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I joined King's in September 2019, to lead the Finance research hub in the Department of Informatics. Since July 2023, I have been the Director of the King's Institute for Artificial Intelligence. Since August 2024, I have been the Head of the Department of Informatics. My research interests relevant to this consultation include AI for algorithmic trading and finance.

Over the last five years, I have built one of the strongest groups worldwide in computational finance. I have attracted, and continue to attract, numerous high-quality PhD applicants who wish to work under my guidance. The team I lead consistently produces around 5% of the total output submitted each year to the premier conference in the area (ACM ICAIF). My work has attracted the attention of academia as well as the financial services industry. I have been invited to give keynotes at leading conferences, institutes, financial institutions and regulators. I forged industrial collaborations all leading to joint publications and PhD student internships.

How can Government and financial regulators strike the right balance between seizing the opportunities of AI but at the same time protecting consumers and mitigating against any threats to financial stability?

Context

In the context of my relationships with the industry and regulators, I have noted a positive shift (in the organisational culture, if nothing else) in the attitude towards AI, certainly fuelled by the advent of ChatGPT and similar technologies. These technologies have reduced the gap between development and access to AI technology. Moreover, they opened up potential avenues for trust in automated agents despite the existence of risk to financial markets, which alongside the anonymity of an AI model (e.g., its black box nature) helps to explain the trepidation of large-scale AI adoption in financial services.

So, while financial institutions are certainly looking at case studies where AI can lead to competitive advantage, and regulatory institutions like the FCA are trying to understand whether new policies are required, this paradigm of risk is still very much present.

Academia must play a major role in informing regulation and deployment

The potential exacerbation of risk coming from balance sheets from the deployment of AI bots is one reason why this is still the case. Finance is a complex system where humans and AI bots cohabit, each guided by their own goals, leading to several challenges. For example, the outcomes resulting from the interactions between humans and AI, and between different AI bots, need to be understood to avoid harms to competition and consumer wealth, as in the case of

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colluding pricing algorithms[1]. The frontier between decisions made by humans and AI also needs to be properly navigated.

This has clear implications for the most vulnerable in society – financial inclusion also needs trust in the emergent behaviour of markets populated by automated trading bots.

It is important to note that AI, as a technology, is not mature and academic research is needed to develop both narrow and frontier AI and inform regulation and successful deployment. While innovations with AI have certainly taken place, TCP/IP, the technology governing the movement of data over the Internet, provides a helpful parallel. Despite not understanding the intricacies of the technology, which is more mature than AI, disruptive products can still be launched – but that is not the same as understanding.

Without academic assessment of associated risk, the benefits of AI implementation such as faster solutions to complex tasks (e.g., pricing of exotic derivatives[2]) or novel tools to understand emergent behaviour and address regulatory questions (e.g., market mechanism design[3] or the detection of pernicious behaviour in financial markets[4]), could be lost in a bid to minimise risk.

Ultimately, I feel that the potential of the intersection between AI and finance has not yet been fully realised. The problem lies in my experience in the "last mile" of research, that I define as either new tools that make it out of the lab and into production, or policy recommendations based on sound academic research. The current ecosystem in the UK to support the last mile is suboptimal. The barriers are as follows.

Academia – Industry collaborations

As noted above, I have talked about the research of my lab at several institutions. However, conversations around the last mile consistently stall for the following reasons. Institutions are busy delivering business as usual and lack the staff with the right expertise and bandwidth for it.

One partner institution has hired my PhD students to work part-time during the second half of their PhD; this has led to both papers[5] and a tool about to be deployed into production. However, the collaboration started in 2021, with the paper discussing the research behind the tool completed in 2022 and the remainder of the time spent on the last mile in between changes to the UBS team and the turmoil of March 2023 – not the quickest journey. More formal collaborations with academic teams are also blocked by concerns around IP[6], with universities and financial institutions often having divergent goals that need to be realigned.

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[1] https://www.aeaweb.org/articles?id=10.1257/aer.20190623

[2] https://arxiv.org/abs/2410.09196

[3] https://dl.acm.org/doi/10.5555/3535850.3535943

[4] https://dl.acm.org/doi/10.1145/3604237.3626871

[5] See, e.g., here and here.

[6] The IP for joint research led by PhD students supervised by academics is a grey area. The boundary between what goes into research papers and what is hidden is not always crystal clear. This limits the appeal of these sorts of arrangements for academics.

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Seeking external funding for joint research also seems impossible – big financial institutions say that "from a comms perspective the policy is that we don't do endorsements"[7].

Moreover, peer reviewers for grants submitted to research councils note that it is unclear why "public money should be used to support the agenda of rich banks"[8]. Right or wrong, in a supercompetitive field, these comments eventually lead to unfunded proposals, which slows down progress.

Academia – Regulators

Regulators, like the Bank of England and the FCA, recognise the need for academic input. I have worked with both on occasion, including delivering a session on the potential risk coming from balance sheets by introducing AI bots to the FCA's Payments Knowledge Exchange Seminar. While the will exists in some capacity, the ability of regulators to close the final mile is not mature yet.

Much like with industry, interactions with regulators seem to be missing an important feedback loop to either build policy based on current understanding or co-define a research programme, which could be externally funded.

Another parallel is the unwillingness (or impossibility) to provide letters of support for academics to further the research needed to regulate. This hurts the chances of quick progress; the panel feedback for one of my recent proposals noted that "[it is] an area with major systemic risk [but] the proposal is missing a connection to regulators to enable this project to have meaningful impact." The change in behaviour necessary to correct this should happen at a government level.

Conclusion and Recommendations

The UK and the city of London have excellence in academia, private and public sector in AI and finance. The ecosystem is ripe to deliver transformative outcomes if the right structures and opportunities are in place.

The role of the AI champion for finance, which according to the UK government's AI opportunity plan, is to be established should have the remit and skills to overcome the challenges highlighted above. Ultimately, to create a triangle of excellence for AI in financial services the champion will need to play a key role in efficient knowledge transfer between industries, universities and regulators – to ensure that the benefits of AI adoption are maximised, and the risks minimised.

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[7] Private communication with big bank (2025).
[8] Peer review for EPSRC proposals (2022, 2023).