

# QUALIFYING EXAMINATION

## ESSAYS ON DARK TRADING: AN EXPERIMENTAL ASSET MARKET APPROACH

**WANG YAN, ECONOMICS**

### Abstract

In finance, a dark pool (also black pool) is a private forum for trading securities, derivatives and other financial instruments. Unlike public exchanges, such as New York Stock Exchange and NASDAQ, trading information in dark pools is generally confidential before execution. And because of this information confidentiality, the risk of significant asset price fluctuation is reduced. By February 2020, there were more than 50 dark pools registered with the Securities and Exchange Commission (SEC). Dark trading is controversial. With regard to market performance, on the one hand dark trading prevents information leakage, which is especially attractive to large block traders, thus increases liquidity; on the other hand, imperfect information may harm price discovery, which is intuitive. For individual traders, public exchanges (or lit markets) and dark pools imply a trade-off between lower costs and immediate execution.

In the first project, the impacts of dark trading on price discovery and subjects' trading strategies in asset market experiments will be examined. Opaque liquidity plays a significant role in asset markets nowadays and liquidity in the markets has both lit and dark components. With the emergence of dark pools, is dark trading beneficial or harmful to the aggregate market performance? Various empirical and theoretical studies get quite opposite results. In this study, we will explore whether adding a dark pool alongside a lit market improves or harms price discovery under experimental environments. In addition, some other issues, such as liquidity, participation rate, subjects' welfare will also be studied under two parallel markets environment.

In the second project, the impacts of two different execution priority rules (time priority and order size priority), as well as adverse selection and trading competition in dark pools will be studied. This project extends the first project, where there is only one execution priority rule, time priority, in dark pools. Still two parallel markets are provided. Execution priority rules in dark pools matter considerably, especially for large block traders. For large block traders, size priority execution in dark pools makes dark trading much more attractive than for normal traders because their execution probability is higher, which leads to lower waiting costs. In addition, when two parallel markets are provided, endogenous interactions among execution priority rules, adverse selection and trading competition are of greater significance due to liquidity migration between two markets.

Monday  
14 Sep 2020

10am

Venue:  
TEAMS Meeting

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**(continued.....)**

In the third project, the existence of Grossman-Stiglitz paradox will be checked in a laboratory environment with two parallel markets. Grossman (1976) and Grossman & Stiglitz (1980) argue that it is impossible to observe perfectly informatively efficient markets because when information is costly, prices cannot fully reveal information that is available, since if it did, those subjects who purchase information will not receive compensation. Dark pools may relax this paradox by fully aggregating information which is dispersed among subjects. Previous theoretical and experimental studies note that this paradox disappears in a pure dark pool. This project is an extension of Asparouhova et al. (2019), where there is only one dark pool in the experiment. This project aims to examine whether this paradox exists in two parallel markets provided to subjects.

### Proceedings

Duration	Session
5 mins	Chair Welcome & Introduction of Panel
30-45mins	Presentation by Student
15 mins	Q&A (by audience – faculty / students)
Break	Audience to leave the meeting
30 mins	Q&A by Panel
15 mins	Chairperson to ask candidate to leave the meeting Private Panel Discussion and Decision on the Qualifying Examination
15 mins	Candidate invited back by Chairperson Feedback and Outcome of Qualifying Examination

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