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Project Name: 3Sigma
Team Number: 71
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Executive Summary:

ThreeSigma is a financial insight SAAS offering to enhance individual investor performance. The platform does this by increasing the user's scope of information related to calculating the probability of real-world events and predicting market changes. The improvements in financial portfolio management by integrating real-time probabilities of global events with traditional financial forecasting models and prediction markets. Our solution utilizes API integrations and data scraped from Polymarket, Kalshi, Metaculus, and PredictIt as our prediction markets, stock market data, and real-time financial markets. Our product also enables portfolios, such as university endowment funds, to dynamically adjust to global events like elections, geopolitical crises, and economic shifts, thereby optimizing their risk exposure. Our team has developed a prototype leveraging retrieval-augmented language models (RAG-based LLMs) and state-of-the-art data pipelines to ensure high-quality predictions and scalable solutions.

Value Proposition:

In a market that has fairly homogeneous information, any leg up on the competition is critical in making accurate financial predictions. Due to the recent legality of prediction markets, there has been a surge in users hedging bets against current world events. These users have found inherent value in trying to predict whether an event will happen by investing in multimedia and news across various sectors: politics, finance, sports, and others.

There are tens of thousands of users invested in these markets who have bet tens of millions of dollars on the outcome of these events. Predictive markets are also repeatedly accurate as markets shift – such as the prediction of the winner of the US election – if enough users are committed to a bet. This is positive as actual outcomes can be determined by majorities on betting events posted on the markets that can be used to forecast future fluctuations in the stock market much in advance.

The large user base of prediction markets and inherent legitimacy of users investing their own capital into these platforms and their accuracy in predicting events has prompted 3Sigma to consider these markets as

legitimate market predictors – or at least enhancers. Developing software to harness these technologies is vital to stay ahead of global trends. Putting these insights into a digestible biweekly one-pager will give all the subscribers an advantage in their financial portfolios.

Other incentives to subscribe would be:

- Tailored portfolio recommendations based on user's stocks
- Risk-sensitivity to cover wide ranges of investment styles
- An entry point to a new technology without the "gambling"

Stakeholders:

The primary stakeholders of 3Sigma are institutional investors (university endowments, hedge funds, pension funds) and retail investors seeking advanced risk management tools. Individual investors may also be of consideration and we're of ways to reach this demographic such as with (*we are still deciding if we want to open this up fully to individual investors*).

We require data providers mentioned in the summary above for our real-time models. These would be prediction model companies, financial databases, and news outlet subscriptions or partnerships ranging from WSJ to CNN, with potential to expand into media news outlets such as ESPN if sports sectors of prediction markets get more traction.

Other shareholders include: regulatory advisors for data compliance, venture capitalists for capital and push to market, and our development team.

Market Research:

Prediction markets are new technology. Investors are looking for ways to incorporate them. From speaking to investors in the industry most are excited about the technology and see potential for its use in traditional finance even if its adoption will be slow due to its current regulation. According to a survey found from Business Insider, " investors expressed interest in tools that use real-time geopolitical and economic and event probabilities." [Susquehanna International Group (SIG) currently provides](#)

[liquidity on Kalshi](#) and Wall Street invests heavily in the election-based prediction markets for the 2024 US presidential election.

Two of the most notable sources used in our initial topic discovery were:

1. [Link1](#)
2. [Link2](#)

Most of the initial challenges we've encountered were related to finding real time data and integrating it into our algorithm and backtesting for our RAG application. With API integrations, this should not be a problem and a backtesting model was developed in our last sprint to validate prediction success.

Customer Segment:

Similar to our stakeholders, our customer segment includes institutional investors and individual investors. Institutional funds would adopt our product for portfolio and risk (prediction markets are nascent technologies) diversification. Hedge funds would benefit from additional arbitrage opportunities provided from additional data sources.

Competition:

3Sigma faces limited direct competition, however, our primary competition are subscription based financial insights papers. There are a few prominent ones, but none leverage both prediction markets and stock market insights. The most prominent would be BlackRock's Model Portfolio Recommendations which provides over 120 potential portfolios that follow specific risk tolerances and industry verticals for diversification. Our primary differentiating value-add is our inclusion of prediction market data. Large firms such as BlackRock or Goldman Sachs will be slow to adopt these new technologies into their valuation models due to the importance of their clientele and ambiguous regulations on the technology. The recent legislative approval of Kalshi is a step toward their exploration by these firms, but there is an opportunity to act now and capitalize on the stagnant financial industry. Other competitors include Bloomberg terming and other financial insights platforms like FactSet and BamSEC. They also have not

expanded to provide insights for prediction markets. Kalshi and other prediction markets could also invest in this idea, which would be unideal as they would have superior market share with proprietary technology, greater exposure and education on prediction technology.

IP:

While we are not currently pursuing a patent, certain components of our solution operate in relatively unexplored territory. For example, our use of ensemble models for integrating prediction market signals with traditional financial indicators, and our application of retrieval-augmented generation (RAG) to financial forecasting, are both relatively novel. We are also experimenting with model training using parameters derived from academic research rather than traditional datasets, a method that is uncommon at scale. As development progresses and these techniques mature, we will re-evaluate the potential for IP protection, especially around proprietary data pipelines and model tuning methodologies.

Cost:

Our current prototype operates on a lean architecture using open-source tools and low-cost cloud services. The primary costs are centered around access to data feeds (prediction markets, financial APIs, and premium news sources), cloud compute and storage infrastructure for running and maintaining our models, ongoing development, testing, and maintenance from our engineering team, and legal and compliance-related advisory services due to the evolving regulatory landscape surrounding prediction markets.

As we scale, costs are expected to rise proportionally with user growth and API demand. However, our infrastructure is designed for modular scaling, allowing us to expand cost-efficiently.

Revenue Model:

3Sigma will adopt a subscription-based model targeting two main customer tiers:

1. Institutional Tier – Custom pricing based on portfolio size and data usage. This tier includes features such as full portfolio integration, API access, early signal delivery, and quarterly strategy sessions.

2. Retail Tier – Flat monthly subscription (e.g., $29.99/month), providing biweekly insight sheets, tailored alerts for major global events, and basic portfolio recommendations.

Additional revenue opportunities include: white-labeled insights for financial advisory firms, educational partnerships with universities, licensing our analytics engine to hedge funds and asset managers