The Blackwell Encyclopedic Dictionary of Finance

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Iowa Electronic Market The Iowa Electronic Market (IEM) is a real-money, computerized futures market operated as a not-for-profit teaching and research tool by the University of Iowa College of Business Administration. As a teaching tool, the IEM provides students with hands-on, real-time experience in a fully functional financial market. As a research tool, the IEM serves as a laboratory, providing a unique source of data for studying financial markets.

Market Operation

The IEM operates as a continuous electronic double auction with queues. Trading takes place over the Internet and is open to participants

worldwide. Registered traders can issue limit orders to buy or sell, or market orders to trade at the best available prices. Outstanding bids and asks are maintained in price- and time-ordered queues, which function as continuous electronic limit order books. Traders invest their own money in the IEM, bearing the risk of loss and profiting from gains.

The futures contracts traded on the IEM have liquidation values tied to the outcomes of future political and economic events such as elections, legislation, economic indicators, corporate earnings announcements and realized stock price returns. For instance, the 1992 Presidential Election Vote-Share Market traded contracts in "November Clinton" that paid off US$1 times the Clinton share of the two-party vote in the 1992 election. Because these are real futures contracts, the IEM is under the regulatory purview of the Commodity Futures Trading Commission (CFTC). The CFTC has issued a "no-action" letter to the IEM stating that as long as the IEM conforms to certain restrictions (related to limiting risk and conflict of interest), the CFTC will take no action against it. Under this no-action letter, IEM does not file reports that are required by regulation and therefore it is not formally regulated by, nor are its operators registered with, the CFTC.

Contracts are placed in circulation via "unit portfolios." A unit portfolio is a set of contracts with liquidation values that will sum to US$1. The IEM stands ready to buy or sell any unit portfolio at any time for US$1. After purchasing unit portfolios, traders "unbundle" them and trade individual contracts in the market. If held to liquidation, individual contracts receive liquidating payments according to the rules established in the market prospectuses.

The IEM as a Teaching Tool

The IEM serves as a real-time interactive laboratory in which students learn the language of markets and study the events on which the markets are based. It has been integrated into accounting, economics, finance and political science classes at more than thirty colleges and universities. The economic stake that students have in the market provides a powerful incentive for learning how markets work and focusing attention on the economic and political events that drive market prices. In this social science laboratory, students learn first hand about the operation of markets, how public information is assimilated in market prices, market efficiency, arbitrage, and the concepts and problems underlying the measurement of economic events. Because students trade based on their own analysis of market factors, they are better able to understand these factors and how market prices impound information about them.

The IEM as a Research Tool

The IEM combines the features of larger organized futures and securities markets with the experimental control found in laboratory markets. Traders put their own funds at risk and real economic events drive market outcomes. Yet the market structure is simple and controlled, contracts and their payoffs are well specified and actions are time stamped and identified by trader. On-line trader surveys also allow collection of additional individual-trader-level data. Since the markets are relatively short lived, a variety of market structure variables can be controlled and manipulated across markets.

The data from these markets have been used to investigate several research issues. The first, and most obvious, is the ability of the IEM to predict a decidedly non-market event such as an election. Like most futures markets, the ability of the IEM to correctly incorporate information about future events can be tested directly since there is an observable event that ultimately defines the true value of a contract. In contrast to typical futures markets, achieving this informational efficiency is presumably more difficult since there is no underlying, market-traded asset and, hence, there are no arbitrage conditions that drive the futures and spot prices together. Forsythe et al. (1992) undertook the first of several studies to examine this issue using the data from one market on one election. Using the data from a 1988 US presidential election market designed to predict candidates' vote shares, they examined both the ability of a market to predict an election outcome in an absolute sense as well as relative to public opinion polls. They conclude that the market is efficient in both senses; the IEM's error in predicting Bush's actual winning margin was 0.26 percent, while the average poll error was 2.69 percent.

As additional markets have been conducted, studies have begun to examine cross-market comparisons of the IEM's predictive accuracy. Using the data from twelve vote-share markets from seven countries, Forsythe et al. (1993) look at IEM's performance relative to election eve public opinion polls, and find that the IEM's forecast outperformed the polls in nine of the twelve comparisons. Berg et al. (1996) provide a detailed examination of the data from sixteen US vote-share election markets to study factors that influence the IEM's predictive ability.

The average absolute prediction errors for these markets range from 0.06 percent to 8.60 percent. Most of the variance in these errors can be explained by market volume, the number of contract types traded and the level of market imbalance (as measured by absolute differences in election eve weighted bid and ask queues).

A second stream of research examines individual trading behavior. Analyzing the data from the 1988 presidential election market, Forsythe et al. (1992) use trader-level response data to examine how traders' judgments and preferences affect their trading behavior. They find that, on average, traders exhibit systematic trading biases; for instance, at any price the average trader's partisanship leads him to buy more contracts in the candidate he favors than the candidate he does not. Nevertheless, the market predicts quite well due to the presence of bias-free marginal traders (traders who regularly submit orders at or near the market). Thus, while an examination of individual trader behavior would lead one to conclude that, on average, traders are biased, market prices do not necessarily reflect these biases. Market dynamics, along with a core of bias-free marginal traders, still lead to unbiased prices.

Oliven and Rietz (1995) provide additional evidence about the behavior of these "bias-free" marginal traders. They compare the "rationality" of price-taking traders (who accept market prices) to that of market-making traders (who set market prices). Using trader-specific data from the 1992 presidential election market to study no-arbitrage restrictions and individual rationality, they find large differences between these two types of traders. Violations of individual rationality are common among price takers (occurring in 38.3 percent of the orders they submit), while rare among market makers (7.8 percent). Since the 1992 market was one of the most efficient to date, this provides further evidence that market prices can be efficient even though individual traders act suboptimally.

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