

Summary: This project aimed to create a pilot program, testing the viability of subsidizing real-money prediction markets as a means of generating impactful forecasts on important topics. The project faced several challenges including; finding a non-U.S. citizen who could legally trade on Polymarket, coordinating with Polymarket to launch markets that both provided informational value on relevant topics while also meeting Polymarket's needs in terms of duration and topic, and technical challenges providing liquidity using AMMs through Polymarket's API. The project was a limited success, demonstrating the viability and limitations of working with real money platforms to generate impactful forecasts. The project was also successful in the creation of multiple interesting markets which provided valuable live forecasts of impactful events, including Ukraine's counter-offensive, the LK99 superconductor saga, and ongoing instability in Niger. Additionally, the project created valuable data which can be used to evaluate the accuracy of real money prediction markets relative to play money forecasts, the costs associated with providing liquidity and the effect of AMM liquidity on trading volume.

Self Evaluation: 8/10

Total Spend: \$6,875

Liquidity Provision: \$6,075

Developer Compensation: \$800

**I spent an estimated 40 hours on this project unpaid*

Introduction

In 2021 Robin Hanson described prediction markets as a “simple elegant idea” that “needs the messy details worked out”. For the past three decades prediction markets have been stuck on the messy details. Despite countless academic papers and blog posts extolling the potential value of prediction markets, the pesky details of regulation and zero-sum market structure have relegated prediction markets to fantasy. Over the past three years prediction markets took a major leap forward, the advent of crypto and the CFTC certification of Kalshi alleviated the regulatory barrier.

Despite this success, these platforms tend to focus on large elections, pop culture, and economics rather than EA-relevant questions of technological progress, existential risk, and geopolitics. This is because prediction markets on niche questions can quickly become illiquid making trading near impossible. Thin markets with large spreads occur when there are not enough standing orders. Maintaining liquidity is difficult, as traders are highly reticent of leaving standing orders in a dynamic market in which the probability of an outcome might change quickly as a quick change in prices can lead to huge losses. These dynamics not only limit trading but also disincentivize Polymarket and other platforms from running markets on important EA-relevant questions that might not be as interesting to the average trader.

This project aimed to overcome these obstacles through market subsidies distributed through automated market makers (AMMs). By guaranteeing liquidity, the exchange (Polymarket) would

have an incentive to list markets they might otherwise not, and users would be able to trade tight spreads.

Project Execution

Upon receiving funding I began looking for a Non U.S. citizen who could legally trade on Polymarket. I reached out to Nuño Sempere, a well-known and respected member of the forecasting community who graciously agreed to collaborate on the project.

After enlisting Nuño, I began collaborating with the Polymarket team on creating markets that would both meet their needs and provide informative forecasts in line with the project's goals focused on geopolitics, AI, and existential risk. Throughout the project they agreed to publish three markets which requested and had written contracts for; the [Ukraine counter-offensive](#), [a cease-fire in the Ukraine War](#) and the possibility of a [military intervention in Niger](#). I also requested markets on North Korean Nuclear tests, and the credibility of the LK-99 ambient room temperature paper, however, I was not directly involved in creating the contract for these markets, and they very likely would have been published regardless if I had promised to subsidize liquidity. I also agreed to subsidize liquidity on a previously posted market on the number of parameters used by GPT-4 which at the time was suffering from a lack of liquidity. Comprehensive documentation of market subsidy activities can be found [here](#).

Total Market Subsidies: \$6,040

Total Volume Generated: \$76,292.46

Market	USDC	Shares	Average Price	current price	Current Share Value	Net	Remaining Colateral
Will Russia & Ukraine declare a ceasefire by EOY?	305	479.48	0.0854	0.08	38.3584	-40.96	0
Is the Room-Temp Superconductor real?	1,210	5,482.89	0.2163	0.05	274.1445	-938	0

Will GPT-4 have 500b+ parameters?	305	508.93	0.3848	41	195.83626	11.48	0
Will Ukraine sever the land bridge between Crimea and Russia before Nov 1?	2,960	16.23	181.3197	0.05	9.065985	-2,942.04	0
North Korea nuke by..?	805	3,560.30	0.1275	0.07	249.221	-453.8	351.5
Niger Invasion	455	264.59	0.1047	0.18	47.6262	-27.7	427.3
Total	6040				814.252349	-4391.02	778.8

Challenges

This project faced legal, technical, and coordination challenges. Coordinating with the Polymarket team proved difficult at times. Although initially there was greater enthusiasm for my project, Polymarket leadership later sought to prioritize markets with very short time horizons and high potential for virality. This meant that markets that were initially agreed to, were later rejected due to their lack of alignment with Polymarket's vision for their platform. I was particularly interested in running a market on AI regulation, similar to the [bet I recently took with Samuel Hammond](#).

In two such cases, markets on possible Libyan elections, and the possibility of an Iran Nuclear deal had polygon contracts created but were never published on the platform.

Military intervention in Niger by September 15?	Global Politics	Yes	No	0.0000	0.0000	\$1,073	\$3,775	268	127	Fri Sep 15 2023	Whales
Will Ukraine sever the land bridge between Crimea and Russia before Nov 1?	Global Politics	Yes	No	0.8749	0.1251	\$323	\$200,557	6,447	2,048	Tue Oct 31 2023	Whales
Will Libya hold national elections in 2023?	Global Politics	Yes	No	0.0000	0.0000	\$0	\$0	0	0	Sun Dec 31 2023	Whales
Will a US/Iran nuclear deal be announced in 2023?	Global Politics	Yes	No	0.0000	0.0000	\$0	\$0	0	0	Sun Dec 31 2023	Whales
Will Putin remain President of Russia through 2023?	Global Politics	Yes	No	0.8585	0.1415	\$0	\$260,669	12,633	1,094	Sun Dec 31 2023	Whales
Will Sweden join NATO by August 31?	Global Politics	Yes	No	0.1180	0.8820	\$260	\$216,796	773	569	Thu Aug 31 2023	Whales

While frustrating, this underscores the importance of aligning markets with the vision of the platform as well as the limits placed on this project by the relatively small amount of funds

committed to market subsidies. Larger subsidies would no doubt have proved a better incentive for Polymarket to publish more technical questions better aligned with the interests of EA.

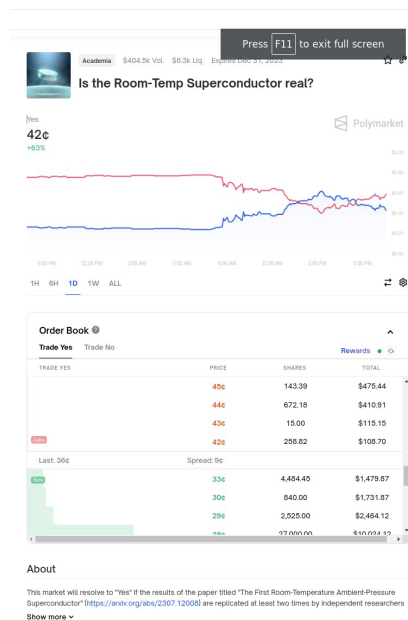
The project also faced numerous small technical challenges. While not unexpected, these issues could often cause long delays. Due both to my lack of programming skills, and legal requirements that prevented me from directly interacting with the Polymarket API, all technical issues had to be solved by Nuño, who was minimally compensated and therefore was not always able to prioritize fixing bugs and overcoming other technical difficulties.

Evaluation

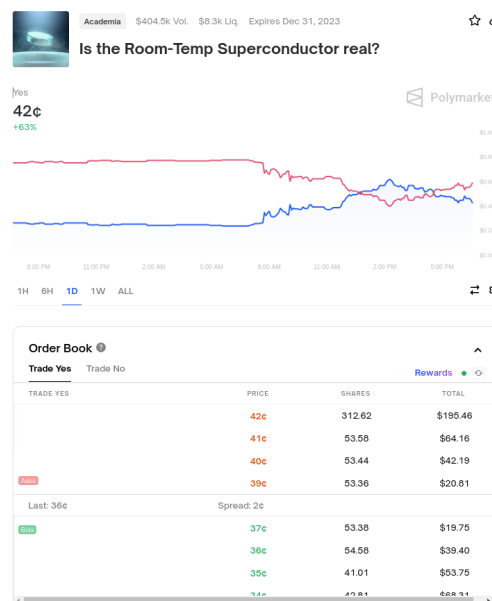
This project was an overall success, demonstrating the viability of using market subsidies as a means of incentivizing prediction markets on high-impact topics. The project directly led to the creation of three interesting markets which in aggregate did over \$214,000 and was directly responsible for \$76,292.46 in trades. This translates to \$1 in liquidity provision directly contributing to \$17.37 in volume, however, I believe the actual effects to be much larger as increased market participation jump starts a positive feedback loop of trading.

The benefits of using AMMs to provide liquidity in terms of lowering spreads and increasing market depth can be seen in the following [Before/After screenshots](#):

Before:



After



The project further created valuable data that can be used in comparing prediction play and real money prediction market projects. This data has been utilized by the Base Rate Times and can be used in fellow AXC Mini-Grant “Comparing forecasting platform accuracy” projects.

The project fell short in the number and quality of markets published. This was mostly due to limitations placed on us by Polymarket due to the relatively small amount of funding. The project also could have been more successful with more time invested by myself and Nuño to run more standardized experiments on optimizing liquidity provision as well as experimenting with more active liquidity provision strategies.

Next Steps

The project will continue subsidizing relevant markets already created until funds run out. Once all markets have been completed I will engage in more in depth analysis, studying the effects of AMM liquidity provision on trade volume, the cost of providing liquidity, and optimal liquidity provision strategies.

Although effective at deploying small amounts of capital, AMMs may not be optimal for deploying large amounts of subsidies, and there may be cheaper ways of driving volume than a ‘dumb’ AMM bot. I recently spoke with Zvi Moshowitz, a professional liquidity provider/market maker, who brought up alternative liquidity subsidy strategies including lead market making. Ultimately, the optimal liquidity provision strategy is determined by what type of information is desired. While AMMs are valuable at generating a constant forecast during highly volatile moments, they also lose huge amounts of money on large price shifts. If you are interested in using AMMs to forecast a rapidly developing news story AMMs are useful. However, if the goal is to incentivize research and accurate forecasts on the probability of a static/future event, AMMs are definitely suboptimal.

A scaled-up version of this project would therefore benefit from a full-time trader, offering up large amounts of liquidity at regular intervals, but not constantly offering liquidity which will be taken during moments of volatility. I plan on coordinating with relevant parties, including; exchanges, prospective funders, and experts in the coming months to run a scaled up version of this project.

