Using ChatGPT in Finance:
Which One of Us is the Sidekick?

Image created by Stable Diffusion AI with the Prompt: ChatGPT in Finance

It would seem impossible to avoid our daily dose of articles on ChatGPT. They detail the many uses, problems, and ways that it is disrupting everything from education to marketing. But alas, this is common when we come across a technology so novel and effective that even those that have never read a single article about artificial intelligence or natural language processing ("NLP") are amazed and jump on the bandwagon. It has most likely come to the point where most AI practitioners are beyond annoyed with anyone sending them constant emails about ChatGPT with a subject line of "Hey, have you seen this?!". Well, at the risk of joining this crowd, it is worthwhile to present a brief analysis on how ChatGPT can be used within the financial industry.

It would seem logical that asking ChatGPT itself how it could be used in finance would be a good start. So, let's do that and see what it says.

1. Customer Service: Provide quick and accurate answers to customer inquiries regarding accounts, transactions, loans, insurance, etc.
2. Fraud Detection: Use NLP and machine learning techniques to detect suspicious patterns in financial transactions and flag them for review.

3. Investment Advice: Provide personalized investment recommendations based on customer goals, risk tolerance, and market trends.
4. Personal Financial Management: Help customers with budgeting, saving, and debt management by providing financial education and customized advice.
5. Risk Assessment: Analyze large amounts of financial data to identify and assess risks in investment portfolios and provide insights for risk management strategies.
6. Chatbots for banks: Provide 24/7 assistance for basic banking tasks such as checking balances, making transfers, and more.

The answers given seem very appropriate and one can immediately see the benefits. I would argue that nothing on this list is new. AI technologies have been used in all these domains for years now. Granted, in some areas such as personal financial advice, it is very generic, or it's based on robo-advisory or some set of basic rules-based algorithms to help investors find suitable products or identify when portfolios are outside of their asset allocation limits. The question would then become how much the ChatGPT technology can improve upon what is already out there.

Let's dig deeper and be more specific with our use case. I want to see how ChatGPT can use a specific AI technique to solve an investment issue. My real question: Is ChatGPT a threat to any of my intellectual property? One of my most successful projects uses hierarchical clustering to conduct investment manager due diligence. I asked ChatGPT how to do this, and here is the response (edited for brevity):

Hierarchical clustering is a method for grouping similar data points together into clusters. It can be used in various fields, including finance, for manager due diligence.

In the context of manager due diligence, hierarchical clustering can be used to group together similar investment managers based on their performance, risk, and other characteristics. This can be useful for identifying managers with similar investment strategies and risk profiles, which can help to diversify a portfolio and reduce risk.

One way to use hierarchical clustering for manager due diligence is to input data on the performance and risk of different investment managers into the clustering algorithm. The algorithm will then group the managers into clusters based on their similarity.

Again, this is unbelievably accurate and does a great job of providing a high-level summary of the technique and what it can do. However, this isn't nearly complete enough for someone to create a working model. One would need to continue to refine the question to get a more detailed output. Anyone who has attempted to build machine learning models in finance knows that it is never easy and multiple techniques are needed to make a good model. It is very easy to build a bad model; good ones take experience and creativity.

One can spend hours asking questions to hopefully get a working instruction manual. At this point, it would seem that ChatGPT is an incredibly useful tool for brainstorming ideas, and to help come up with solutions to problems that you might be having with your code or the underlying mathematics. But if this really does have the power to threaten intellectual property rights, not to mention disrupt entire industries, then there is a strong potential for this technology to be regulated. In any event, this is just the beginning, and many debates are coming. Not to mention the influx of emails in my inbox and related articles on my news feeds.