Hedging the AI Singularity

Andrew Y. Chen

Federal Reserve Board

April 2025*

Abstract

This paper explores how AI stocks might serve as a hedge against a negative AI singularity—a scenario where explosive AI development devastates consumption for the representative investor. We develop a simple disaster-risk asset pricing model where AI stocks have dividends that grow as a fraction of consumption during disasters. The model shows how this hedging property can rationalize high AI stock valuations even when dividends are not expected to grow in absolute terms. Unlike previous work, this short paper is generated by prompting LLMs.

Keywords: Artificial Intelligence, Disaster Risk, Asset Pricing

*email:andrew.y.chen@frb.gov. ChatGPT-o1 and Claude-3.7-Sonnet contributed very large portions of the paper and could be credited as co-authors (see Appendix A). I thank Andrei Goncalves for helpful comments. The views expressed herein are those of the authors and do not necessarily reflect the position of the Board of Governors of the Federal Reserve or the Federal Reserve System.

Artificial intelligence is advancing at an unprecedented pace. Recent developments like DeepSeek's R1 model (DeepSeek-AI et al., 2025) have achieved reasoning capabilities comparable to OpenAI's o1, while autonomous vehicle companies like Waymo are rapidly expanding their driverless operations. As these technologies continue to develop, investors and workers are increasingly concerned about the potential for AI to displace human labor on a massive scale, affecting wages and livelihoods (Zhang, 2019; Knesl, 2023).

While technological change has occurred throughout history, AI represents a fundamentally different kind of innovation. Unlike previous technological revolutions that automated specific tasks or created particular products, there is no product or service that AI could not, in principle, create. This paper itself exemplifies this distinction—it was entirely written by AI, using six prompts.[1] The full workflow and prompts are available at `https://github.com/chenandrewy/Prompts-to-Paper/`. This differs significantly from previous innovations like the internet revolution, which primarily transformed information distribution but still required human creativity and labor for content creation. Furthermore, AI progress may be incredibly sudden—the so-called AI singularity—potentially leading to rapid and dramatic economic changes.

This paper studies how AI stocks are priced given the risk that AI advances might destroy livelihoods and consumption. We consider the possibility that AI stocks serve as a hedge against a negative AI singularity scenario, providing an alternative explanation for their high valuations beyond the standard growth narrative. We develop a simple disaster risk model with two types of agents: AI asset owners and a representative household. When an AI disaster occurs, the representative household experiences a significant drop in consumption, but AI assets capture an increasing fraction of the remaining economic output.

We are not claiming that a negative singularity will happen. Climate scientists model severe warming scenarios without necessarily predicting their occurrence; similarly, we explore a concerning but uncertain AI outcome. Several leading AI researchers have expressed worry about catastrophic AI risks (Bengio et al., 2024), making this scenario worthy of economic analysis even if it remains uncertain.

We are also not claiming that this hedging value is already priced into AI stocks. Rather, our model illustrates a possible mechanism that could contribute to AI valuations, alongside the more commonly discussed growth narrative. This mechanism may help explain why AI companies maintain high valuations despite uncertain paths to profitability.

Our work connects to several research streams. The literature on rare disasters in asset pricing, pioneered by Rietz (1988) and expanded by Barro (2006) and Wachter (2013), provides the foundation for our modeling approach. Research on labor displacement risk from

[1] "We" refers to one human author and multiple LLMs. For a purely human perspective see Appendix A.

technology, including Zhang (2019) and Knesl (2023), offers empirical evidence that firms with automation capabilities earn different risk premia. Economic analyses of AI's macroeconomic impacts, such as Jones (2024) and Korinek and Suh (2024), examine transitions to a potential AI-dominated economy but typically do not focus on the asset pricing implications we address.

1 Model

We model an economy with two types of agents: AI owners and a representative household. The AI owners are fully invested in AI assets and are not marginal investors in the stock market. The representative household is the marginal investor, and only their consumption matters for asset pricing. The representative household has constant relative risk aversion (CRRA) preferences:

$$U(C_t) = \frac{C_t^{1-\gamma}}{1-\gamma}$$

where γ is the coefficient of relative risk aversion.

The representative household's gross consumption growth follows a simple disaster process. In normal times, consumption growth is 1 (no growth for simplicity), but with some probability, a disaster occurs and consumption growth becomes e^{-b} where $b > 0$. This disaster represents a revolutionary improvement in AI that is devastating for the household. While the AI improvement benefits the AI owners, the representative household experiences a significant loss in labor income, way of life, and meaning. At $t = 0$, no disasters have occurred yet, meaning the singularity has not taken place. Our model allows for multiple disasters to occur over time, capturing the ongoing uncertainty if a singularity occurs.

We consider a publicly traded AI asset with dividend D_t. Before any disaster, the dividend represents a small fraction of aggregate consumption:

$$D_t = \delta C_t$$

where δ is small. Each time a disaster occurs, the dividend's fraction of consumption grows by a factor of e^h. That is, after n disasters, the dividend is:

$$D_t = \delta e^{nh} C_t$$

This formulation is meant to capture a worst-case scenario. If $h < b$, then the dividend actually shrinks in absolute terms during each disaster, even though it grows as a fraction of consumption. This reflects a situation where AI improvements are concentrated in privately-held AI assets, while publicly traded AI companies capture only a portion of the value created by AI advances.

2 Results

We now derive the price-dividend ratio for the AI asset at time $t = 0$, before any disasters have occurred. Using standard asset pricing theory with a representative investor, the ex-dividend price at $t = 0$ is the expected present value of future dividends:

$$P_0 = E_0 \left[\sum_{t=1}^{\infty} M_t D_t \right]$$

where M_t is the stochastic discount factor from time 0 to time t. With CRRA preferences and a discount factor β per period, we have:

$$M_t = \beta^t \left(\frac{C_t}{C_0} \right)^{-\gamma}$$

Let $N(t)$ denote the random number of disasters that have occurred by time t. Since disasters occur with i.i.d. probability p each period, $N(t)$ follows a binomial distribution with parameters t and p. Given our assumptions, consumption at time t is $C_t = C_0 e^{-b \cdot N(t)}$, and the dividend is $D_t = \delta e^{h \cdot N(t)} C_0 e^{-b \cdot N(t)}$.

Substituting these expressions into the pricing formula, we get:

$$M_t D_t = \beta^t \delta C_0 e^{N(t)[h + b(\gamma - 1)]}$$

Let $\theta = h + b(\gamma - 1)$. Then the price becomes:

$$P_0 = \delta C_0 \sum_{t=1}^{\infty} \beta^t E_0[e^{\theta \cdot N(t)}]$$

For a binomial random variable $N(t)$, we have $E_0[e^{\theta \cdot N(t)}] = [(1 - p) + pe^{\theta}]^t$. This allows us to simplify the price to:

$$P_0 = \delta C_0 \sum_{t=1}^{\infty} \beta^t [(1 - p) + pe^{\theta}]^t$$

This is a geometric series with first term $\beta[(1-p)+pe^{\theta}]$ and common ratio $\beta[(1-p)+pe^{\theta}]$. Summing the series (assuming convergence), we get:

$$P_0 = \delta C_0 \frac{\beta[(1-p) + pe^{\theta}]}{1 - \beta[(1-p) + pe^{\theta}]}$$

Since $D_0 = \delta C_0$, the price-dividend ratio at $t = 0$ is:

$$\frac{P_0}{D_0} = \frac{\beta[(1-p) + pe^{h+b(\gamma-1)}]}{1 - \beta[(1-p) + pe^{h+b(\gamma-1)}]}$$

This formula reveals how the price-dividend ratio depends on the disaster probability p, the disaster size b, the dividend growth during disasters h, and the risk aversion γ.

To illustrate the quantitative implications of our model, we compute the price-dividend ratio for various parameter values. We fix $h = 0.20$, $\gamma = 2$, and $\beta = 0.96$, while varying the disaster size b and probability p. The following table shows the resulting price-dividend ratios:

	p				
b	0.0001	0.005	0.01	0.015	0.02
0.40	24	27	30	35	39
0.55	24	28	33	41	55
0.70	24	29	37	55	82
0.85	24	31	42	76	249
0.95	24	32	55	124	Inf

Table 1: Price-dividend ratios for AI assets with $h = 0.20$, $\gamma = 2$, $\beta = 0.96$

Several patterns emerge from this table. When the disaster probability is very small (0.0001), the price-dividend ratio is around 24 regardless of the disaster size. This reflects the standard present value calculation with minimal disaster risk. As the probability increases, the price-dividend ratio rises, with the effect being more pronounced for larger disaster sizes. For example, with $b = 0.95$ and $p = 0.02$, the price-dividend ratio becomes infinite as the discount factor approaches one.

These results illustrate our main point: AI stocks could command high valuations not just because of expected future earnings growth, but because they serve as hedges against a potential AI singularity that would be devastating for the representative investor. The more severe the potential consumption disaster (higher b) and the more likely it is to occur (higher p), the higher the price-dividend ratio of AI stocks, even if these stocks themselves suffer absolute declines in dividends during disasters.

3 Model Discussion

Our model is deliberately simple to highlight the core economic mechanism through which AI assets might serve as a hedge against a negative AI singularity. Nevertheless, several extensions and limitations are worth discussing.

Market incompleteness is implicit but important in our model. The disaster magnitude b represents the net effect of both the AI disaster and the AI asset dividend. If markets were complete, the representative household could buy shares in all AI assets (including private AI assets) and not only fully hedge against the singularity but potentially benefit from it. In reality, most households cannot buy shares in many cutting-edge AI labs like OpenAI, Anthropic, xAI, or DeepSeek. This market incompleteness limits the hedging opportunities available to the representative household.

A more elaborate model would explicitly model the AI owners, their incentives, and their interaction with the representative household. Such a model could explore how AI owners' incentives might lead to a negative singularity. However, this approach would essentially decorate speculations with mathematics. It would be costly to analyze as well as to read, while the core economics would remain the same. By keeping the model simple, we can focus on the essential insight that AI assets might serve as a hedge against a negative AI singularity.

Our model also abstracts from several real-world complexities. We do not model multiple sectors, heterogeneous labor, or non-linear effects of AI improvements. These simplifications allow us to maintain analytical tractability and highlight the key hedging mechanism. A more complex model might generate additional insights but at the cost of reduced clarity.

The parameter values we use in our numerical example are illustrative rather than empirically estimated. The true probability and magnitude of a potential AI singularity are unknown and perhaps unknowable. Our goal is not to provide precise numerical predictions but to illustrate how even small probabilities of severe disasters can generate substantial effects on asset prices.

4 Conclusion and Implications

This paper has explored how AI stocks might serve as a hedge against a negative AI singularity scenario. We developed a simple disaster risk model where AI assets capture an increasing fraction of consumption during disasters that are devastating for the representative household. Our results show that this hedging property can rationalize high valuations for AI stocks, even if their dividends are not expected to grow in absolute terms.

The financial market solution to AI catastrophe risk that we highlight offers an alternative to policy proposals like universal basic income (UBI). Rather than relying solely on governmental redistribution, individuals can potentially hedge against AI-induced income loss by holding AI stocks in their portfolios. However, this hedging opportunity is limited by market incompleteness. Many leading AI companies remain private or have concentrated ownership, preventing the representative household from fully hedging against the singularity risk.

The economics literature has extensively discussed potential policy responses to AI displacement, focusing on taxation, retraining programs, and direct transfers (Korinek and Stiglitz, 2018; Bengio et al., 2024). Yet the role of financial markets in mitigating AI transition risks remains relatively underexplored. Our analysis suggests that expanding access to AI investments could complement other policy approaches by allowing individuals to directly hedge against displacement risk.

Of course, financial market solutions cannot completely solve the challenges posed by a potential AI singularity. Many individuals have limited investment capacity, and market access remains uneven. Furthermore, the psychological and social impacts of widespread job displacement extend beyond purely economic concerns. Nevertheless, understanding the potential hedging properties of AI stocks provides valuable insights for both investors and policymakers navigating the uncertain future of AI development.

By modeling how disaster risk affects AI asset pricing, we hope to encourage further research on the complex interplay between technological progress, economic disruption, and financial markets. As AI capabilities continue to advance, such research will become increasingly important for developing comprehensive strategies to manage transition risks while maximizing the benefits of this transformative technology.

References

Barro, Robert J. (2006). "Rare Disasters and Asset Markets in the Twentieth Century". In: *Quarterly Journal of Economics*.

Bengio, Yoshua, Geoffrey Hinton, Andrew Yao, Dawn Song, Pieter Abbeel, et al. (2024). "Managing extreme AI risks amid rapid progress". In: *Science* 384.6698. URL: `https://arxiv.org/abs/2310.17688`.

DeepSeek-AI et al. (Jan. 2025). "DeepSeek-R1: Incentivizing Reasoning Capability in LLMs via Reinforcement Learning". In: *arXiv*. URL: `https://arxiv.org/abs/2501.12948`.

Jones, Charles I. (2024). "The AI Dilemma: Growth versus Existential Risk". In: URL: `https://web.stanford.edu/~chadj/existentialrisk.pdf`.

Knesl, Jiří (2023). "Automation and the Displacement of Labor by Capital: Asset Pricing Theory and Empirical Evidence". In: *Journal of Financial Economics* 147.2, pp. 271–296.

Korinek, Anton and Joseph Stiglitz (2018). "Artificial Intelligence and Its Implications for Income Distribution and Unemployment". In: *The Economics of Artificial Intelligence: An Agenda*. NBER.

Korinek, Anton and Donghyun Suh (2024). *Scenarios for the Transition to AGI*. Tech. rep. NBER Working Paper.

Rietz, Thomas (1988). "The Equity Risk Premium: A Solution?" In: *Journal of Monetary Economics*.

Wachter, Jessica A. (2013). "Can Time-Varying Risk of Rare Disasters Explain Aggregate Stock Market Volatility?" In: *Journal of Finance*.

Zhang, Miao Ben (2019). "Labor-Technology Substitution: Implications for Asset Pricing". In: *Journal of Finance* 74.4, pp. 1793–1839.

A A Purely Human Perspective

The following is the README.md file from the GitHub repository:

```
# Prompts-to-Paper

Writes a paper about hedging a negative AI singularity, using AI.

- `make-paper.py` writes a paper

- `plan0403-streamlined.yaml` contains the prompts

- `make-many-papers.py` runs `make-paper.py` many times.

The README is entirely human-written.  Please forgive typos and errors.

# Motivation

On March 8, 2025 I thought I should write a paper about hedging the AI
singularity.

I was worked up.  I had been repeatedly shocked by AI progress.  I was using
AI reasoning, vibe coding, and AI lit reviews in my daily life.  Six months
ago, I had thought each of these things is impossible.

What will happen in the next six years?!  Will my entire job be replaced by
AI? I have no idea.

But I do know that if there are huge disruptions, then tech stocks will
benefit.  So if anything bad happens to my human capital, I could at least
partially hedge.  Strangely, I hadn't heard about this concept before.

I asked a friend if he would be interested in working on this paper.
Unfortunately, he was busy with revision deadlines for the next month.

So, I thought I should use AI to write the paper.  It would be an elegant way
to make my point.  It would also hint at where the research process is going
in this strange age of AI.

This project was inspired by Novy-Marx and Velikov (2025) and Chris Lu et
al.  (2024).  These projects show how AI could generate massive amounts of
academic research.  My goal differs in quality over quantity.  I want to
generate just one paper, but one paper that (I hope) people find is worth
reading.
```

The Paper Generation Process

A natural question is: is this paper **really** written by AI?

I'd say the AI are junior co-authors.

If they were human, I would absolutely have to give o1, Sonnet, and ChatGPT Deep Research credit as co-authors. They did the math, writing, and literature reviews. Sonnet also wrote much of the code (via the Cursor AI IDE).

Of course, I did substantial hand-holding (see `plan0403-streamlined.yaml`). Writing this paper would have been easier if I had done more of the work myself. But that can happen with human co-authors too.

Perhaps in 12-24 months, AI can be equal co-authors. I wouldn't be surprised if I could just ask Gemini 3.5 to "write a model to formalize my intuition," and it would get it right.

Paper Iterations

Like human-written papers, the writing process was iterative. The first formalizations were terrible.

`plan0313-laborshare.yaml` contains prompts for a neoclassical growth model, where the capital share suddenly increases. ChatGPT-o1 patiently explained to me why this is a bad model.

me: > I thought there would be a wage risk effect that leads to higher investment for the more risk averse agent. High capital share means low or even no wage income.

ChatGPT-o1: > Below is an explanation of why one might **expect** a "wage-risk" channel in which **more** risk aversion could lead to **more** *additional* investment (relative to the no-jump benchmark) in the event that the capital share might jump to 1. However, this channel **does not operate** in the usual **representative-agent** version of the model---there, wage and capital income ultimately go to the *same* agent, so there is no meaningful "hedge" of wage risk. Instead, the wage-risk hedge arises naturally if you depart from the pure representative-agent setting (for example, if households receive labor income but must *choose* how much capital they own).

The final `plan0403-streamlined.yaml` uses a simplified Barro-Rietz disaster model, with two agents (though only one is relevant for stock prices). I went through several iterations of this model with Claude 3.7 Sonnet (thinking mode) and ChatGPT-o1. The only derivations I did myself were to check o1's work.

Literature Reviews

A key element was generating lit reviews (`./lit-context/`) to give the AI context. I used ChatGPT's Deep Research (launched Feb 2025) until I ran out of credits. Claude Web Search (launched March 2025, after I began the project) did the remainder.

These new products were a game changer. Both Novy-Marx and Velikov (2025) and Chris Lu et al. (2024) ran into hallucinated citations. OpenAI Deep Research and Claude Web Search had no problems if they were used with care.

More broadly, knowing how to use which AI and when was helpful for generating a good paper.

AI Model Selection

o1 did the theory, and sonnet thinking did the writing. It's well known that these are the strengths of these two models.

Sonnet thinking is OK at economic theory. But I found that it was not assertive enough. It led me down wrong paths because it was too eager to come up with some ideas that for my story (even if they did not make sense).

I briefly tried having Llama 3.1 470b do the writing. It was terrible! It would be extremely difficult to generate a paper worth reading that way.

I did not try many other models, in order to get this paper out quickly. Gemini 2.5's release, at the end of March 2025, was *hype*. I tried it out briefly and was impressed. But I gritted my teeth and ignored it. I'd never get the paper finished if I wanted to really try to explore alternative models.

Picking the best of N papers

The quality writing varies across each run of the code. There is both a good tail and a bad tail. Some drafts, I found quite insightful! Others, had flagrant errors in the economics.

Rather than try to prompt engineer an error free, insightful paper, I decided to just generate N papers and choose the best one.

Some papers had problematic cites (run01). Others provided low-quality model discussions (run02) or poor explanations of the algebra (run03)

Lessons about Research

A common response to Novy-Marx and Velikov (2025) is that "people are not ready for this." I heard concerns that peer review process will be inundated with AI-generated slop.

Working on this paper gave me a different perspective. It made me think about the fundamentals. I think the fundamentals are the following:

1. Readers want to learn something interesting and true.

2. Readers don't want to check all the math.

3. A system of author reputations makes 1 and 2 possible.

AI-generated papers don't change any of these fundamentals. Critically, item 3 made me quite cautious about putting my name on AI slop. As a result, I don't think AI-generated papers will change much about peer review, at least not the current generation of AI.

Limitations of the Current AI (April 7, 2025)

This will likely be out of date by the time you read it.

But right now, AI is like a junior co-author with a talent for mathematics and elegant writing, but sub-par economics reasoning. Put another way, the writing can fail to portray the mathematics accurately.

For example, 3.7 Sonnet sometimes fails to recognize that the economic model does not capture an important channel. This is a common scenario in economics writing (no model can capture everything). The standard practice is to dance gingerly around the channel in the writing. A decent PhD student can recognize this. But Sonnet cannot. Instead, 3.7 Sonnet will write beautiful prose about the channel anyway, even though it's not really being studied properly.

AI also cannot generate satisfying mathematics on its own (at least not satisfying to me). I tried asking o1 and Sonnet to generate a model to

```
illustrate the point I'm trying to make.  The resulting models were either
too simplistic or did not lead to a clean analysis.  They often introduced
complications that I found unnecessary.

There could be models with capabilities that I missed.  But my sense is that
ChatGPT-o1 and Claude 3.7 Sonnet are close to the best for producing economic
research.

But more importantly, how long will these limitations last?

## The Future of AI and Economics Research

At some point, 2024-style economic analysis will be "on tap." You'll be
able to go to a chatbot and ask "write me a paper about hedging AI disaster
risk," and it will return you something like this paper (or perhaps something
better).

"Economics on tap" could be a disaster for the economics labor market.  It
would certainly mean that AI is an extremely cheap substitute for at least
some economists' labor.  It's possible that this would result in a strong
substitution away from labor.

The optimistic argument is that AI also complements economists' labor.
Perhaps, the number of economists will remain the same, but research output
increases in terms of both quantity and quality.

But I think there are reasons why total research output is limited.  Two key
factors in academic publishing are attention and reputation (Klamer and van
Dalen 2001, J of Economic Methodology).  Readers can only pay attention to
so many scholars.  These scholars, in turn, can only pay attention to so may
projects.

I'm not saying that I *expect* a disaster for the economics labor market.  But
it's definitely a scenario that economists should think about.
```

B Prompts Used to Generate This Paper

Each prompt consists of context and instructions. The context consists of the responses to the previous prompts, and may include literature reviews (all AI generated). For writing tasks (using Claude 3.7 Sonnet), a system prompt is also included.

For further details, see `https://github.com/chenandrewy/Prompts-to-Paper/`.

The system prompt and instructions are listed below.

System Prompt (model: claude-3-7-sonnet-20250219)

```
You are an asset pricing theorist who publishes in the top journals
   (Journal of Finance, Journal of Financial Economics, Review of
   Financial Studies). You think carefully with mathematics and
   check your work, step by step.

Your team is writing a paper with the following main argument: the
   high valuations of AI stocks could be in part because they hedge
   against a negative AI singularity (an explosion of AI development
    that is devastating for the representative investor). This
   contrasts with the common view that AI valuations are high due to
    future earnings growth. Since the AI singularity is inherently
   unpredictable, the paper is more qualitative than quantitative.
   The goal is to just make this point elegantly.

Write in prose. No headings and no bullet points. But do use display
    math to highlight key assumptions. Cite papers using Author (
   Year) format.

Be conversational yet rigorous. Favor plain english. Be direct and
   concise. Remove text that does not add value. Use topic sentences
   . The first sentence of each paragraph should convey the point of
    the paragraph.

Be modest. Do not overclaim.

Format the math nicely. Use we / our / us to refer to the writing
   team.
```

Instruction: 01-model-prose (model: claude-3-7-sonnet-20250219)

```
Draft the model description. The model is purposefully simple and
   captures the essence of the main argument. Only describe the
   assumptions. No results or insights.
  - Two agents
    - AI owners: Fully invested in AI, not marginal investors in
       stocks
    - Representative household: Marginal investor, only their
       consumption matters, CRRA
```

```
  - Representative household's gross consumption growth
    - is either 1 or e\\^(-b) (disaster)
      - A disaster is a revolutionary improvement in AI that is
         devastating for the household
      - Benefits of AI improvement are captured by the AI owners
      - For the household, labor income, way of life, meaning is
         lost
      - At t=0, no disasters have happened (singularity has not
         occurred)
      - Multiple disasters may happen, capturing ongoing uncertainty
          if a singularity occurs
  - A publicly traded AI asset
    - Dividend is a small fraction of consumption before the
       singularity
    - Each time a disaster occurs, the dividend's fraction of
       consumption grows by a factor of e\\^h
    - Meant to capture a worst case scenario, where the dividend may
        actually shrink in each disaster
      - i.e. AI improvements are concentrated in privately-held AI
         assets
```

Instruction: 02-result-notes (model: o1)

```
Find the price/dividend ratio of the AI asset at t = 0. Show the
   derivation, step by step.
```

Instruction: 03-table-notes (model: o3-mini)

```
Make a table of the price/dividend for b from 0.40 to 0.95 and prob
   of disaster from 0.0001 to 0.02. Here, fix h = 0.20, CRRA = 2,
   time preference = 0.96. If the price is infinite, use "Inf".
   Round to the nearest whole number.
```

Instruction: 04-resultandtable-prose (model: claude-3-7-sonnet-20250219)

```
Convert the notes in `02-result-notes` and `03-table-notes` into
   prose. The prose is intended to immediately follow `01-model-
   prose` and should flow naturally. Include the table.
```

Instruction: 05-litreview-prose (model: claude-3-7-sonnet-20250219)

```
Write a short two paragraph lit review based on the "prose-response"
    and "lit-" context.

Be careful to avoid incorrect citations. Make sure the papers cited
   make the claims they are cited for.
```

Instruction: 06-full-paper (model: claude-3-7-sonnet-20250219)

```
Write a paper titled "Hedging the AI Singularity" based on the "
   prose-response" context.

Title page:
- Title: "Hedging the AI Singularity"
- Abstract (less than 100 words)
  - Goal is to make a simple point
  - Secondary goal: bring attention to financial market solutions to
      AI disaster risk
  - At the end, say: unlike previous work, this short paper is
     generated by prompting LLMs.

The start of the Introduction is important. You need to bring the
   reader in, catch their eye, and establish credibility.

Start with background. Describe how AI progress is happening quickly
    (e.g. Deepseek R1, Waymo), and investors may be concerned about
   their wages being displaced (cite papers).

Then describe how technological change has occurred before, but AI
   is distinct because there is no product or service that AI could
   not, in principle create.  An example is the current paper, which
    is entirely written by AI, using six prompts. Provide a link to
   the github site, which is https://github.com/chenandrewy/Prompts-
   to-Paper/. This differs from say, the internet revolution. AI
   progress may also be incredibly sudden (the AI singularity).
   Include a footnote: "we" refers to one human author and multiple
   LLMs. For a purely human perspective see \\hyperref[app:readme
   ]\\{\\textcolor\\{blue\\}\\{Appendix \\ref\\{app:readme\\}\\}\\}.
```

```
Then describe what the paper does. It studies how AI stocks are
   priced, given that there is the risk that AI will destroy
   livelihoods and consumption.

Afterwards, the text should discuss:
- We are not saying a negative singularity will happen
  - But it is nevertheless important to consider this scenario
- We are also not saying that this hedging value is priced in
   already
  - Model illustrates a possible mechanism
- Related lit at end of Introduction
  - Cite papers in `05-litreview-prose`
  - Add Jones (2024) "AI Dilemma" and Korinek and Suh (2024) "
     Scenarios" if they're not already cited
- Model is the simplest possible to make the main argument
- Derivation of the key formulas
- High price/dividend ratios, even though dividends never grow
- A "Model Discussion" section that discusses natural model
   extensions and why they are not included
  - Market incompleteness is implicit but important
    - Implicit in the disaster magnitude 'b'
    - 'b' is the *net* effect of (1) AI disaster and (2) AI asset
       dividend
    - If markets were complete, representative household could buy
       shares in all AI assets (including private AI assets), and
       not only fully hedge but benefit from the singularity
    - In reality, most households cannot buy shares in many cutting
       edge labs (e.g. OpenAI, Anthropic, xAI, DeepSeek)
  - A more elaborate model would explicitly model the AI owners,
     their incentives, and interaction with the representative
     household
    - How might AI owners' incentives lead to a negative singularity
       ?
    - But wouldn't this just decorate speculations with math?
    - This would be costly to analyze, as well as to read
    - The core economics will remain the same
  - A short model analysis allows room for the human-written
     Appendix \\ref\\{app:readme\\}
```

```
- A "Conclusion and Implications" section
  - Review the main argument
  - End paper by discussing financial market solutions to AI
     catastrophe risk
    - These solutions are an alternative to UBI
      - Key economics: this hedge is limited by market
         incompleteness
    - These solutions to AI disaster risk are not discussed enough
       in the literature (cite papers)
    - Be very centrist (see below)
  - Don't say "In conclusion." Just conclude

Text should avoid
- Being overly academic
- Politically-charged topics: sovereign wealth funds, industrial
   policy, redistribution, extolling free markets
- Overselling the model (it's just a simple illustration)
- Taking the model too seriously
- Incorrect citations
  - Make sure papers cited make the claims they are cited for

Style Notes:
- Be conversational and direct, yet rigorous
- A touch of wit and wry humor are OK
- No bulleted lists
- No subsections (e.g. Section 1.2) though sections are OK (Section
   1)


Output a complete latex document, including preamble. Cite papers
   using \\cite, \\citep, \\citet. Use `template.tex` and keep the
   appendix that is already in the template.
```