Behind the Markets: A Conversation with Daniel Rock

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Christopher Gannatti, CFA
Global Head of Research

Key Takeaways

- Jeremy Schwartz spoke with Daniel Rock, Assistant Professor of Operations, Information and Decisions at Wharton, on the latest Behind the Markets podcast to discuss the "AI and the Future of Work" conference at Wharton, which aimed to explore the impact of AI on different industries and jobs.
- Daniel explained that AI is more likely to accelerate tasks than completely replace jobs.
- Daniel highlighted Ethan Mollick's keynote at the conference, which discussed four narrow "singularities" for research, including how AI can assist in writing and publishing, researching, understanding the broader implications of research and furthering our understanding of AI systems themselves.

This week, we were fortunate to have Daniel Rock, Assistant Professor of Operations, Information and Decisions at Wharton, back on the *Behind the Markets* podcast. Jeremy and Daniel were able to discuss the "AI and the Future of Work" conference that had just occurred at Wharton on May 22 and May 23.

In many of our discussions with investors, there is a recognition that artificial intelligence (AI) is exciting and that many of the world's largest companies are making massive investments in Nvidia's chips to expand their compute infrastructure, but it becomes harder to think about how AI is going to impact different industries or even different people as they go about their jobs.

This conference aimed to help answer some of those questions, at least to the extent possible in the first half of 2024.

Possible That AI Can Add 1.5% to Total Factor Productivity

Early in the conversation, Daniel was able to speak to Professor Siegel about AI's high-level impact on productivity. Many developed countries are faced with aging populations and excessive debt burdens, so technology could be an important force in catalyzing enough growth to help deal with these issues. An extra 1.5% in total factor productivity would be powerful, especially if it were sustained over a period of time.

Task Acceleration, Not Job Replacement

When the automated teller machine (ATM) was introduced at banks, was the role of the bank teller replaced or expanded as a result? While it was initially assumed that bank tellers would disappear, banks ultimately needed to hire more of them because they were able to provide different value-added services. It is a good paradigm to have in mind when thinking about the impact of AI on jobs. Daniel and some colleagues have analyzed an array of 900 occupations, mapping 20,000 tasks within those occupations and seeking to understand where large language models could help in accelerating some of these tasks.

The bottom line—their work so far does not indicate widespread cases of people being completely replaced by AI. On the other hand, the work does indicate that it is likely different types of human capital will be repriced, similar to how the job of the bank teller needed to change once the world became used to ATMs.

A more current example that was discussed at the conference was helpful in conceptualizing the impact of AI over the short term in a call center. The biggest impact was in helping the lowest-performing or newest workers increase their skills to be closer to those of the top-performing employees. It's possible that there has not been enough time or that it is harder to measure if the systems are dramatically impacting the skills of employees who are already top performers.

Ethan Mollick's Keynote about Four Singularities for Research

Ethan Mollick, the Ralph J. Roberts Distinguished Faculty Scholar and Associate Professor of Management at Wharton, delivered the keynote at the conference.

He discussed four narrow "singularities" for research, which he defined as future points in human affairs where AI has so altered the field or industry that we cannot fully imagine what the world on the other side looks like. The four singularities that he discussed were:[1]

1. How we write and publish: It's possible that if AI can help with writing, it could allow scientists to focus on their actual research areas. It may be that the process of publication could speed up.

2. How we research: While large language models are not perfect and can be prone to hallucination, they can also do things that would be time-consuming for humans. Mollick gave Gemini Pro the 20 papers and books that he had published prior to 2022. It was able to extract direct quotes and find over-arching themes with only minor errors—a task that would have taken him hours.

3. What our research means: Sometimes, it can be difficult to take the content of a specific, fairly technical paper and show the application to the broader world or a wider audience outside of the direct field of study. AI might be able to bridge this gap and show a wider audience the importance of more academic research.

4. What we research: One of the most interesting conundrums is how large language models are seemingly so good at simulating human thought without necessarily being able to think. We need to continue increasing our understanding of how these systems work.

Anyone looking to advance their understanding of AI and its impact would do well to follow Ethan Mollick's work, as he is a prolific publisher on many freely available forums.

Many papers were cited during this discussion between Jeremy and Daniel, so if you are interested in academic works seeking to analyze the impact of AI, you may get some ideas for further reading from this discussion, available here, or listen below.

For more on AI, join this discussion with Christopher Gannatti (Global Head of Research) and Mobeen Tahir (Director of Research, Europe) for a discussion about the megatrends shifting the way we live and invest. Register here.

[1] Source: Ethan Mollick, “Four Singularities for Research,” One Useful Thing Substack, 5/26/24.

Important Information Related to this Article

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Gross domestic product (GDP): The sum total of all goods and services produced across an economy.

Purchasing Managers' Index (PMI): An indicator of the economic health of the manufacturing sector. The PMI is based on five major indicators: new orders, inventory levels, production, supplier deliveries and the employment environment. A reading above 50 indicates an expansion of the manufacturing sector compared to the previous month; below 50 represents a contraction while 50 indicates no change.

Total factor productivity (TFP): An economic concept that describes the portion of a company's increased output that cannot be explained by increased capital or labor inputs and thus is considered a measure of operational efficiency.

Generative pre-trained transformer (GPT): A type of machine learning algorithm that uses deep learning and a large database of training text in order to generate new text in response to a user's prompt.