention in the bankruptcy. We hypothesize that firms with similar key characteristics (high unionization of their workforce and unfunded post-employment benefits) that contributed to the intervention at Chrysler are most likely to experience an increase in the cost of debt if creditors perceive an increased risk of lending to firms with a strong labor presence.

We use several measures of the cost of debt. Our primary tests examine changes in public bond prices and yields in 3-day event windows surrounding key dates of the government's intervention in the Chrysler bankruptcy. We find that more unionized firms experienced significant abnormal bond price declines and yield increases. We also find that the changes in bond prices and yields were strongest for distressed firms, consistent with bondholders being concerned about the government's actions affecting their claims, specifically in the event of bankruptcy. We obtain similar results using three alternative proxies for a strong labor presence (regulated utility firms, firms with a strike in the prior 6 years, and the absolute size of the pension obligation). Overall, our findings are consistent with the government's intervention in the Chrysler bankruptcy increasing lenders' assessment of the risk of lending to firms with a strong labor presence, leading to a significant increase in borrowing costs for these firms.

We acknowledge that there were likely economic benefits from the government's bailout of Chrysler that are not captured in our tests.3 Our focus is on examining how government intervention in the bankruptcy proceedings on behalf of labor affected the contracting relationship between other firms with a strong labor presence and their debtholders. The results of this study are intended to speak only to how one firm stakeholder (bondholders) reacted to a perceived change in the riskiness of their claims in these firms.

Our findings contribute to the literature on the interaction between political and legal institutions and financial markets. Several studies find that creditor rights and political stability improve capital market efficiency and economic growth (La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1997), (1998), Levine, Loayza, and Beck (2000), and Wurgler (2000)), reduce the cost of debt (Qi, Roth, and Wald (2010)), improve judicial incentives (Gennaioli and Rossi (2010)), and reduce the cost of equity (Pastor and Veronesi (20 12)).4 The Chrysler bankruptcy provides a unique setting to test how a perceived change in the enforcement of creditors' rights affects the pricing of debt in a country with what were perceived to be generally strong creditor rights and strong legal enforcement of those rights.

This study also contributes to the growing literature on the interaction between organized labor and other stakeholders. Bronars and Deere (1991), Perotti and Spier (1993), Matsa (2010), and Klasa, Maxwell, and Ortiz-Molina (2009) document an association between capital structure (leverage and cash holdings) and interactions with organized labor. Chen, Kacperczyk, and Ortiz-Molina (201 1) document a negative relation between the cost of equity and unionization. The study most closely related to the current paper is Chen et al. (2012). In contrast to our findings, Chen et al. (2012) document a significant positive association between unionization and the cost of debt. We extend this literature by examining the Chrysler bankruptcy, in which the government intervenes in the relationship between secured creditors and organized labor. This alters the association between unionization and borrowing costs previously documented by Chen et al. (2012). In the months leading up to the Chrysler bankruptcy, we find that firms with a strong union presence have lower bond yields, consistent with Chen et al. (2012). However, we hypothesize and document results consistent with an increase in the agency conflict between creditors and organized labor around the Chrysler bankruptcy that decreases the benefit of a strong union presence on firms' borrowing costs, particularly for distressed firms. Overall, we document evidence consistent with the government playing an important and previously undocumented role in the financial contracting relationship between organized labor and other firm stakeholders.

Finally, we contribute to the literature on political economy and labor. Botero, Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2004) find that the extent of labor regulation within countries is influenced by the political power held by the left. Pagano and Volpin (2005a) create a political economy model in which managers and workers join together to support political policies that strengthen labor rights at the expense of noncontrolling (outside) shareholders. Pagano and Volpin (2005b) show that labor protection will be stronger in countries with proportional voting systems because workers and controlling shareholders have more homogeneous preferences. Atanassov and Kim (2009) similarly find that managers in poorly performing firms sell off assets to prevent layoffs (and increase favor with workers) in countries where investor protection is weak and labor protection is strong. Our study contributes to this line of work by showing how labor-friendly government policies can affect the relationship between workers and debtholders.

#### Independently, the plan increases default risk by driving firms to increase leverage:

#### 1. HOLD UP---union power motivates managers to increase debt as leverage against workers.

Naercio Menezes-Filho & John Van Reenen 3, "Unions and innovation: A survey of the theory and empirical evidence" In: Addison, J., Schnabel, C. (eds). International Handbook of Trade Unions. Cheltenham: Edward Elgar, 2003.

Grout (1 984) built on Simons' ( 1 944) model of the negative impact of unions on investment because of their appropriation of quasi-rents from investment. The mechanism is quite simple when extended to R&D as a specific form of investment. R&D has a large element of sunk cost (about 90 per cent of R&D is current expenses on staff costs and materials). Once an R&D investment is in place and an innovation has successfully been introduced, it is possible for a union to 'hold up' the shareholders by demanding higher wages. 7

Figure 9. 1 gives the extensive form of a simple game to show this possibility. In stage I the firm chooses R&D ('high' or 'low') and in stage II the union chooses the wage ('high' or low'). The union would like to commit to a low wage strategy conditional on the firm choosing high R&D. This way the pie is bigger (10 compared to 8) and both parties can gain (both get a pay-off of 5 as opposed to 4). However, the union cannot credibly commit to a low wage strategy in advance; because once the R&D investment is sunk there exists a strong temptation to deviate from any agreement. It is clear that the union's best response at stage II is always to play a high wage strategy. The firm knows this to be the case in stage I, and will always choose a low R&D policy. The only sub-game perfect equilibrium therefore is the (low R&D, high wage) outcome.

[Figure 9.1 omitted]

This game has the form of a prisoner's dilemma and, as usual, there may be many ways 'out' of the dilemma by changing the structure of the game. Grout himself suggested that the first best could be achieved if unions and firms could get together and bargain over investment as well as wages. This is a common and intuitive result. It is symmetrical to the contrast between the 'right to manage' union model (where there is bargaining only over the wage) and the efficient bargaining model (where there is bargaining over both wages and employment). The latter is Pareto efficient and the former is not (e.g. Leontief, 1 946).

Unfortunately this 'solution' to the Grout model faces a similar problem to the 'efficient bargaining over employment' model. Explicit union bargaining over employment is seldom empirically observed. Bargaining over the introduction of new technology or investment is still rarer, and bargaining over R&D itself is almost never seen. One response to this criticism is the argument that some kind of 'implicit' bargaining takes place over other instruments. It is difficult to see how this would practically come about. With employment, one could imagine that effort bargaining (e.g. over manning levels) gets us some way towards the efficient solution,8 but there seems little analogous mechanism for an implicit bargain over R&D.9

A version of the implicit contract argument is that the long-term labour contracts, such as those in large Japanese companies, act as a kind of commitment device. Japanese workers can effectively commit themselves not to appropriate the rents from innovation. Unfortunately, this is certainly not the case in Britain and the United States where contracts are more short term (three years generally being the maximum). Ulph and Ulph (1 989) have suggested that this may be a reason for the differential effects of unions on innovation across different countries. Even when contracts are more durable, however, commitments are likely to be difficult to sustain when there is uncertainty and significant informational asymmetries between the players.

Another related 'escape route' from the hold-up problem is to notice that the game between unions and firms is repeated over time rather than being a one-shot game. Van der Ploeg (1 987), for example, stressed the damage to a union's reputation in seeking to expropriate a firm's quasi-rents from innovation.

An important element of these models will be the degree to which unions discount the future. It is quite likely that the time horizons for unions are lower than the time horizons for firms, because unions do not hold property rights in jobs. High turnover or the control of the union by senior members who are looking to retirement will lower the discount factor of the union vis-a-vis the firm. This is one of the insights of Baldwin (1983). She also shows that, in the presence of union demands for sharing the returns from long-lived capital investment, investors may choose a selfenforcing counter-strategy of investing in less efficient plant and equipment or, alternatively, to try and extend the union's time horizon.

Addison and Chilton ( 1 998) focus on the possibility of efficient investment and employment outcomes in explicitly repeated games. They first follow Espinosa and Rhee ( 1 989), assuming the following structure: first the firm chooses capital which then remains fixed. There follows a repeated game where union chooses wages and the firm sets employment, conditionally on the wage chosen. In this framework, Espinosa and Rhee ( 1 989) show that, so long as the discount factor is sufficiently close to one, there exist equilibria where neither the firm nor the union will be tempted to deviate, because they would find the punishment too harsh. The resulting equilibria will encompass the monopoly union and the fully efficient bargaining models as particular cases that result from certain discount rates.

Addison and Chilton (1 998) also extend this model to allow the firm to choose capital at the beginning of each sub-game. Capital flexibility, besides raising the punishment the firm can impose on a deviating union (as in Baldwin, 1 983), also weakens the union's punishment of the firm that cheats, introducing the possibility of opportunistic behaviour on the part of the firm as well and making the efficient outcome depend crucially on the firm's discount factor.

In some cases (e.g. US shipbuilding) the assumption that the repeated game will go on forever'° breaks down when unions are clearly in an 'endgame' situation of a sector in terminal decline (e.g. Lawrence and Lawrence, 1 985). In this case, the firm knows that the union will pay noncooperatively in the final sub-game and this will unravel the incentive to cooperate in previous sub-games.

Another implication of the hold-up model is that firms may take action to mitigate the degree to which they can be expropriated in other ways. Bronars and Deere (1991) suggest that firms may alter their financial structure (e.g. leveraging up the debt-equity ratio to increase the risk of bankruptcy) to reduce the incentive of unions to expropriate the innovative rents. Bronars et al. ( 1 994) emphasize the incentive to license out technology rather than develop it in-house.

#### 2. TRADE-OFF---stronger unions appropriate capital that would otherwise go to bondholders.

Richard Epstein 20, Peter and Kirsten Bedford Senior Fellow (adjunct), "The Decline of Unions Is Good News," Hoover Institution, January 27, 2020, https://www.hoover.org/research/decline-unions-good-news

During the 2016 election, President Obama chided Trump by saying: “He just says, ‘Well, I’m going to negotiate a better deal.’ Well, what, how exactly are you going to negotiate that? What magic wand do you have? And usually the answer is, he doesn’t have an answer.” This snarky remark reveals Obama’s own economic blindness. The gains in question don’t come from any “negotiations.” And they don’t require any “magic wand.” They come from unilateral government decisions that allow for private parties on both sides of a transaction to negotiate better deals for themselves.

True to standard classical liberal principles, the market has responded to lower transaction costs with improvements that Obama, as President, could only have dreamed of creating. Overall job growth was 5.53 million jobs between 2007 and 2017. But new job creation has exceeded 7 million in the first three years of the Trump administration. In addition, the sharp decline in manufacturing jobs that started in the late Clinton years and which continued throughout the Obama years has also been reversed. Over 480,000 manufacturing jobs have been added to the economy since Trump took office, compared to the 300,000 manufacturing jobs lost in the eight years under Obama.

Happily, the distribution of these jobs has been widespread, causing drops in Hispanic and African unemployment levels to 3.9 percent and 5.5. percent respectively, both new lows. Basic neoclassical theory predicts that regulatory burdens hit lowest paid workers the hardest. Hence, the removal of those burdens gives added pop to their opportunities and to the economy at large.

Trump’s domestic labor performance is even better than these numbers suggest. Too many state-level initiatives hurt employment, like raising the minimum wage or imposing foolish legislation such as California’s Assembly Bill 5, which takes aim at the gig economy. The surest way to improve the situation is to repeal these regulations en masse. But progressive prescriptions to strengthen unions cut in exactly the wrong direction.

Unions are monopoly institutions that raise wages through collective bargaining, not productivity improvements. The ensuing higher labor costs, higher costs of negotiating collective bargaining agreements, and higher labor market uncertainty all undercut the gains to union workers just as they magnify losses to nonunion employers, as well as to the shareholders, suppliers, and customers of these unionized firms. They also increase the risk of market disruption from strikes, lockouts, or firm bankruptcies whenever unions or employers overplay their hands in negotiation. These net losses in capital values reduce the pension fund values of unionized and nonunionized workers alike.

Employers are right to oppose unionization by any means within the law, because any gains for union workers come at the expense of everyone else. Of course, the best way for employers to proceed would be to seek efficiency gains by encouraging employee input into workplace operations—firms are quite willing to pay for good suggestions that lower cost or raise output. But such direct communications between workers and management are blocked by Section 8(a)(2) the National Labor Relations Act (NLRA), which mandates strict separation between workers and firms. This lowers overall productivity and often prevents entry-level employees from rising through the ranks.

### Debt UQ---2NC

#### Invesors able to withstand higher rate enviro now thru refinancing.

<<LIMBACH FOR REFERENCE>>

Maturities seem manageable amid higher refinancing costs. About $1.35 trillion of nonfinancial corporate debt will mature in 2026, as of Oct. 1, 2025, 10% higher than at the same time in 2025. That said, the weakening dollar during the first half of 2025 increased the value of non-dollar denominated debt, when converted into USD. A significant portion of upcoming maturities were issued in the low-interest rate environment of 2020/2021. Consequently, European and U.S. corporate issuers with fixed-rate 2026 maturities may face higher funding costs, of about 150 basis points across the board, if refinancing at current yields.

Pockets of risk exist among the weakest-rated issuers. Most issuers have been able to roll over their debt in recent years despite higher funding costs, but those with weaker financial or economic fundamentals could face increased pressure in 2026. Recent strong speculative-grade issuance has pushed back maturities, though refinancing risk among issuers rated in the 'CCC' to 'C' categories is evidenced by their 2026 maturities, which are more than double that of 'B-' rated issuers, as of Oct. 1, 2025. What's more, bond prices in the secondary market for bonds rated 'CCC+' to 'C' with upcoming maturities reflect a more bearish view from investors on that category.

#### Spreads are low, indicating low perceived credit risk.

This card also conveniently explains what is going on with the DA in English

Justin Ho 12/2, Markets/Wall Street reporter, "One positive economic indicator? Narrowing corporate bond spreads," Marketplace, 12/02/2025, https://www.marketplace.org/story/2025/12/02/one-positive-economic-indicator-narrowing-corporate-bond-spreads

Investors have been keeping track of falling government bond yields over the last few weeks, especially since bond markets have been sending signals that investors expect the Federal Reserve to cut interest rates later this month.

Meanwhile, corporate bond yields have been sending signals of their own — about interest rates, yes, but also about where the economy is headed.

Corporate bonds are generally considered to be riskier than government bonds, since companies are more likely to run into trouble and default than the U.S. government.

As a result? “Investors want to get additional compensation to take on that additional credit risk,” said Lawrence Gillum, chief fixed income strategist at LPL Financial.

The extra compensation that corporate bonds pay out compared to government bonds is called a spread, and those spreads can change.

“There’s been times when spreads are lower, and obviously times when spreads are higher as well, this time being one of those times that spreads are lower,” Gillum said.

In fact, spreads have been fairly low for most of this year. In other words, investors aren’t demanding much extra compensation from companies.

It’s a sign that investors think economic growth will stay strong and that companies will be in a good position to pay back their debt, according to John Canavan, lead market analyst at Oxford Economics.

“If that’s the case, then you are optimistic about getting your money back,” he said. “You are not going to demand as high a yield from these corporations because you believe your risk is a little bit less.”

That means corporations themselves will find it easier and cheaper to borrow money. “If you’re willing to give me $100 million at very friendly terms, then I can find ways to invest that, I can find ways to help build my company with that,” Canavan said.

And that kind of investment can help the economy.

#### Efficient bankruptcy enables a soft landing from business cycle fluctuations---breakdown triggers the worst consequences of recession.

Yair Listokin & Peter Bassine 22, Listokin is the Shibley Family Fund Professor of Law at Yale Law School; Bassine is an Associate at Latham & Watkins in Orange County, California, "Better Rules for Worse Economies: Efficient Legal Rules Over the Business Cycle," Harvard Business Law Review, vol. 12, Winter 2022, pp. 55-79, Lexis

Even if a time-invariant rule's performance in recessions cannot be ignored, how much weight should recessions receive in determining the efficient rule? Focusing exclusively on the relative likelihood of expansions (roughly 92% of the time) versus recessions (roughly 8% of the time), an efficient time-invariant "weighted average" legal rule should closely resemble the efficient legal rule in expansions. This section argues, however, that performance in recessions deserves more emphasis because:

1. Many legal rules assume heightened relevance in recessions.

2. People are poorer in recessions. As a result, the efficient rule in recessions maximizes income when it is most needed. It is worth sacrificing a bit of efficiency in growing economies to improve outcomes in recessions when every dollar matters more.

3. Deep recessions risk extraordinary harms, such as democratic failure and war.

4. Although expansions are more frequent than recessions, the aftermath of recessions often lingers. Unemployment stays well above its "natural" rate for an extended period, implying higher spending multipliers. As a result, the efficient legal rule for the early part of an expansion may be closer to the efficient rule in recessions than the efficient rule for more mature expansions. Accordingly, the efficient time-invariant rule should shift closer to the efficient rule in recessions.

1. Many Legal Rules Grow More Salient in Recessions

Many legal rules grow in importance during recessions because more people take advantage of their protections or benefits in recessions than in expansions. As a result, the relative likelihood of economic expansions versus recessions provides a misleading indicator of the appropriate weight to place on the performance of a legal rule in different phases of the business cycle. More accurate weightings require more weight to be placed on a rule's performance in recessions.

Unemployment insurance provides a signal example. In recessions, many more people claim UI benefits than in ordinary times. The recession induced by COVID-19 amplified this phenomenon. Between mid-2014 and March 2020, the number of new unemployment claims in a week never exceeded [\*92] 300,000. 113COVID-19 precautions triggered a tidal wave of new unemployment claims, with new claims peaking at almost 7 million (10 times the previous record number of weekly filings set in the Great Recession) in the last week of March 2020. 114New unemployment claims continued to exceed previous records though mid-July 2020. 115

This means that the distribution of individuals applying for unemployment in different phases of the business cycle is much less lopsided than the time distribution of different phases of the business cycle. If the economy is in recession 10% of the time but 10 times more workers per week apply for unemployment in recessions than in expansions, then just as many workers apply for unemployment in recessions as in good times. A UI eligibility rule's efficiency in recessions should therefore receive just as much weight as its efficiency in expansions, even if the size of inefficiencies in recessions is no larger than in expansions.

While UI applications are extremely skewed towards recessions, the same is true (to a lesser extent) of many other important legal programs. Bankruptcy filings 116and applications for welfare and disability programs 117rise during recessions, and foreclosures spiked during the 2007-2009 Great Recession. 118 119As a result, a time-invariant efficient legal rule in each of [\*93] these areas needs to place more emphasis on performance in recessions than might be expected from a simple analysis of recession frequency.

2. Higher Average Marginal Utility in Recessions

Reducing inefficiency when everyone is poorer is worth more than reducing inefficiency when money is plentiful. As a result, a rule's performance in recessions deserves disproportionate weight in the formation of the efficient time-invariant legal rule.

Much of economics, including the supply and demand curve analysis presented in Figures 1-3, presumes "diminishing marginal utility." 120Diminishing marginal utility means that the value of an incremental dollar goes down as people accumulate more income. 121For the poor, an additional dollar goes to meeting a basic necessity. For the rich, by contrast, an additional dollar likely gets saved or goes to a non-essential form of consumption. As such, the consumption the dollar buys means less to the rich than to the poor.

Diminishing marginal utility underpins UI. With UI, workers and firms pay a premium in good times to protect consumption in bad times. Even though UI interferes with the incentive to work, it is a worthwhile program because it transfers money from good times to bad.

What UI does for individual workers, legal rules in general should do for the economy at large. Legal rules that increase income in recessions but decrease it in expansions are worth a premium because additional income in recessions is worth more to the average worker than the same amount of lost income in recessions. When incomes are lower in recessions, 122marginal utility for the average worker is higher--justifying extra emphasis on a rule's performance in recessions.

[\*94] The disproportionate importance of recessions is further amplified by the unequal distribution of the burden of recessions. While average incomes are lower in recessions, the burden is distributed unequally. Some workers lose their jobs and experience a prolonged fall in income, health, and well-being, while others maintain their income. 123Because those who lose their jobs in recessions have extremely high marginal utility, a legal rule that performs well in recessions and reduces these unequal income declines is therefore particularly desirable from an efficiency perspective.

This unequal distribution of the burdens of recessions exacerbates preexisting inequality along educational, racial, and ethnic lines. As one paper summarized, "the impacts of the Great Recession have been felt most strongly for men, black and Hispanic workers, youth, and low-education workers." 124Not only are average incomes lower and the fall distributed unequally, but much of the burden of recessions is concentrated on those least able to bear falls in income at any time. As a result, marginal utility in recessions is much higher than in expansions, by an amount that greatly exceeds the difference in average incomes over the business cycle.

A rule that increases income to already poor people at their most needy times is more efficient than a rule that yields the same average production over the business cycle but prioritizes income in expansions. As a result, a rule's performance in recessions deserves more weight than the time distribution of recessions and expansions would imply.

3. Extraordinary Harms Caused by Deep Recessions

The harms caused by deep recessions extend beyond the straightforwardly economic. Recessions undermine the social and political orders of industrialized democracies, risking permanent harm. Because the value of avoiding these extraordinary non-pecuniary harms is so high, a rule's performance in recessions deserves extra weight.

The Great Recession of the late 2000s and first half of the 2010s is illustrative. Social upheavals such as the election of Donald Trump in the United States, Brexit in the United Kingdom, and the rise of right-wing populism in many other countries were enabled by the Great Recession. While it would be hard to argue that the Great Recession was the only, or even primary, cause of this populist wave, deep recessions and financial crises have a history of boosting the populist right in particular. The Great Depression, for example, helped to undermine Germany's Weimar Republic and lay the groundwork for Nazism, as well as fascism in many other countries. Indeed, a recent empirical study of Europe between 1870 and 2014 found that after [\*95] an economic crisis, "polarization rises ... voters seem to be particularly attracted to the political rhetoric of the extreme right, which often attributes blame to minorities or foreigners. On average, far-right parties increase their vote share by 30% after a financial crisis." 125

If deep recessions cause harms of this magnitude, threatening the fabric of the social order, then rules that reduce these risks have great value. As a result, a rule's performance in recessions deserves more weight than the time distribution of recessions and expansions would suggest.

4. Aggregate Demand Shortfalls Outside of Recessions

To this point, we have emphasized a highly stylized model of the economy. Either the "restaurant" economy is full and the economy is expanding, in which case aggregate demand is irrelevant, or the restaurant has spare capacity and the economy is in recession, in which case aggregate demand determines output. In reality, aggregate demand may help determine output even though the economy is expanding. As a result, legal rules that increase aggregate demand deserve more weight than the frequency of recessions would suggest.

Suppose that the restaurant economy suffers a recession in which unemployment increases from a long run average of 5% of the population to 20% of the population. In the following year, demand for meals partially recovers. The restaurant rehires some of the laid-off workers, and unemployment falls by half to 10%. The restaurant economy is enjoying an expansion, using more of the labor force to produce a greater number of meals than the previous year. Our analysis so far assumes that an expanding economy is one in which rules that enhance aggregate demand are inefficient.

Not so. Even though the restaurant economy has expanded relative to the previous year, aggregate demand continues to limit output. Unemployment, at 10%, lingers above its long-run rate of 5%. The restaurant has substantial spare capacity. Legal rules that promote aggregate demand raise output and lower unemployment, even though the economy is expanding relative to the previous year. Until the economy returns to production consistent with a 5% unemployment rate, the best legal rule for recessions will be more efficient than the best legal rule in expansions--even though the economy is growing.

One measure of an economy operating at full capacity, with no shortage of aggregate demand, is the natural rate of unemployment. 126The natural rate of unemployment is not zero. At any time, there will be people in between jobs. 127Aside from these workers in transition, however, everyone who [\*96] wants a job has one. If the government stimulates demand by purchasing meals when the restaurant is already full, for example, then unemployment is unlikely to fall. Instead, prices will rise. There is no way to accommodate the increase in demand without an increase in wages that may induce some reluctant workers to stay in the labor force. When unemployment is above the natural rate, by contrast, increased meal spending by the government raises output by providing jobs for previously unemployed workers. Thus, the natural rate of unemployment provides a rough proxy for an economy operating at or near capacity. 128

Research by the Federal Reserve Bank of San Francisco indicates that "the natural rate [in the United States] has been remarkably stable, ranging between 4.5 and 5.5%." 129We can therefore measure the economy's performance relative to capacity by comparing the observed unemployment rate with the natural rate of approximately 5%. If the unemployment rate significantly exceeds 5% (e.g., hits 7.5% or greater), then the economy is producing below capacity, indicating a shortage of aggregate demand. In such environments, legal rules that promote aggregate demand raise efficiency.

Table 2 presents U.S. unemployment rates and estimates of the natural rate of unemployment from 1990 to the present. 130From 1980-2007, a period known as the "Great Moderation," the economy experienced very short recessions and very few periods of prolonged high unemployment. 131

In this macroeconomic environment, time-invariant legal rules emphasizing optimal performance in expanding economies look defensible (though the efficient rule in recessions deserves some extra weight as described in Sections III.B.1 and III.B.2). A tight unemployment insurance eligibility regime, for example, raises output during the prevailing periods of growth and low unemployment. The tight regime's weaknesses during periods of slack demand are rarely encountered. As a result, strict UI regimes may have been a reasonable proxy for the efficient time-invariant UI rule during the Great Moderation.

Since 2008, however, periods of deficient aggregate demand have become much more pervasive (Table 2). Between January 2008 and June 2013, the economy was either in recession, experiencing unemployment rates over [\*97] 7.5%--significantly above the natural rate of approximately 5%--or both. 132Unemployment again soared well above 7.5% in 2020 because of the recession caused by COVID-19 and looks likely to stay above 7.5% through 2021. 133Thus, aggregate demand has constrained output in the U.S. for just under 50% of the time since the beginning of 2008. Rather than an extraordinary case, deficient aggregate demand now looks like a regular occurrence. Indeed, some economists are concerned that we have entered a period of "secular stagnation" characterized by persistently inadequate aggregate demand causing slow growth, high unemployment, and extraordinarily low interest rates. 134Secular stagnation can persist for decades, as it has in Japan since the late 1980s. 135

In this context, legal rules need to change. If aggregate demand is persistently too low, then the demand-depressing features of a tight UI eligibility regime (or any other legal rule that depresses aggregate demand) persistently reduce output and increase the suffering of the jobless. The efficient time-invariant UI eligibility rule is therefore more expansive today than it was during the Great Moderation.

[\*98]

Table 2: Natural v. Actual Rate of Unemployment

Because the economy appears to have entered a prolonged period of secular stagnation with persistently deficient aggregate demand, time-invariant rules need to place greater emphasis on efficiency in recessions. When economic conditions shift, efficient legal rules need to shift accordingly. Indeed, the combined effects of secular stagnation and higher marginal utility in recessions necessitate time-invariant rules that place more weight on efficiency in recessions than in expansions. The prioritization of performance in recessions should be even more pronounced for legal regimes such as unemployment insurance and bankruptcy that are disproportionately accessed during recessions.

Data and theory thus demand a radical reorientation of law and economics. Time-invariant legal rules that promote aggregate demand in recessions are likely to outperform time-invariant legal rules that perform best when the economy is at capacity. Rather than ignoring macroeconomics and prescribing rules that perform optimally in expansions, law and economics needs to prioritize efficiency in periods of slack aggregate demand. Economic efficiency requires nothing less.

IV. Further Applications

The argument in Sections I-III have explained the efficacy of time-invariant legal rules that account for macroeconomic efficiencies, as well as the familiar microeconomic ones. They have demonstrated the application of [\*99] this argument to the specific area of unemployment eligibility. However, this concept is applicable to numerous domains of legal rule-setting with macroeconomic impacts beyond UI benefits. In this section, we provide another specific example of its applicability in the context of the legal rules governing foreclosure and then briefly touch on two other areas of similar potential--bankruptcy and contract.

A. Foreclosure Law

The economic effects of foreclosure rules vary within the economic cycle, just as the economic effects of unemployment insurance eligibility rules do. In expansions, legal rules that make it harder for creditors to foreclose on a property have higher moral hazard costs. The more difficult the foreclosure, the longer the borrower may enjoy their property rent-free, making the prospect of defaulting on their loan more attractive. Indeed, states with higher bars to foreclosure in the period before the 2007-08 financial crisis had more defaults on mortgages than those without, likely a result of the incentives protracted and difficult foreclosure process create. 136If a difficult and expensive foreclosure process leads to more defaults, then interest rates on mortgages may rise and the local economy may suffer a loss of potential output.

However, in a recession, the narrative shifts. The moral hazard losses associated with allowing debtors to hold onto property after they have defaulted decline because the recession makes it less likely that another person has a higher-value use for the property. In recessions, property values are often in decline and the wealth of equity-holders in real property (and consequently their consumption) is decreasing. In this scenario, the macroeconomic value of a stimulative legal rule becomes increasingly salient. The marginal value of protecting home prices by restricting the supply of foreclosed homes increases in a downturn, while the microeconomic costs of additional defaults remain the same or perhaps even decline. Indeed, the stimulative impact of tighter foreclosure restrictions is borne out empirically. States with looser foreclosure rules between 2007 and 2009 (the peak of the housing crisis in the United States) had smaller declines in housing prices, more new residential construction, and smaller declines in auto sales. 137In other words, their economies performed better.

While the economic effects of foreclosure rules vary cyclically, they are universally time-invariant in statute, meaning they are drafted to remain the same in expansion and recession. 138Practically, however, foreclosure rules [\*100] are not perfectly time-invariant. In recessions, legislatures often enact a temporary softening of foreclosure rules through emergency relief legislation. In response to COVID-19, numerous states altered their regimes to protect homeowners, creating various degrees of foreclosure restrictions and/or moratoria, usually for a few months at most. 139In response to depressed housing market conditions in the aftermath of 2008, various states enacted similar foreclosure moratoria and foreclosure reduction laws. 140Indeed, this tradition of enacting some form of foreclosure protection was evident as early as the Great Depression. 141

The COVID-19 moratoria, rather than tying the duration of the altered legal standard to economic conditions, generally chose to sunset the provisions arbitrarily at the end of the summer of 2020. This decision reflects a view that complete moratoria are not sustainable over the long run because creditors will balk at such an important long-run limitation on their rights.

An efficient time-invariant rule, by contrast, imposes more limited restrictions on foreclosures throughout the business cycle. In recessions, these restrictions stimulate the economy and reduce unemployment, as shown by Mian and Sufi. In expansions, the restrictions limit access to credit--but only marginally. 142On balance, the Mian and Sufi results indicate that foreclosure restrictions are justified throughout the business cycle--they are the efficient time-invariant rule. Such time-invariant restrictions are likely to be more effective--and less anxiety-provoking for borrowers--than reliance on short-term foreclosure moratoria. While foreclosure moratoria have a role as [\*101] a response to extreme economic upheaval, they can only offer temporary respite.

B. Bankruptcy Law and Contract

A more robust definition of efficiency can also improve bankruptcy law.

Efficient bankruptcy law balances two competing interests. 143Discharge of debt in bankruptcy provides borrowers with a fresh start, enabling them to improve their employment prospects, income, and even health. 144But discharge in bankruptcy promotes moral hazard; some borrowers with legitimate capacity to pay will seek bankruptcy protection as a preferred alternative, raising the cost of credit. A similar balance applies to rules that make it difficult for firms to reorganize and restructure and instead force liquidations. Allowing reorganization enables firms to retrench and increase productivity. At the same time, avoiding raises the cost of credit by reducing the penalty of debt default to a firm.

Bankruptcy law balances these competing interests. But the efficient balance likely differs over the business cycle. In expansions, even debt-constrained debtors are likely to have access to employment, reducing the social value of a fresh start. Likewise, the assets of corporations that are liquidated are likely to find alternative uses in expansions. As a result, bankruptcy law in expansions needs to pay considerable attention to the risks associated with too much debt discharge.

The calculus changes in recessions. Bankruptcy liquidations cause devastating spillover effects to local economies, raising unemployment and reducing spending. 145When these effects are exacerbated by the high spending multipliers characteristic of recessions, the costs of liquidation become prohibitive. In recessions, liquidations should be avoided because they are inefficient, reducing employment and output.

Bankruptcy rules should place particularly strong emphasis on their effects in recessions relative to expansions. Bankruptcy filings, like unemployment claims and foreclosures, skyrocket in recessions, meaning that bankruptcy rules are applied disproportionately frequently when the economy is struggling. 146

[\*102] One solution to this variation in efficient bankruptcy law is law that varies with the business cycle. 147As noted above, however, changing law with the business cycle may simply be too complex to manage.

Efficient time-invariant bankruptcy rules offer another solution. Rather than setting bankruptcy rules to optimize the tradeoff between the value of a fresh start and the cost of moral hazard in ordinary economic conditions, bankruptcy discharge and liquidation rules should be more favorable to debtors at all times. Pro-debtor bankruptcy laws decrease efficiency in expansions. But they significantly increase efficiency in downturns. With the stakes in recessions so high, this is a tradeoff worth making.

C. Contract Law: Impracticability

Bankruptcy law and foreclosure law have obvious relevance to recessions. But time-invariant legal rules that account for downturns should prevail in many areas of law. Indeed, some otherwise problematic legal doctrines look more defensible when viewed through the lens of a fluctuating business cycle. Consider, for example, the contract law doctrine of impracticability. This doctrine, sometimes known as impossibility, excuses contractual performance when, for unexpected reasons, performance is impossible or impracticable for the promisor. In the seminal case of Taylor v. Caldwell, for example, a theater owner was excused from a contract to let the theater when the theater burned down before the rental date. 148

Even when performance is difficult or impossible, the promisor can pay damages. The defendant theater owner in Taylor could not reasonably have rented an intact theater to the plaintiff, but it could have paid the plaintiff damages. As a result, impracticability is not an inevitable component of contract law.

From a purely microeconomic perspective, impracticability looks problematic, though not indefensible. 149Impracticability adds complexity to the law. It raises the prospect of inefficient litigation in otherwise straightforward breach of contract cases. Even if a promisor fails to perform a clear contractual obligation, they can often argue that performance was impractical. In some cases (such as Taylor), unexpected difficulties in performance discharge a promisor's obligation. 150In others, they do not. 151

[\*103] Law and economics would prefer to shift the analysis from the muddled impracticability doctrine to a focus on risk bearing. 152If the promisor is a better risk bearer of an unforeseen risk than the promisee, then the promisor should bear the risk. 153In Taylor, the court should have asked which party was better able to bear the risk that the theater would be unusable, the theater owner or the plaintiff. That party should bear the risk, independent of performance's feasibility.

In expansions, the "superior" risk bearer standard appears to outperform impracticability. It is likely easier to ask about a party's risk bearing capacity (access to insurance, capital, etc. .), then to determine whether performance has become merely difficult vs. truly impossible or impracticable. In Taylor, the theater owner might well have had access to fire insurance and therefore be better placed to bear the risk of fire than the plaintiff. 154Contract law would be easier to predict without impracticability.

In recessions, by contrast, the superior risk bearer standard loses traction. Recessions are often caused by events for which no insurance is available. Even businesses with business interruption insurance, for example, lacked coverage for the COVID-19 pandemic, as pandemics were excluded from most types of coverage. 155Companies or individuals with higher net worth may be more exposed to COVID-19 losses than those with fewer contracts, making access to capital another poor measure of COVID-19 risk bearing capacity. Searching for the best risk-bearer of COVID-19 (or the Financial Crisis of 2008 or the Euro Crisis of 2012) therefore looks like an exercise in futility.

Impracticability fares better in recessions. COVID-19 made many contracts impossible to perform. The doctrine of impracticability excuses the promisor from performance. If the promisor has made many such promises, then impracticability may be the only thing standing between the promisor and business devastation. If impracticability mitigated widespread business disruption and litigation in the aftermath of COVID-19's arrival, 156then it enhanced efficiency--at an incredibly fraught time in the U.S. economy.

[\*104] We can therefore understand impracticability as an efficient time-invariant legal rule. Impracticability may impede efficiency during expansions but provide an invaluable "circuit breaker" during recessions. If contract law must apply a single rule over the course of the business cycle, then impracticability plausibly outperforms (on average) the "superior risk bearer" standard offered by law and economics.

V. Conclusion

Since its inception, law and economics has aimed to characterize the legal rules that maximize efficiency. But it has ignored macroeconomics. During the Great Moderation (late 1980s-2007), assuming away macroeconomics was a defensible strategy. Recessions in developed economies (with the important exception of Japan) were rare, short, and relatively light. Legal scholars interested in economics could justifiably focus on designing legal rules that maximized efficiency in economies operating at full capacity.

The last twelve years have changed this calculus. The Great Recession, its prolonged aftermath, and the unprecedented economic collapse caused by COVID-19 suggest we live in a radically different economic environment. Aggregate demand shortfalls, as measured by unemployment rates well above the natural rate, are now more frequent, and the harm they cause much greater. In addition to these explicitly macroeconomic considerations, microeconomic incentives also change substantially during recessions. As a result, legal rules that perform poorly in recessions--as do many of the rules emphasized by law and economics--cannot be characterized as "efficient" any longer.

Indeed, just as the COVID-19 economic era has exposed the importance of robust supply chains capable of functioning during infrequent but intense periods of disruption, 157the longer periods of recession in the 21st century reveal the importance of legal rules which are capable of buttressing periods of economic downturn. In normal logistical periods, extra ICU beds or lower-margin domestic medical manufacturing facilities are a drag on the efficiency of a healthcare system. But in unusual periods of crisis, those resources are incredibly valuable to preserve continuity in social systems [\*105] and healthcare operations. On net, the drag of carrying minor inefficiency is far less important than the utility in emergencies. The overhanging periods of unemployment and reduced aggregate demand resulting from increasingly frequent recessions call for an analogous view of legal rulemaking, one that explicitly considers preserving stimulative capacity for emergencies even during periods of economic growth.

#### Balance sheets, interest, anticipated fiscal stimulus, and credit ratings make current debt loads sustainable---spreads are 38 basis points below decade average.

Rainier Harris 1/10, Bloomberg News Reporter, Columbia University English graduate, Scholastic Art & Writing Awards winner, Media for a Just Society winner, Transom Specials finalist, "More Bonds Are Teetering on the Brink of Junk: Credit Weekly," Bloomberg, January 10, 2026 at 3:00 PM EST, https://www.bloomberg.com/news/articles/2026-01-10/more-bonds-are-teetering-on-the-brink-of-junk-credit-weekly?embedded-checkout=true

Beneath the calm surface of the US corporate bond market, there are worrying signs about companies that could lose their investment-grade status.

The first full week of the year has been one of the busiest for US corporate debt sales on record, and risk premiums stayed low even amid heavy issuance. But the amount of bonds teetering on the brink of junk surged last year, according to JPMorgan Chase & Co.

Around $63 billion of US corporate bonds in the high-grade universe have a high-yield rating from one bond grader, a BBB- rating from others, and at least one negative outlook, according to the bank’s review based on ratings for debt in its high-grade US index. That figure was $37 billion at the end of 2024, JPMorgan strategists wrote.

“As companies continue to refinance debt, the pressure on their balance sheets from rising interest expense is growing,” said Nathaniel Rosenbaum, a US high-grade credit strategist at JPMorgan. “That, in turn, does put a little bit more ratings pressure on weaker credits.”

More Bonds Cut to Junk Than Made High Grade

JPMorgan doesn’t anticipate market turmoil anytime soon. Demand from investors is still strong, and earnings will probably be relatively strong in the coming weeks, leaving spreads relatively rangebound.

But there are still risks in credit. About $55 billion of US corporate bonds migrated from investment-grade to junk status in 2025, becoming “fallen angels,” according to JPMorgan. That far exceeds last year’s $10 billion of “rising stars,” or firms elevated to high-grade. And the trend is set to continue, the strategists say.

BBB- debt is just 7.7% of JPMorgan’s US high-grade corporate index, a record low share. But a relatively high amount of debt is susceptible to being cut to junk. Companies typically see their spreads blow out when they lose their high-grade status, as the universe of junk bond investors is much smaller in dollar terms than investment-grade.

There are reasons to be a little more concerned about credit risk now: Broad measures of indebtedness have been creeping higher relative to earnings, fueled by rising yields after the pandemic, a flood of spending on artificial intelligence, and acquisitions.

“If you look underneath the hood there are underlying signs of weakening in credit profiles,” said Zachary Griffiths, head of US investment grade and macro strategy at CreditSights Inc.

But in the near term, demand for bonds has been strong. And fiscal stimulus from some provisions of the One Big Beautiful Bill Act could help keep consumer sentiment “a little more buoyant,” Griffiths said.

Generally, money manager have been less worried about credit risk for months. Investment-grade spreads have spent much of this week averaging 0.78 percentage point, or 78 basis points, and haven’t risen above 85 basis points since June, according to Bloomberg index data. The mean for the last decade is closer to 116 basis points.

#### Yields are sustainable but fragile---institutional investors are hawk-eyed for any unexpected risk adjustment.

LPL Research 12/22, "Navigating Neutral: Fed Policy Key for Fixed Income Markets in 2026," LPL Financial LLC, 12/22/2025, https://www.lpl.com/research/weekly-market-commentary/navigating-neutral-fed-policy-key-for-fixed-income-markets-in-2026.html

2025 was a good year for most fixed income markets but we’re approaching 2026 with caution. All-in yields are still attractive for most markets, but spreads (the additional compensation for owning riskier debt) are low, suggesting investors aren’t getting paid to take on a lot of credit risk right now. Federal Reserve (Fed) policy will be key, though, in determining returns in 2026, but with a new Chair expected at the helm by May, rate volatility could remain elevated. Each year, fixed income investors should reasonably expect coupon-type returns, plus or minus price appreciation based upon changing interest rates. But, with our expectations of a rangebound rate environment next year, returns will likely be primarily income-driven. Here we feature LPL Research’s fixed income market outlook for 2026, taken from our Outlook 2026: The Policy Engine.

LPL Research 2026 Fixed Income Market Outlook

Our 2026 fixed income outlook calls for a rangebound rate environment, cautious Fed policy, and a modest increase in spreads within corporate credit markets. Markets expect the Fed to lower the fed funds rate to around 3%, likely keeping the 10-year Treasury yield between 3.75% and 4.25%. Inflation remains above target, limiting aggressive cuts, so returns may be income-driven. Corporate credit spreads remain historically tight despite rising idiosyncratic risks, including defaults and refinancing challenges, which should pressure spreads higher, particularly if Treasury yields fall towards the low end of our expected range. We believe investors should maintain neutral duration, favor high-quality bonds over cash as yields decline, and approach high yield and leveraged loans cautiously. Agency mortgage-backed securities (MBS) and investment-grade corporates should outperform Treasuries, while riskier sectors face constrained upside, in our view.

Fed Policy, r-Star, and the Outlook for Long-Term Rates

If the Fed maintains a “slightly restrictive” stance, as it has suggested, the 10-year yield may remain elevated relative to historical neutral levels. However, any shift in the Fed’s tone — whether toward easing or a more neutral posture — could prompt a recalibration in market pricing, particularly if inflation continues to moderate and growth slows. Ultimately, our rate outlook reflects a balance between what the Fed is likely to do and what markets have already priced in, with the neutral rate serving as a key reference point in that assessment.

The neutral rate of interest, often referred to as r-star (r\*), represents the theoretical interest rate at which monetary policy neither stimulates nor restricts economic growth when the economy operates at full employment with stable inflation. This equilibrium concept, while unobservable, plays a crucial role in guiding Fed policy decisions and profoundly influences Treasury market dynamics.

Estimates of r-star have declined significantly over recent decades, falling from around 4–5% in the pre-global financial crisis era to current estimates ranging between 2.5–3.5% in nominal terms, though considerable uncertainty surrounds these figures. According to the recently released December dot plot, there are 11 different views within the 19 member Federal Market Open Committee (FOMC) ranging from 2.6% to 3.9%. With inflationary pressures falling from peak levels but still meaningfully above the central bank’s 2% objective, the Fed has signaled its intention to gradually reduce rates toward a “slightly restrictive” stance rather than immediately returning to neutral.

Given the uncertainty about what the neutral rate is, though, there are several differing views within the committee, ranging from zero to four expected cuts in 2026. Importantly, market pricing suggests that the Fed’s rate-cutting campaign could end by the second half of 2026 with a trough rate of around 3%. If market pricing is right (and given the historical 1.0% average non-recessionary spread between the 10-year and the fed funds rate, as we noted in last year’s 2025 Outlook), it’s likely the 10-year Treasury yield will remain around 4.0%. To get a lower 10-year Treasury yield, market pricing would need to show an accommodative monetary policy stance with the fed funds rate meaningfully below 3%. And while we expect the economy to slow into the first part of 2026 before rebounding later in the year, with inflationary pressures still above the 2% target, it’s unlikely the Fed will cut rates to levels that would take the 10-year Treasury much lower. Thus, we think a 3.75–4.25% 10-year Treasury yield range for 2026 is appropriate, at least for now. Additionally, with upcoming changes to the FOMC — expected to adopt a more dovish stance following Chairman Powell’s departure in May and the Trump Administration’s appointment of his successor — market expectations will likely shift toward deeper rate cuts than currently priced in. This dynamic should help prevent the 10-year yield from drifting meaningfully higher (absent a reacceleration of inflationary pressures, which isn’t our base case). As such, we don’t think right now is a good time to overweight or underweight duration (interest rate sensitivity) in fixed income portfolios. A neutral duration relative to benchmarks is, in our view, still appropriate. And for those investors who want to own bonds for income, the belly of the curve (out to 5-years) remains attractive.

Fed Balance Sheet in Focus in 2026

While rate cuts will dominate fixed income discussions in 2026, the Fed’s balance sheet strategy is also worth watching. Following its December meeting, the Fed launched temporary reserve management purchases (RMPs), buying roughly $40 billion in T-bills to maintain “ample” reserves and avoid short-term funding stress. This move is not quantitative easing (QE) per se — unlike QE, which targets longer-maturity Treasuries and MBS to lower long-term rates and stimulate growth — RMPs focus on short-term T-bills and have minimal impact on the yield curve. Purchases are expected to taper after a few months, though history suggests such programs often linger longer than planned. Nonetheless, while not technically QE, Fed liquidity reduces the chances of short-term funding market flare-ups, which have increased as of late. Moreover, the Fed is once again reinforcing the narrative that they will provide a countercyclical response to market stresses, which is ultimately good for financial markets, including the fixed income markets.

The October meeting minutes added another layer of interest, though — the Fed intends to gradually align its System Open Market Account (SOMA) portfolio with the Treasury’s issuance mix. Currently, SOMA is overweight long-duration bonds, with 10+ year maturities making up 38% of holdings versus 18% in the broader market. Going forward, the Fed plans to allocate more toward shorter maturities, reflecting Treasury’s preference for issuing debt in the two- to seven-year range. If implemented, this shift could reduce support for longer-term Treasuries, adding to volatility in the 10-year and beyond — especially as global demand for duration remains weak.

In short, while the balance sheet is no longer shrinking, its evolving composition could influence market dynamics. A shorter-duration SOMA portfolio combined with temporary liquidity operations underscores the Fed’s balancing act: easing policy without reigniting inflation, while ensuring funding markets remain stable. For investors, this means the long end of the curve may stay volatile even as short-term rates decline.

Credit View: Cockroaches, Canaries, and Zombies?

In corporate credit markets, early indicators of stress often emerge subtly — not through dramatic dislocations, but through subtle shifts in borrower behavior, isolated defaults, and nuanced changes in market dynamics. Much like the canaries once used in coal mines to detect invisible threats, corporate credit markets often serve as early warning signals for broader economic vulnerabilities.

While investment-grade bonds continue to benefit from strong technicals and steady demand, the picture is less reassuring for lower-rated issuers. Recent defaults and a rise in payment-in-kind activity suggest that the leveraged credit space is under pressure. J.P. Morgan CEO Jamie Dimon’s recent analogy comparing credit events to cockroaches — where one sighting implies many more — feels particularly apt. The public collapse late in 2025 of companies like Saks, New Fortress Energy, and Tricolor Holdings have inflicted steep losses on investors, raising concerns that these aren’t isolated incidents.

Data from Cornerstone Research underscores the trend: the first half of 2025 saw a record number of “mega” bankruptcies, with large-company filings up 81% over the long-term average. The refinancing wall looming in 2026/2027 poses additional risks, especially for companies that issued debt during the ultra-low-rate era and now face significantly higher rollover costs.

Moreover, the growing tally of “zombie companies” — mostly smaller cap companies with higher interest rate costs than income — adds to the potential for additional idiosyncratic risks within corporate credit markets. With limited relief in sight from tariffs or interest rates, these firms may face restructuring or default unless they can repair their balance sheets.

Despite these challenges, the broader credit market is not in crisis, nor do we think we are on the cusp of systemic credit issues. Our issue is with market valuations. Credit spreads, or the additional compensation for owning risky debt, remain historically tight given these rising idiosyncratic risks. Both high-grade and high-yield companies currently enjoy spreads at or near the lowest levels over the past 20 years. Only CCC-rated companies, which are the ones most prone to default, have spreads above recent secular tights. But even these spreads are only in the 29th percentile versus history, meaning spreads for these companies have been higher 71% of the time over the past 20 years. Given the increased risks but still solid economic growth, though, we expect spreads to widen somewhat from current levels but to remain below long-term averages.

A graph of a credit market

Description automatically generated

Our main point here is that corporate credit investors should remain vigilant. While yields may appear attractive, spreads remain below longer-term averages and are arguably not providing sufficient compensation to take on these emerging credit risks. Active portfolio management and strategies that are unwedded to corporate bond indexes may be able to help navigate these issues.

To be fair, spreads can stay tight for long periods of time, with the 1990s a prime example of expensive credit markets that lasted for years between spread-widening events. Nonetheless, investors should remain cautious, balancing the appeal of attractive yields with a clear-eyed understanding of the underlying risks. As always, diversification, discipline, and a long-term perspective will be key to weathering any turbulence that may lie ahead. Corporate credit markets are still generally well-priced, in our opinion, so we don’t think investors are being appropriately compensated given current (and growing) risks. Securitized markets — residential MBS, asset-backed securities, and select commercial mortgage-backed securities — remain attractive, in our view.

#### Supply and demand for corporate debt are still deep.

Nicholas Elfner 1/6, Co-Head of Research, Breckinridge Capital Advisors, "Q1 2026 Corporate Bond Market Outlook," Corporate Commentary, 01/06/2026, https://www.breckinridge.com/insights/details/q1-2026-corporate-bond-market-outlook/

We expect stable credit fundamentals in 2026. Agency rating actions have continued with positive bias.11 Credit is supported by solid revenue growth and cost discipline, driving margin improvement and steady debt metrics. However, mergers and acquisitions (M&A) and capital expenditures (cap ex) are each rising notably and may strain credit metrics if debt funding is used prodigiously. Idiosyncratic events in sub-prime and private credit are risks.

Our macro-outlook for 2026 is for moderate real economic growth. Growth has been driven by spending from high income households and a boost in productivity from AI related cap ex. The Breckinridge Investment Committee anticipates one additional rate cut in 2026, with the 10-year Treasury yield expected to trade between 4.0 percent and 4.5 percent. Payroll growth slowed down in the fourth quarter of 2025, and the Federal Reserve’s (Fed’s) view is clear that the labor market has softened sufficiently to warrant additional monetary accommodation to stimulate demand.

We see tactical opportunities in short--to-intermediate-term corporates on reasonable credit curves and breakeven spreads.12 We expect more 30-year issuance, which may present opportunities. Relative value should emerge across capital structures in Banks, Insurers, and Utilities as these sectors may see an increase in hybrid capital supply. Above-average yields, steady investor demand, and stable credit fundamentals are counterbalanced by tight spreads, rising new issue supply, cap ex, and M&A, driving a modest overweight to the corporate sector with a defensive posture.

Valuations: Sector Dispersion and Opportunities

IG corporate bond spreads, as measured by the Index, tightened by two basis points (bps) during the year, ending the fourth quarter at an option-adjusted spread (OAS) of 78bps.13 Spreads are rich, in the 2nd percentile over a 20-year lookback. Compressed valuations argue for a defensive stance entering 2026. The yield-to-worst (YTW) for the Index was 4.81 percent on December 31st. An IG YTW in the 66th percentile, since 2005, may support investor demand via domestic and foreign funds flows.14

Long corporates (-4bps) modestly outperformed intermediate corporates (-2bps) on a spread basis, as credit curves flattened slightly. There was dispersion across industries, with tighter spreads in sectors such as Healthcare (-13bps), Banking (-9bps) and Capital Goods (-8bps), partially offset by wider spreads in Finance (+30bps), Technology (+11bps), and Utilities (+2bps) for the full year.

Quality spreads widened slightly during the year, with the A Index (+64bps) 4bps tighter and the BBB Index (+97bps) unchanged on the year. The spread differential of 33bps is tight relative to recent history with a Z-Score15 of negative 1.5 compared to the average over the last five years.16 The spread/yield conundrum reminds us of prior periods (1995-1997 and 2004-2006), with relatively high risk-free rates and tight spreads that lasted for a few years. This relationship can persist until a financial shock and/or a sharply weakening economy prompts a material drop in the fed funds rate and Treasury yields that correspond with a higher credit risk premium.

Technicals: Supply Rising, Demand Still Deep

Entering 2026, we think bond supply may accelerate on rising cap ex and M&A activity. IG gross bond supply was $321 billion in the fourth quarter, and $1.82 trillion in 2025. On a net basis, after redemptions, issuance was $86 billion and $548 billion, respectively.17

We expect to see more supply in longer-maturity corporate bonds this year, which may present opportunities, particularly for yield-oriented buyers. One investment bank is estimating gross and net issuance of $2.25 trillion and $1.0 trillion in 2026, respectively, which would eclipse the previous gross record of $2.1 trillion in 2020.18

We think fund flows can remain healthy while IG supply may accelerate on rising cap ex and M&A activity. Inflows into taxable bond funds and exchange-traded funds (ETFs) were $156 billion in the fourth quarter and $490 billion in 2025.19 Foreign investor net corporate purchases were $83 billion for the three months and $304 billion for the 12 months through October.20

On the supply side, we expect large issuance from the Technology and Utility sectors to be somewhat counterbalanced by less supply from the Banking sector.

Utilities may also materially increase their borrowing in the corporate bond market in 2026. Utility cap ex grew from $104 billion in 2015 to $208 billion in 2025 and may reach $248 billion in 2029.21 Cap ex will bring a wave of new debt issuance.22

In the fourth quarter, U.S. Bank regulators issued a final rule to modify certain regulatory capital standards including changes to the Supplementary Leverage Ratio (SLR) that will likely reduce holding company long-term debt (LTD) issuance needs.23 These regulatory changes could reduce external LTD requirement by over $150 billion and Total Loss Absorbing Capital (TLAC) needs by nearly $100 billion.24 Higher surplus LTD suggests reduced refinancing and U.S. Bank net supply may be sharply lower, potentially down 40 percent in 2026.25 We view lower supply as a supportive technical for Bank bond spreads.

Fundamentals: Stable, With Pockets to Watch

We see stable credit fundamentals for Industrials in 2026. Non-financial credit metrics were stable in the last quarter and indeed over the past few years.26 Credit is supported by solid revenue growth and cost discipline, which are driving margin improvement and steady debt metrics.

### Chemicals Impact---I/L

#### Bond financing key to the chemical industry---it's on the brink so the maturity wall is an apocalyptic threat.

Rainer Bizenberger et al. 25, Bizenberger is Partner & Managing Director at AlixPartners; Theurer is at AlixPartners; Tauber is at AlixPartners; Baiker is Partner at AlixPartners; EL Otmani is at AlixPartners, CFA, FRM, "Approaching the Maturity Wall: Debt Refinancing Pressures in DACH," AlixPartners, October 2025, https://www.alixpartners.com/media/t00d553q/alixpartners\_debt-refinancing-pressures-in-dach-2025.pdf

Debt refinancing in the DACH region is settling into a new equilibrium, where short-term funding has become slightly cheaper, while long-dated interest benchmarks remain elevated, keeping strategic refinancing restrictive and forcing issuers to manage a compressed maturity wall. Since May, an additional €36 billion—comprising both refinancings and new-money deals—has been pushed out to 2029, easing the near term while extending duration at higher coupons. Refinancing access remains two-speed: investment-grade names clear on acceptable terms, whereas unrated and sub-investmentgrade borrowers face stricter terms, widerranging covenants, and higher all-in costs.

Primary markets are open, but selective. Leveraged-loan issuance rose to €270 billion in H1 2025 (refinancing and repricing led), highyield totaled €39 billion, and banks are re-engaging only gradually. Private debt remains a core pillar, with €85 billion of DACH-focused capital, filling a gap as banks selectively retreat from higher-risk segments.

This report delves deeply into one sector in the DACH region where refinancing pressures are severe. The chemicals industry faces persistent input-cost disadvantages, global overcapacity, and a €3.4 billion maturity wall next year, partially resulting in liquidity stress and repricing risk. These developments have led to a deterioration in key credit metrics over the past three years, necessitating proactive measures to support a successful refinancing.

Execution excellence now depends on liquidity discipline, working capital release, tangible cost/margin actions, and transparent stakeholder management to secure terms, extend runways, and restore resilience.

Corporate debt maturities

The latest snapshot of corporate debt maturities in the DACH region reveals that €32 billion is due for repayment or refinancing this year. About three-quarters of this total consists of non-rated debt, while approximately one-fifth is investment-grade, with the remainder in non-investment-grade instruments. Importantly, under going-concern requirements, financing typically needs to be refinanced no later than 12 months before maturity. That implies much of the €32 billion due in 2025 has likely already been addressed, whereas the €139 billion maturing in 2026 is the real challenge now in active execution. As attention shifts to the 2026 maturity wall, lenders are likely to apply closer scrutiny and tighter terms—especially for unrated and sub-investment-grade borrowers. Moreover, since our May report, an additional €36 billion—comprising both refinancings and new-money deals—has been shifted to 2029 maturities (lifting the 2029 stack from €89 billion in our May 2025 report to €125 billion in this October report).

[FIGURE 1 OMITTED]

In the DACH region, interest rate dynamics reveal a mixed picture (see Figure 2). Short-term benchmarks, such as Euribor 3M, have retreated noticeably (by approximately -1.9%) since early 2024, as markets adjusted to the ECB's policy rate cuts against the backdrop of moderating inflation and weakening growth momentum. By contrast, long-term rates such as the German 10-Year Government Bond Yield have declined modestly (by approximately -0.8%) during the same period and remain elevated—with slight upward trend in recent months (by approximately +0.5% in 2025 YTD)—due to structural inflation risks, fiscal expansion, and global yield pressures.

For corporates, this divergence provides only partial relief. While working capital financing and shorterdated maturities have become somewhat less costly, long-term German government bond yields remain elevated with limited signs of a sustained decline. The result is a persistently restrictive funding environment for strategic or large-scale investments. Therefore, access to liquidity remains uneven: investment-grade issuers can still tap markets at manageable costs, whereas unrated and sub-investment-grade borrowers remain exposed to tighter credit conditions despite the prospect of monetary policy easing. In addition, BB– AAA credit spreads have narrowed by approximately 50 basis points, broadly in parallel across the standard corporate maturity spectrum since January 2024. This pattern suggests that underlying risk profiles have remained essentially unchanged over the period.

[FIGURE 2 OMITTED]

Corporate insolvencies

DACH corporate insolvencies continue to rise. Germany—leading in absolute numbers—recorded an estimated 11,900 corporate insolvencies in the first half-year, the highest level in a decade. That is up 9.4% from the same period last year (10,880 cases), after a 28.5% surge the year before. Despite the current economic backdrop, insolvencies remain well below levels seen during and after the Dot-com bubble (~39,000 cases in 2003-04) and the Global Financial Crisis (~33,000 cases in 2009). In contrast, during the COVID-19 pandemic, insolvency filings were temporarily suppressed by extensive government support measures (e.g., grants, loan guarantees, shorttime work schemes, and temporary moratoria), keeping insolvency numbers artificially low.

[FIGURE 3 OMITTED]

Insolvency dynamics across Germany highlight both cyclical and structural strains in key industries.

Manufacturing saw filings rise significantly by 17.5% to 940 in H1 2025 due to weak output, high energy and input costs, softer external demand, and trade frictions, as well as transition pressures in some dominating industries (automotive and chemicals).

Retail also recorded an above-average rise of 13.8% (2,220 cases), reflecting subdued consumer spending and intense competition in online retail. Services (a 9.1% increase) was the dominant sector with 6,960 cases, constituting around 58.5% of all German corporate insolvencies. The increase reflects cooling demand, persistent cost burdens (notably wages and core inflation), and regulatory frictions. In construction (1,780 cases), the increase was comparatively small at 1.7%.

This modest increase likely reflects an offset from order backlogs and public works, and some easing in input costs from peak levels.

Across Austria and Switzerland, the patterns are similar: Austria is up 6% to 1,990 cases in H1 2025 compared with H1 2024, while Switzerland records a steep increase, up 21% to 3,648. Switzerland’s surge reflects not only the economic situation but is also directly linked to a legislative change that came into effect on 1 January 2025. Specifically, the Federal Debt Enforcement and Bankruptcy Act (SchKG) was amended so that public creditors are now obliged to consistently enforce outstanding claims against companies by initiating bankruptcy proceedings. At the same time, two external pressures are intensifying conditions: the appreciating Swiss franc, which erodes export competitiveness, and the newly introduced 50% U.S. tariffs, the effects of which are expected to materialize from the second half of the year.

LEVERAGED LOANS

In H1 2025, leveraged loan issuance in the DACH region reached €270 billion, up from €234 billion in H1 2024. Activity was primarily driven by refinancing and amend-and-extend, as borrowers adjusted capital structures amid shifting interest rate expectations, with only limited new-money issuance, mainly from a few dividend recapitalizations.

LBO activity remained subdued, but a growing M&A pipeline and consistent refinancing needs support a cautiously optimistic outlook for H2. After a slow start to the year, particularly in Q1, M&A activity—especially within private equity—is expected to pick up as exit backlogs begin to clear. With processes now gaining momentum in H2 2025, some of the associated financing may well extend into early 2026.

However, continued write-offs in real estate loan portfolios have weakened banks’ balance sheets, limiting lending capacity. As a result, credit conditions remain tight, funding costs are elevated, and underwriting standards are more selective—all of which may weigh on issuance in the second half of the year.

HIGH-YIELD BONDS

High-yield issuance in the DACH region reached €39 billion in H1 2025, up from €35 billion in the same period last year. This continues the recovery trend from 2024, when total volumes hit €83 billion—up from €67 billion in 2023 and €54 billion in 2022.

The rebound reflects growing market stability after two years of subdued activity, particularly in Germany, where rising interest rates had significantly curtailed issuance. Refinancing remains the dominant theme, as companies seek to proactively manage upcoming maturities. However, improved earnings visibility and reduced rate volatility are supporting a selective return of opportunistic and M&A-driven issuance. Tighter bank lending continues to push sub-investment-grade borrowers toward the capital markets, reinforcing high-yield’s role as a key funding channel. While the market tone is constructive, investors remain highly selective, favoring issuers with resilient credit profiles and clear refinancing strategies.

[FIGURE 4 OMITTED]

PRIVATE DEBT

Once a niche product, private debt has become a mainstream source of financing across the DACH region and now serves as a cornerstone of mid-market funding. Amid ongoing macroeconomic uncertainty and shifting regulatory frameworks, it offers borrowers speed, flexibility, and tailored capital solutions. This transformation is underpinned by robust growth in private debt funds focused on the DACH region, which surged from €36 billion in 2020 to €85 billion in H1 2025. Institutional investors have driven this expansion, attracted by the asset class's potential for yield, downside protection, and diversification.

The declining engagement of traditional banks in the mid-market lending market is largely driven by increased credit risks, limited collateral, and less standardized borrower profiles and requirements. Coupled with heightened regulatory pressure and the capital intensity of leveraged loans under Basel IV, banks face both financial and operational constraints in this space.

Private debt funds, supported by abundant dry powder and a growing appetite for direct lending, are stepping in to fill the resulting gap. They are uniquely positioned to provide certainty of execution and more flexible, tailored financing solutions that regulated banks are unable or unwilling to offer.

With private equity sponsors accelerating efforts to address a pipeline of planned disposals, demand for acquisition and growth financing is expected to rise sharply. This trend also aligns directly with the strengths of private debt lenders, who are wellpositioned to support both sponsor-backed and nonsponsor-backed deals with customized capital solutions.

Looking ahead, private debt is poised to remain a core pillar of the DACH region’s mid-market financing ecosystem. With strong market fundamentals, a supportive regulatory backdrop, and sustained investor interest, private debt funds that deliver speed and structuring expertise can play an even more prominent role in shaping the region’s corporate finance landscape.

[FIGURE 5 OMITTED]

Chemicals industry deep dive

Credit conditions in the DACH chemicals sector are tightening, as elevated leverage meets softening fundamentals. A prolonged period of inexpensive funding enabled capacity expansion, portfolio moves (e.g., Covestro-DSM Resins & Functional Materials, Merck KGaA-Versum Materials, Sika-Parex), and accelerated energy-transition capex. With refinancing costs still elevated, debt service is absorbing a larger share of operating cash flow, just as margins are compressing. At the same time, sizable capex programs—which have become structurally more expensive in recent years, in part due to inflationary pressures—are consuming a significant portion of EBITDA and cash flow, further constraining financial flexibility.

Structural cost disadvantages are most acute in energy and feedstocks. Producers in Germany, Austria, and Switzerland continue to face structurally higher natural gas and electricity prices than their peers in North America or the Middle East, despite a moderation since the 2022 peaks.

Some chemical companies in the DACH region have responded to this development by scaling back production and selectively relocating output (e.g., capacity reductions at BASF’s Ludwigshafen site). However, these costs do not only compress margin— they also amplify working-capital volatility (inventory swings, pass-through lags) and can trigger margin calls on energy hedges, tightening day-to-day liquidity and elevating reliance on short-term credit lines and supply-chain finance.

Larger, integrated groups can partly offset this via scale, site networks, and global treasury pools; midcap and specialty players, with narrower product breadth and less diversified cash flows, remain disproportionately exposed.

Beyond cost factors, global overcapacity created by extensive capacity additions across Asia (especially China) is reshaping the competitive landscape. Surpluses in commodity chains (olefins, PE/PP, aromatics) and several intermediates, with selective spillovers into specialties (e.g., polysilicon, silicones), are pressuring prices and denting export margins. For the DACH region—where export orientation is pronounced and Germany is the world’s #3 chemical exporter¹—weaker pricing power feeds directly into key credit metrics used by lenders and rating agencies (net/total leverage, interest coverage). These indicators have deteriorated materially since 2022, with net leverage reaching ~3.1x in 2024.

[FIGURE 6 OMITTED]

Against this backdrop, the sector faces a significant maturity wall, with about €3.4 billion to refinance next year. For selected issuers, this can result in liquidity stress and repricing risk, likely forcing refinancing at wider spreads. If margins continue to compress, issuers might gravitate toward secured structures and shorter maturities and tightening rating headroom. For issuers with limited ratings headroom, liquidity runways might increasingly rely on committed, undrawn revolving credit facilities (RFCs), receivables securitization/factoring capacity, and the depth of euro (and, for Swiss names, CHF) markets; when euro market conditions are volatile, some might be turning to U.S. private placements (USPP) or private credit to diversify access to term funding and investor bases.

[FIGURE 7 OMITTED]

Elevated leverage, persistent input-cost pressures, and Asian overcapacity point to a more adverse phase in the credit cycle. Decarbonization investment is absorbing liquidity, while public support mechanisms (e.g., up-front CAPEX grants, CCfD3/ “Klimaschutzverträge” in Germany, IPCEI4/Hydrogen programs) are typically milestone-based and back-ended, limiting near-term relief. For smaller or already constrained issuers, refinancing risk remains elevated, increasing the likelihood of liability-management transactions such as amend-and-extend processes and collateral enhancements/secured refinancing—often at higher funding costs. This raises credit-profile volatility and can subordinate unsecured creditors, incrementally increasing default risk.

Resilience will depend on disciplined capital allocation, credible deleveraging (including portfolio rationalization), and rigorous downside testing of covenant and liquidity headroom under rate shocks and 5-10% EBITDA declines. Issuers are more likely to preserve market access on favorable terms by focusing on three priorities: (i) optimizing the funding mix across EUR, USD, and CHF while maintaining an appropriate balance between public and private markets; (ii) employing secured structures where warranted and extending maturities ahead of peak refinancing years; and (iii) enhancing disclosure quality—moderating aggressive add-backs and providing clear guidance on hedging policies and the timing of subsidies.

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### Key to Econ---2NC

#### Credit tail risks would nuke the economy---it's on-course but fragile.

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Key Takeaways

Our Credit Cycle Indicators--globally and across most regions--continue to decline. Tail risks could upend supportive financing conditions and compound a credit correction.

Corporates in the technology sector are driving spending and investment, while those in tariff-exposed niches or are lower-rated remain vulnerable to trade policy swings and margin squeezes.

Household sentiment may stay tepid as living costs continue to bite and employment strains remain, especially for lower-income cohorts. This could dampen consumption and households' appetite and capacity to take on new debt.

What Are The Credit Cycle Indicators?

S&P Global Ratings' Credit Cycle Indicators (CCIs) monitor buildups and corrections in leverage and asset prices over the medium term, as well as financing conditions. They do not directly capture or predict shifts in government policies, geopolitics, or trade, which are heightened risk factors in the global economy today. Nevertheless, we use these tools to gauge developments and turning points in the credit cycle as part of our holistic analysis of economic and credit conditions.

For more details about S&P Global Ratings' CCI, see "White Paper: Introducing Our Credit Cycle Indicator," published June 26, 2022.

Global

Tail risks could compound credit correction pains

The global Credit Cycle Indicator (CCI) is declining as most regional CCIs (except the eurozone's) ride a downturn. Entering 2026, geopolitical swings and tail risks (such as a sharp and unexpected market repricing event) may compound volatility and exacerbate the unevenness in the credit landscape. This could upend supportive financing conditions, in which borrowers have pushed out maturities and face lower refinancing risk.

Household leverage is picking up, underlined by the rise in the global household subindicator, albeit from a low base. Even so, household spending could remain constrained by cautious sentiment, especially among lower-income cohorts where employment prospects may soften. A high cost of living, despite easing headline inflation, adds to strains.

The corporate subindicator is showing signs of an uptick. This momentum may continue amid rising capital expenditure and record equity performances in the technology sector on the AI and data center boom. For rated issuers, healthy earnings, the ability to cope with tariffs, and falling interest rates should continue to provide support. Even so, tail risks could materialize, and the ensuing volatility may weigh on investment decisions across the corporate sector.

[CHART 1 OMITTED]

Asia

Asia's credit storyline continues to chart a correction

China: The persistent fall in the China CCI points to a deepening credit correction. Easing trade tension between China and the U.S. could provide some relief for Chinese manufacturers. However, the country's export outperformance (from the earlier "frontloading" of exports) could soften, as the lagged impact of trade restrictions starts to materialize. Meanwhile, the country's sticky property woes come amid limited large-scale policy stimulus.

Household sentiment remains weak amid softening employment prospects. The household subindicator may remain subdued as household spending and borrowing appetite stay tepid. Meanwhile, the momentum in corporate borrowing has moderated as firms stay prudent on spending and curb capital expenditure. With "anti-involution" policies starting to take effect, some easing of the downward pressure on prices should support profitability for manufacturers. Even so, the earlier debt buildup remains substantial; some firms could struggle to unwind their debt burdens. The country's corporate debt-to-GDP stands at 142% as of the second quarter 2025.

Amid the country's strategic push toward advanced manufacturing, infrastructure and innovation, banks may be called upon to support lending to these sectors. However, more selective lending could ensue for riskier pockets. This includes micro and small to midsize enterprises which are more exposed to tariff pain and have increasingly accounted for more of banks' loan portfolios. This could hurt banks' capital and earnings, and crimp their appetite to lend to this cohort.

[CHART 2 OMITTED]

Japan: The Japan CCI continues to decline as growth outpaces leveraging, but the downward momentum seems to be moderating. We expect the Bank of Japan to keep its gradual policy rate hikes in coming years, raising domestic borrowing costs that may hit some cohorts more sharply. The narrower gap between Japanese and overseas interest rates may prompt more overseas funding by Japanese corporates.

Recent agreements between Japan and the U.S. on Japanese corporate investment in the U.S., may mean more capital raising by Japanese firms to fund overseas expansion and cross-border activity. This also comes as businesses seek to increase sales to foreign markets amid muted domestic demand. As Japanese corporates tap more into offshore borrowing, this could raise their exposure to foreign-exchange risk if they do not have enough foreign-denominated income, lack a hedging strategy, or face poor performance of overseas activities.

Amid easing inflation, lower cost of living pressures could ease stress on household balance sheets. However, household sentiment could remain weak amid still-softening real wages and macro uncertainties, keeping discretionary consumption subdued. While Japanese households have a large collective savings pool, the distribution may be uneven across income cohorts. Of which, lower-income groups face outsized pains.

[CHART 3 OMITTED]

Rest of Asia: Like China and Japan, the rest of Asia is observing a downturn in the CCI, which underlines a potential credit correction in the next six to 10 quarters. This is despite supportive financing conditions and an improving growth outlook from easing trade tensions with the U.S. Rising tail risks (e.g., around unexpected geopolitical events and equity rally snaps) could exacerbate market volatility and sour sentiment, entailing a sharper credit correction.

The corporate subindicator continues to turn upward, supported by equity gains in markets such as Hong Kong, and rising corporate indebtedness in places such as India and Malaysia. Amid lagged tariff effects, Asian manufacturers may maintain borrowing to cope with cash flow strains; the upward momentum in corporate debt may continue in some markets.

The household outlook is mixed across markets. In Thailand, households are deleveraging, but their debt stock is high, underlining vulnerabilities. Meanwhile, household indebtedness is rising in markets such as Hong Kong and Malaysia; a budding property market recovery in the former may improve sentiment and support transactions, repairing demand for housing loans.

[CHART 4 OMITTED]

Emerging Markets

Financing conditions drive the expected credit slowdown

Peaks and troughs in the CCI tend to lead credit stresses and recoveries within six to 10 quarters. The CCI declined again, while remaining 0.1 standard deviations above its long-term trend. It is the second consecutive decline in the indicator after its relative peak, reached in the fourth quarter of 2024, at 0.6 standard deviations, suggesting a potential credit correction could manifest around the second half of 2026. Like the previous update, relatively tighter financing conditions contributed to the downward movement, on heightened volatility stemming from unpredictable U.S. trade policy in the first half of 2025. Both the household and corporate subindicators displayed muted movements, signaling a stable credit picture ahead.

Borrowing costs proved to be accommodative for emerging markets in the second half of 2025 (in the form of very tight spreads), opening refinancing opportunity windows and allowing monetary policy easing from local central banks. However, market volatility and uncertainty are here to stay in 2026 due to geopolitical risk, trade policy uncertainty, and the threat of an asset price correction in fixed income markets.

Moreover, as documented in our white paper, the toughest credit stresses are typically preceded by the CCI reaching a peak value higher than one standard deviation, and with a rapid upward buildup. As an example, in the postpandemic CCI peak of 2.3 standard deviations, the indicator cumulated a 2.8 standard deviation increase over the five quarters before. The CCI's peak in the fourth quarter of 2024 reads at 0.6 standard deviations, with the rise over five consecutive quarters amounting to "only" 0.8 standard deviations. Therefore, we expect a credit slowdown instead of a severe credit correction from a historical perspective.

The downward movement of the CCI was consistent across countries, with Colombia, Mexico, India and South Africa displaying the mildest decreases.

[CHART 5 OMITTED]

Corporates: The corporate subindicator continues its very mild ascending trend from its trough in first quarter of 2023 (-1.5 standard deviations below its long-term trend). Emerging market (EM) equity performance outpaced that of developed economies over the past year across regions, particularly in Latin America. Corporates accessed the bond market mainly for refinancing purposes, given the extreme amount of market uncertainty has been hindering budget planning.

This picture should generally hold for the months to come. Yet, we expect credit performance across sectors and regions to differ in 2026, with the chemicals sector and Latin America most at risk in terms of potential downgrades. Specifically, if external or domestic factors hinder rate cuts, Turkish and Brazilian corporates could be undermined by the high level of local borrowing costs, straining cash flow and limiting capital expenditure.

Households: The household subindicator has stalled at -0.2 standard deviations over the past eight quarters, mirroring the economic resilience observed throughout EMs. Favorable financing conditions, combined with low unemployment levels and improving real wages, will help keep domestic demand robust in 2026 in most EMs. Household debt (as a percentage of GDP) was unchanged, reflecting a precautionary saving behavior, with India representing the exception with half of loans taken for consumption purposes. Still, Indian households' leverage remains at levels well below those of peers such as Thailand and Malaysia. Property price evolution will follow an idiosyncratic path in 2026, linked to policy rate movements, as we've observed for Chile, Colombia, Mexico and India, displaying an upward trend in 2025.

Eurozone

European credit landscape: waiting for clear signals

Data from the second quarter of 2025 reinforces our previous assessment that the CCI in Europe is lacking clear momentum and is moving sideways. This trend raises doubts about a near-term recovery in the credit cycle, despite some underlying subcomponents of the indicator presenting a more favorable outlook. Notably, increasing equity and house prices across much of Europe--albeit real house prices are trailing in Germany, France and the U.K.--along with improved borrowing capacity supported by resilient corporate balance sheets, contribute positively to the picture. However, these favorable fundamentals are countered by strains stemming from a shifting geopolitical landscape.

Corporates: The corporate indicator has experienced a slight uptick, albeit without convincing underlying momentum. After deleveraging during 2024, corporate debt levels showed minimal changes in the first half of 2025. As of the end of the second quarter, France's corporate debt stood at 155% of GDP--partly attributed to the inclusion of intragroup loans--versus 89% in Germany, 59% in Italy, 79% in Spain and 59% in the U.K. The outlier is Ireland: leverage decreased from 113% to 100% within a quarter, mainly reflecting volatility in the underlying GDP measures.

Although fundamentals remain favorable for a potential restart of the credit accumulation cycle, European consumer and economic sentiment remains broadly stable in December 2025 and below average. This suggests that sluggish consumer confidence and a low investment appetite continue to weigh on the potential for increased credit demand.

Households: Household balance sheets are improving across most European countries, bolstered by rising property and equity prices. However, considering economic and geopolitical uncertainties, households are still reducing their credit exposures. Recent Eurostat data indicates that household gross savings in the eurozone are hovering around 15.5% of gross disposable income, marking the highest level since this statistic began in 1998 barring the exceptional peak during the COVID-19 pandemic (up to 25%).

[CHART 6 OMITTED]

North America

Credit recovery could reverse course

After a gradual ascent from its most recent trough, the North America CCI retreated to -0.6 standard deviation as of the second-quarter 2025 (see chart 7), as significant policy and geopolitical uncertainties roiled markets and dampened consumer and business sentiment. This signals a turn in the gradual credit recovery that has been suggested by the CCI. Looking ahead, the region's credit story seems increasingly nuanced. Fairly favorable financing conditions, which have eased amid tariff pauses and initial trade agreements, and accelerated AI-driven investments could add to a positive momentum of the credit trajectory. On the other hand, a persistently high cost of living and a softening labor market will likely further strain households, curbing consumer spending and related sectors.

[CHART 7 OMITTED]

Corporates: The corporate subindicator stayed flat as of the second quarter 2025. In our base case, we expect resilient economic growth, robust demand for debt, and two years of positive corporate earnings to help the U.S. speculative-grade default rate decline through September to 4% from 4.6% in September 2025. However, sectoral performance could diverge--tech hyperscalers have been driving the growth in EBITDA and capital expenditure, while certain tariff-sensitive sectors have been grappling with rising costs and margin pressures. Meanwhile, lower-rated borrowers remain vulnerable to elevated financing costs and any sudden shift in investor risk appetite.

#### Increasing debt rollover risk poses a systemic challenge to economic growth.

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Two types of risk are present – debt rollover risk and repricing risk. A substantial amount of US corporate debt will potentially need to be refinanced in the coming months and years. This includes USD 642 billion of debt scheduled to mature in the rest of 2025, USD 930 billion in 2026 and USD 860 billion in 2027. Despite recent policy rate cuts by the Federal Reserve, corporate funding costs remain elevated, as interest rates are still generally higher than those prevailing at the time of issuance, exposing US firms to higher costs when refinancing their debt. Simulations suggest that 85% of the maturing debt would need to be refinanced at higher rates. More than half of maturing bonds would face more than a 1 percentage point increase in interest rates if refinanced at current rates, while around 25% of maturing bonds would face more than a 2 percentage point increase (Chart D). Such increases in costs could potentially weaken firm fundamentals, raising default risks and worsening risk sentiment.

A deterioration in risk sentiment triggers heightened bond sensitivity and a disproportionate spread widening for more vulnerable firms. The recent abrupt shift in risk sentiment could carry significant implications, not only altering the average magnitude of reactions to market shocks but also influencing which bonds are most responsive. During risk-off episodes, bonds exhibit heightened sensitivity, reacting more intensely to market dynamics (Chart B, panel b). Moreover, analysis reveals that, in these periods, investors tend to retreat from bonds issued by firms with worse financing conditions given their fundamentals (bonds in the right tail of the EBP distribution), causing a disproportionate widening of their spreads. While firm fundamentals remain strong, corporate expected default frequencies (EDFs), which indicate the probability that a company will default on its payments within one year, point to limited but emerging vulnerabilities. For example, the 75th percentile of EDFs has been on a strong upward trend and at the end of March 2025 stood at around 18%, a level not observed since the global financial crisis (Chart E).

#### Sentiment about business debt is a highly accurate leading economic indicator. Shocks rapidly depress real GDP.

Danilo Leiva-León et al. 25, Danilo Leiva-León, Economist and Policy Advisor at Federal Reserve Bank of Boston; Thomas Lubik, Senior Advisor at Federal Reserve Bank of Richmond; Gabriel Pérez-Quirós, Unit Head of Macroeconomic Research at Bank of Spain; Nathan Robino, Research Associate at Federal Reserve Bank of Richmond; Horacio Sapriza, Senior Economist and Policy Advisor at Federal Reserve Bank of Richmond; Francisco Vazquez-Grande, Principal Economist at Federal Reserve Board of Governors; Egon Zakrajšek, Director of Research at Federal Reserve Bank of Boston, "Sentiment About Business Debt as a Leading Economic Indicator," Economic Brief, March 2025, No. 25-09, https://www.richmondfed.org/publications/research/economic\_brief/2025/eb\_25-09

Understanding the sources and transmission of financial distress in the economy is essential for macroeconomic stabilization policy. For example, policymakers and academics have both pointed to excesses in credit markets — including abnormally low risk premiums, misaligned incentives for risk taking, lax credit standards and excessive borrowing — as the main culprits behind the 2008-09 financial crisis.1 Since then, many questions have emerged regarding the role of credit factors in business-cycle fluctuations. Postwar data for multiple economies suggest that rapid growth in business or household credit and in asset prices are reliable predictors of a financial crisis within the next three years,2 and highlight the key role of corporate debt3 and household debt4 in explaining boom-bust cycles, financial crises and slow macroeconomic recoveries.

Using a new statistical model, the 2022 article "Introducing the Credit Market Sentiment Index" — co-authored by several writers of this article (Danilo, Gabriel, Horacio, Francisco and Egon) — estimated a factor summarizing conditions in U.S. credit markets and showed that it is strongly associated with business debt. We refer to this factor as the credit market sentiment index (CMSI).

In this article, we embed this index in a standard multivariate time series model to forecast the path of credit markets and key macroeconomic indicators. The results suggest that shocks to credit sentiment tied to business debt strongly forecast movements in real GDP growth, the effective federal funds rate and (to a lesser extent) price inflation.

Background on the CMSI

Credit market conditions are closely linked to real economic activity. The Great Recession highlighted the importance of household debt relative to business debt conditions. As outlined in the previous article, we develop a statistical framework that incorporates information from credit market indicators with strong links to business debt and real economic variables to isolate the conditions in the credit market that are independent of current economic conditions. This is the CMSI.

The construction of this index entails extracting information about credit market conditions from multiple credit market indicators that we expect to be strongly linked to business debt and that are both price-based and quantity-based. The model extracts three statistical factors that describe the state of the economy:

The economic activity factor

The CMSI

The probability of an adverse economic state

In this article, we focus on the CMSI (shown in Figure 1), where a higher value reflects frothier sentiment. As depicted in the figure, the index identifies, for instance:

The credit market froth before the Great Recession

The sharp decline in credit sentiment as concerns about economic performance and financial risks surged in 2015

The drop in the index among elevated uncertainty about the resiliency of the economy and the financial sector following the COVID pandemic

The partial recovery of the indicator since 2022 as market participants' perceptions about severe downside risks in financial markets and the real economy gradually started to moderate

A Bayesian VAR to Study the Effects of Changes in Financial Sentiment

Next, we analyze how our measure of credit market conditions unrelated to current economic fundamentals may shape headline macroeconomic indicators. We use a rich time-series statistical model that incorporates the CMSI and five covariates:5

Real GDP growth, represented by a synthesis of Stock & Watson monthly GDP series and the S&P monthly GDP series

The unemployment rate

Personal consumption expenditure price index (PCE)

Personal consumption expenditure price index excluding energy and shelter (core PCE)

The effective federal funds rate (FFR)

We specify a six-variable vector autoregression (VAR) and estimate it using Bayesian methods. As is standard in the literature, we assume a Minnesota prior that centers each variable's dynamics on its own lags.6 That is, the variables in our model are very persistent and largely independent of one another.7

We are interested in the effect of a shock that boosts credit sentiment on key macroeconomic variables and in forecasts for the paths of these macroeconomic indicators considering alternative future credit market tightness scenarios. We identify the shock by means of a recursive ordering of the variables. By ordering the credit factor first in the sequence of variables, we impose the assumption that the factor is independent contemporaneously from macroeconomic conditions. Our findings are robust to alternative orderings of the factor.

Each panel of the figure above illustrates how variables react to an increase of one standard deviation (four index units) in the CMSI. On impact — that is, in the period of the shock, which starts at month zero on the x-axis — the credit factor (Figure 2a) has a value of 4, and each of other variables immediately respond:

GDP growth increases by nearly 0.5 percentage points.

PCE and core PCE inflation increase by 0.4 and 0.7 percentage points, respectively.

Unemployment and the federal funds rate have smaller responses on impact.

The CMSI peaks about four months after the shock and thereafter gradually declines, suggesting that credit market conditions remain frothier than prior to the initial shock even after two years. The dynamics of the CMSI are consistent with the idea that sentiment is a highly persistent object that can therefore have potentially long-lasting effects on the economy.

GDP growth responds positively to the easing of credit, peaking at six months with a cumulative increase of 2 percentage points. To account for higher GDP growth, the unemployment rate decreases by 0.6 percentage points six months after the shock, peaking at a 0.7-percentage-point decrease three months later.

However, the long-run effect on unemployment moves in the opposite direction: Five years after the sentiment shock, the unemployment rate response is a 0.5-percentage-point increase. The increase in output is accompanied by a delayed increase in inflation, with PCE increasing by 1.2 percentage points and core PCE by 2.4 percentage points two years after the credit factor shock. The model then predicts that the FFR will increase 1.4 percentage points within four months and over 2 percentage points within 18 months, as economic activity initially increases and then inflation increases.

Another way to assess the role of credit market sentiment dynamics on the path of key macroeconomic variables is to examine the economic forecasts under different assumed paths of the CMSI. Each panel of Figure 3 above shows three forecasts. The first (solid purple line) is what the model predicts without restrictions, including a steady increase in the credit factor over the next two years. In the second scenario (dashed red line), we restrict the credit factor forecast to stay at its current level, and in the third scenario (dashed green line), we restrict the credit factor to decrease linearly.

In the median baseline forecast, GDP growth is expected to decrease initially then rebound to 2 percent by December 2025, PCE inflation is expected to decrease to just over 2 percent and be slightly below core PCE inflation, and the FFR is expected to fall by 1.75 percentage points.

In the second and third scenarios, the trajectories for PCE inflation, core PCE inflation and the unemployment rate remain mostly unchanged relative to the baseline. However, in the CMSI flat counterfactual, GDP growth is expected to stabilize around 1.7 percent, and the FFR is expected to decrease by nearly 2.5 percentage points. Furthermore, in the CMSI down scenario, GDP growth declines to 1 percent, and the FFR decreases by over 3 percentage points.

Conclusion

Using a Bayesian VAR, we show that changes in sentiment about credit conditions strongly tied to business debt can have significant and long-lasting effects on the future path of U.S. macro variables. A one-standard-deviation positive shock in credit sentiment can lower unemployment in the short run and boost GDP growth by up to 1.4 percentage points three quarters after, generating inflation and higher FFRs. Conversely, if credit sentiment were to worsen from its current state, we would expect output growth to cool, the unemployment rate to rise short term, and inflation and the FFR to fall.

These findings highlight the importance of considering the role of sentiment in credit conditions of businesses when assessing macroeconomic outlooks, as it can be a leading indicator of persistent changes in economic activity growth, inflation and changes in monetary policy.

#### Credit market contraction is an economic nuke war.

Moses Silverman et al. 12, Moses Silverman, Aidan Synnott, Daniel A. Crane, Paul, Weiss, Rifkind, Wharton & Garrison LLP, “En Banc Brief of Amici Curiae Loan Syndications and Trading Association, Managed Funds Association, and Securities Industry and Financial Markets Association in Support of Defendants-Appellees Akanthos Capital Management, LLC, et al.,” Compucredit Holdings Corporation, Plaintiffs-Appellants, v. Akanthos Capital Management, LLC, et al., Defendants-Appellees, 2012 WL 2952956, WestLaw

The extension of credit to businesses is essential to the functioning of the American economy, and a contraction of credit would undermine its health. As the Congressionally appointed Financial Crisis Inquiry Commission found, during the credit squeeze that resulted from the 2008-09 financial crisis, employers found it “tougher to borrow to meet payrolls and to expand inventories.” Financial Crisis Inquiry Commission, The Financial Crisis Inquiry Report 389 (2011), available at http://www.gpo.gov/fdsys/pkg/GPO-FCIC/pdf/GPQ-FCIC.pdf. As businesses faced a credit crunch, they laid off employees. “Without jobs, people could no longer afford their house payments” and were forced into default or foreclosure, and the “surge in foreclosed and abandoned properties dragged home prices down still more.” Id. at 389-90. “The credit squeeze in financial markets cascaded throughout the economy,” not only making it harder for businesses to borrow but also contributing to rising unemployment, increased foreclosures, and a depressed housing market, with disastrous effects for the economy and society as a whole. See id. at 389-97.

When credit markets function properly, the forms of available credit are myriad. The members represented by the respective amici are primarily \*6 interested in the extension of corporate loans and the purchase and sale of corporate loans and corporate bonds.

The scale of business operations in the American economy requires individual borrowers to access credit from multiple sources. Some businesses choose to issue bonds, which are usually tradable in secondary markets. Secondary market trading of bonds is crucially important to the national economy, because the availability of a secondary market makes the bonds more liquid, which in turn drives down their interest rate. According to statistics compiled by SIFMA, the outstanding corporate debt market in the U.S. surpassed $8 trillion as of the first quarter of 2012. Corporate bond issuance exceeded $1 trillion in 2011, with an average daily trading volume for that year of $20.6 billion. See Statistics and Data Pertaining to Financial Markets and the Economy, SIFMA, http://www.sifma.org/research/statistics.aspx (last visited June 27, 2012). See also Michael MacKenzie & Nicole Bullock, Wall Street's Looming Finance Vacuum, Fin. Times, June 20, 2012, available at http:// www.businessspectator.com.au/bs.nsf/Article/Wall-Street-markets-banks-debt-liquiditv-UBS-Goldm-pd20120620-VEST8?opendocument&sfc=rss (estimating the size of the U.S. corporate debt market at $8 trillion, with over 80,000 separate bond issues).

\*7 An important source of credit for medium-sized or larger businesses is corporate loans, but of a different character than the conventional bilateral bank credit facility. Given the magnitude of the financial investments required by many business borrowers and the concomitant magnitude of the risks to lenders, a single bank is often unable to satisfy the full borrowing needs of its clients. Hence, most corporate lending today happens through syndication agreements among a number of banks and institutional lenders, each of which extends credit and therefore obtains rights and protections in the management of the debt. Like bonds, these debt instruments are tradable on the secondary market, which makes them less expensive on the primary market. The modern syndicated lending market gives rise to a fast, efficient, and flexible distribution network that is able to finance leveraged transactions in large volumes. In addition, the more lenders there are in a financial system, the lower the likelihood of systemic risks triggered by the solvency problems of any given lender. Broad dispersion of corporate credit across numerous investors makes the financial system safer. According to the Shared National Credit Review, in 2011, syndicated loans in the United States provided $2.5 trillion in financing to U.S. companies, comprising 8,030 credit facilities to approximately 5,400 corporate borrowers representing a broad range of industries. See Board of Governors of the Federal Reserve System, Federal Deposit Insurance Corporation, Office of the Comptroller of the Currency, Shared \*8 National Credits Program 2011 Review 4-5, 11 (Aug. 2011). The face value of the distressed and defaulted debt market was $1.46 trillion as of the end of 2011. Edward I. Altman & Brenda J. Kuehne, Special Report on Defaults and Returns in the High-Yield Bond Market: First Quarter 2012 Review, New York University Salomon Center, Stern School of Business (May 1, 2012), 3, available at http://www.scotlandgroup.com/2012altmanupdate.pdf.

#### Collapse detonates a ten trillion dollar economic bomb

Brendan Cole 20, senior reporter at Newsweek, “A $10 trillion corporate debt bomb is waiting to explode the U.S. economy,” Newsweek, 7-29-2020, https://www.newsweek.com/coronavirus-corporate-debt-covid-19-bonds-federal-reserve-1521219

"The government and the Fed have thrown their entire arsenal at the early stages of the pandemic. The Fed's balance sheet has already jumped from $4 trillion to $7 trillion, an increase equivalent to the total increase during the financial crisis," he told Newsweek.

Between January and June, 3,604 companies filed for Chapter 11 bankruptcy, according to data from legal services firm Epiq, a 26 percent annual rise. Tens of thousands more are weighing up whether to make a debt payment on time or keep investment and jobs.

In such an unprecedented crisis, debt maturities put the livelihoods of millions of Americans at stake. Private lenders are unlikely to issue personal or small business loans or corporate debt. Existing loans and lines of credit will have covenants and be recallable, and new lines of credit will be inaccessible.

"The types of policies that make sense are those that help out people in need and those that allow otherwise successful businesses to bridge the gap during a period when private credit markets will be limited or effectively closed," Frank said.

#### It’ll be on the level of the 08 recession.

Mayra Rodriguez Valladares 21, senior contributor at Forbes, citing Mojon, Rees, and Schmieder at the Bank for International Settlements, “Looming Corporate Credit Losses Will Be Absorbed By Financial Institutions And Possibly Even By Taxpayers,” Forbes, 3-1-2021, https://www.forbes.com/sites/mayrarodriguezvalladares/2021/03/01/rising-corporate-bankruptcies-will-be-absorbed-by-financial-institutions-and-even-by-taxpayers/

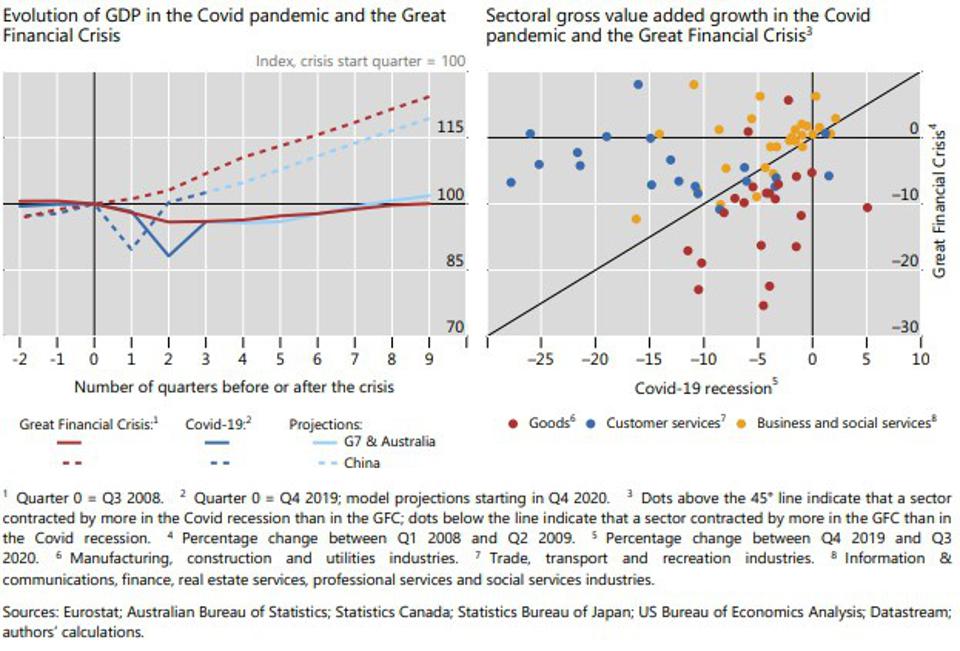
An obsessive focus on stock market returns is lulling many investors and analysts into thinking that the worst of the current COVID-19 economic crisis is over. Before the pandemic struck, I expressed my concern about significantly leveraged non-financial companies in over forty pieces in Forbes. Eye opening research published by Bank for International Settlements economists, Benoît Mojon, Daniel Rees, and Christian Schmieder confirms my view that corporate insolvencies, bankruptcies, and credit losses to financial institutions are just starting to be felt. And as they wrote in “How much stress could Covid put on corporate credit? Evidence using sectoral data” published today, “the looming increase in corporate bankruptcies will generate credit losses that will need to be absorbed, either by the financial system or by taxpayers.”

Mojon, Rees, and Schmieder created a framework to translate sectoral macroeconomic scenarios into sectoral corporate credit losses, and applied it to the Group of 7 (G7) economies, China and Australia. Based on their sectoral GDP projections, the BIS economists found that “corporate credit losses during 2020–22 could be equivalent to about three times the pre-crisis level on average across the G7, China and Australia.” These additional “credit losses emerging from the crisis during the three-year period would cumulate to slightly above 2% of annual GDP or $1 trillion.” Corporate credit losses would be borne not only by financial institutions that have lent to them, but also by investors who invested in leveraged loans and collateralized loan obligations (CLOs) backed by corporate loans. Unfortunately, even taxpayers might be impacted by corporate credit losses if governments have to step in to rescue distressed financial institutions.

The research by Mojon, Rees, and Schmieder shows that corporate credit accounts for slightly more than half of total private non-financial credit in the countries in their study (ranging from 31% of total credit in Australia to 73% in China); corporate credit typically incurs larger credit losses during recessions than does household credit. Therefore, we should all be attentive, because the outlook for corporate credit has a significant bearing on the health of these countries’ financial systems. They project credit losses, defined as recognized impairments on bank and non-bank debt, until the end of 2022; this assumes that the pandemic will be under control by then and that its impact on credit losses will have materialized. We have been lucky that thus far, non-financial corporate bankruptcy rates have been relatively low in most countries, despite partial or full lock downs due to the pandemic. Yet, I expect that as governments reduce fiscal support programs, this will impact companies’ liquidity and credit worthiness. Moreover, consumer changes in spending habits after over a year of the pandemic is likely to put pressure on certain sectors of the economy.

[CHART OMITTED]

As part of their research, the BIS economists combine data on bonds and bank loans to derive corporate debt by sector for each of the G7 countries, China and Australia. They then constructed sectoral economic projections for each of the nine economies in the sample. Lastly, they drew on existing estimates from the literature on the GDP sensitivity of credit loss rates (i.e. losses in relation to the stock of corporate debt) for banks.



A large and uneven recession

Corporate credit loss rates could rise substantially in sectors most affected by the pandemic. Unlike other crises, such as the 2007-2009 crisis, where manufacturing and construction declined significantly, the Covid crisis has been felt most acutely in entertainment, transportation, energy, and wholesale and retail trade. “The sectoral dispersion in credit loss rates is likely to be wider than during the Great Financial Crisis (GFC) of 2007–09 because of unevenness in sectoral economic conditions as well as the tendency for credit losses to rise more than proportionally with output shortfalls.”