

# Open Interest based Measures of Informed Trading in Option Markets\*

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Master Thesis in Quantitative Finance



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## Abstract

This thesis systematically investigates the usability of the option market variable open interest in measuring informed trading in option markets. On a single-stock level a regression based analysis is carried out in order to examine the predictive power of open interest based measures on future stock returns. Additionally, average returns of stock portfolios constructed using the same measures are analyzed. For one of the considered types of measures, empirical evidence for its predictive power is found on both the single-stock and the portfolio level. Serving as a proxy for informed trading, a decomposition of this specific measure type on a single-stock level reveals that its evolution can partially be explained by looking at structural firm characteristics.

**Keywords:** Option Market, Informed Trading, Open Interest

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# Executive Summary

## Problem

The trading behavior of informed investors and through which channels private information gets incorporated into prices of financial assets have proven to be of big interest to both academia and praxis over the last decades. There exists a variety of arguments why informed traders should trade in derivative markets as opposed to direct trading in the market of the underlying. However, in most of the existing literature analyzing informed option trading the (by its nature very interesting) option market variable “open interest” (OI) is neglected. Therefore, this thesis aims to systematically investigate to which extent open interest can be used to measure informed trading activities in option markets.

## Method

In order to evaluate how accurately different OI based measures actually do capture informed option trades, an investigation of the relationship between OI and future stock returns on both a single-stock level (by predictive regressions) and a portfolio level is conducted. The option data analyzed consist of all traded options on 33 US stocks from January 1996 to October 2010 and is provided by OptionMetrics. Additionally, an OI based measure is used in order to decompose informed trading in option markets with respect to its main drivers. This decomposition is carried out by a multi-step regression approach following partially Bardong et al. (2009). The whole (extensive) data processing as well as the empirical analyses were implemented in Matlab.

## Results and Evaluation

This thesis comes up with two main results: first, it provides empirical evidence that measures of informed trading based on the OI predictors of Bhuyan & Chaudhury (2001), on the single-stock and the portfolio level, as well as the OI based measures of Doran et al. (2010), only on the portfolio level, possess (to a certain degree) predictive power regarding future stock returns. Second, the occurrence of informed trading, as measured by a OI predictor based measure, can be explained to a certain extent by structural characteristics of firms (as e.g. market equity or relative capital expenditures).

The empirical stability of these results is, however, questionable because of the rather small sample of stocks on which they rest upon. This gives space for further research improving the accuracy and reliability of this thesis’ findings by applying similar or alternatives techniques to more representative data sets.