Learning from Prediction Markets: The Transmission of Information and Noise to Traditional Assets

A Brief Summary

Link to the full paper: https://yeli-macrofinance.com/crossmkt_learning.pdf

Markets are celebrated as mechanisms for producing and aggregating dispersed information (Hayek, 1945), and prediction markets are designed precisely to supply such information about future events (Wolfers and Zitzewitz, 2004). With the rise of platforms such as Polymarket and Kalshi, prediction markets have grown tremendously, and their signals increasingly reach beyond their own boundaries. Do participants in traditional financial markets actually learn from prediction-market prices? In this paper, we address this question using data from Polymarket, the largest blockchain-based prediction market, around the 2024 U.S. presidential election. We track a portfolio of "Trump trades"—assets across stocks, bonds, currencies, and commodities identified by media coverage and sell-side research as sensitive to the election outcome—and document a robust lead-lag relationship: a one-percentage-point increase in the Polymarket-implied probability of a Trump victory is associated with 13 basis points of next-day returns on Trump trades, and a trading strategy based on this signal earns an annualized Sharpe ratio of 1.95.

A lead-lag relationship alone does not establish learning: both markets may simply respond to the same fundamentals, with Polymarket moving first. Our identification strategy, in the tradition of the feedback-effect literature (e.g., Edmans, Goldstein, and Jiang, 2012), is to trace the transmission of noise. Traders who learn from Polymarket prices cannot distinguish in real time between price changes driven by information and those driven by noise; if Polymarket-specific noise propagates to traditional assets, learning must be the operative channel, because noise is orthogonal to fundamentals and its transmission cannot be explained by the sequential arrival of common information. Exploiting the transparency of Polymarket's blockchain ledger—an immutable, wallet-level audit trail of every transaction—we classify traders as informed or uninformed based on their trading performance. The price impact of informed order flow persists and accumulates, consistent with the gradual incorporation of fundamentals, whereas the impact of uninformed flow reverses. Decomposing Polymarket price changes accordingly, we find that both components predict next-day Trump-trade returns, but only the effect of the informed component persists; the effect of the noise component fades, with a cumulative impact indistinguishable from zero. This noise spillover—amplified when retail attention to Polymarket is elevated—pins down an active channel of cross-market learning.

To interpret these findings, we develop a model of learning in the tradition of Grossman and Stiglitz (1980): rational investors in a traditional asset market observe a prediction-market price that mixes information and noise, and because they cannot perfectly filter out the noise, they place positive weight on the signal regardless of its origin. The model predicts that transmission strengthens when investors face greater uncertainty about the event and, more strikingly, when prediction-market prices are perceived as more precise—the greater weight placed on a trusted signal amplifies the transmission of noise exactly when the market is deemed most reliable. Both predictions are confirmed in the data, using the dispersion of election polls to proxy for uncertainty, and market depth and informed trading volume to proxy for signal quality. We also document an "information hangover" effect: recent informed trading amplifies the traditional market's subsequent reliance on Polymarket signals, which in turn facilitates noise spillovers.

This paper extends my research on the information environment of asset prices to the frontier where new information venues emerge. Prediction markets are increasingly promoted as public sources of signals for the broader economy, and our results show that they indeed move much larger and more liquid markets. But with the transmission of information comes the transmission of noise: policymakers and practitioners embracing prediction-market signals should be mindful that noise generated inside these markets does not stay there. The blockchain-based transaction records underlying our identification also illustrate that the transparency of blockchain ledgers enables research designs that are infeasible in traditional markets.

References

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