Insider Trading Regulation Evaluated with New Microstructure Model

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Can official announcements stipulated in insider trading legislation fulfill their purpose to significantly reduce information asymmetry? A recent study says yes, and in doing so develops a new intraday estimation procedure to measure information asymmetry.

Measuring the degree of information asymmetry in a market place is desirable for both practitioners and researchers. One approach that builds on a microstructure model of trading has become very popular in empirical financial research. In this model, traders are distinguished by their motivation to trade. Informed traders possess private information, which, they believe, is not yet incorporated into prices. Uninformed traders trade purely for liquidity reasons. The proxy for information asymmetry based on this model – coined the Probability of Informed Trading (PIN) – simply relates the share of informed trading activity to all trading activity. The empirical estimation of the model's parameters, however, is increasingly difficult in today's high-speed trading environments. Further, with increased trading intensity comes increased information processing. This in turn shortens the appropriate time period to be chosen for an event window. A third major criticism is the assumption of at most one information event per day, which seems outdated.

The approach used in this study solves all the aforementioned shortcomings to make PIN applicable again in todays market structure. We adjust the time-scale to adhere with current market conditions. Basically, a trading day is sliced into minute intervals, thereby allowing one PIN estimation per day instead of one PIN per 30-60 trading days. With this modification, results demonstrate that the trading model's underlying assumptions of independence are fulfilled to a much greater degree with convergence rates of 95% even for the most liquid stocks.

We test our model on trading data for the top 100 German stocks. Firstly, results confirm earlier findings: the probability of an information-based trade is highest in the most actively traded stocks and declines with volume. The probability of the arrival of an information event is also greater for high volume stocks. Section 15 of the securities trading act in Germany specifies that price-sensitive information has to be published without delay or kept strictly confidential until a publication does not harm the company's interests. The designated channels for the release of price-sensitive information are ad-hoc announcements. What we see is that the PIN decreases significantly on disclosure days for high and medium liquidity stocks. Accepting the PINs validity allows drawing the conclusion that ad-hoc announcements fulfill their mission of disclosing price-sensitive information to all market participants simultaneously to significantly reduce the information asymmetry in the market on the day of disclosure.

This study also closes a gap in extant research by evaluating the effectiveness of uniquely identified regulatory enforced actions that try to prevent insider trading, whereas previous studies typically have utilised aggregated data, not single events. In a similar fashion, regulators and investors alike can, for instance, use the intraday PIN to evaluate the multitude of news channels available today to determine their relevance not only from the price impact, but with regards to information dissemination.