



Dark Pools – A Conceptual Framework

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Abstracts:

Over the years, the world financial system has experienced a widening of equity trading venues, among which dark pools have rapidly grown in popularity among the American & European countries. The market share of dark pool in the U.S. has grown from 7.51% in 2008 to 16.57% in 2016. They are a growing presence in stock trading now representing at least one-eighth and possibly much more, of all stock trading volume in U.S. Dark pools are private exchange forum for trading large block of securities. They are frequently considered part of an alpha protection strategy for Asset management and alternate Investment firms. A dark pool is not accessible to the investing public and the name describes lack of transparency which exists in these exchanges. This Research paper aims at finding out what actually dark pools are and explores the main concepts involved in it, with the challenges and opportunities faced in the modern era and also brings about the present regulations prescribed by Securities Exchange Commission to have a control over Dark Pools. The paper reconciles the conflicting empirical evidence and produces novel empirical predictions and also provides regulatory suggestions with dark pools on current equity markets and in emerging markets.

Keywords: stock market, trading volume, trading venues, block of securities, lack of transparency.

INTRODUCTION

Over the last decade, numerous trading platforms have emerged to compete with the incumbent exchanges. Today, in the U.S investors can trade equities in approximately 300 Different venues. According to TABB, as of June 2015, there are 11 exchanges, 40 active



dark pools, a handful of ECNs, and numerous broker-dealer platforms that are Operating as equity trading venues in the U.S. Among those trading venues, dark pools are a unique type of equity trading venue that does not publicly disseminate the information about their orders, best price quotations, and identities of trading parties before and during the execution. Dark pools emerged as early as the 1970s as private phone-based networks between buy-side traders. In the early days, the success of these trading venues was limited, but this has changed substantially in the last decade. The origin of dark pools came into existence within the Eighties, and also the decentralization of physical mercantilism venues in conjunction with the raised prevalence of electronic mercantilism with the utilization of electronic exchanges has been instrumental in permitting dark pool to happen. It is actually suggested that this dark pool type of trading has been around longer than when it was given the name in the 1980s, and that it was previously known as “upstairs trading”. Dark pools have experienced a rapid growth of trading activity in the U.S., Europe and Asia-Pacific area. In Australia, according to the Australian Securities & Investments Commission (ASIC 2013), as of June 2015 dark liquidity consists of 26.2% of total value that traded in Australian equity market. Technological development in electronic trading algorithms is one of the main reasons behind the rapid growth of dark pool trading in today’s world. Advances in technology have made it easier to automatically optimize routing and execution according to different sets of considerations and trading protocols. Another reason for the proliferation is the regulation changes that have been made to encourage competition between trading venues. Over 15% of the total traded volume of equity shares in the US markets is attributable to dark pools. This is a considerable amount of trade, as it’s estimated to encompass over 200 billion shares of exchange-based stocks worth US\$10 trillion annually.

REVIEW OF LITERATURE

Dark Pools allow traders to choose between venues with different degrees of pre-trade transparency. The standard theory shows that transparency can enhance liquidity by reducing adverse selection costs and most theoretical models of the effects of anonymity and transparency predict that anonymous trading systems will attract more informed trades



[Madhavan (1995), Pagano and Röell (1996), Röell (1991), Fishman and Longstaff (1992), Forster and George (1992), Theissen (2001), Baruch (2005)]. Several empirical papers have recently explored the significance of anonymity and transparency in experimental settings [Bloomfield and O'Hara (2000), Flood et al. (1999)] and in real data [e.g., Boehmer, Saar, and Yu (2005)]. These studies provide mixed evidence about the importance of anonymity and liquidity. Some studies found that anonymity and lack of transparency can enhance liquidity at the expense of the informativeness of prices. Other studies conclude that anonymity and/or a lack of transparency can reduce liquidity but improve the informativeness of prices.

Haoliang Zhu (2013) examined that dark pools are equity trading systems that do not publicly display orders. Dark pools offer potential price improvements but do not guarantee execution. This paper provides a model of dark-pool trading and their effects on price discovery, liquidity and also provides the evidence that the effect of dark pools on price discovery should be balanced by a few observations which was made by the researcher. First, improved price discovery on the exchange coincides with reduced exchange liquidity, leading to ambiguous welfare implications. Second, some specifications of the delay costs can prevent liquidity traders from freely moving between the two venues, limiting the self-selection mechanism. Third, the effect of the dark pool for price discovery can become weaker the longer is information horizon. Fourth, although the dark pool can improve price discovery on average, it can harm price discovery in some rare realizations of uninformed order imbalance.

Michael Fleming and Giang Nguyen (2015) analysed the workup protocol, a distinctive trading feature of the U.S. Treasury securities market that resembles a mechanism for discovering dark liquidity. The researchers quantify its role in the price formation process and found that the dark order flow generally contains less information than its transparent counterpart. They have also shown that the workup protocol is used more often around volatile times, but that workup trades become less informative relative to transparent trades.



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Generally, the evidence suggests that the workup protocol provides a useful mechanism for liquidity trading and avoiding market volatility, and not a channel to hide private information.

Linlin ye (2016) investigated the impact of dark pools on price discovery (the efficiency of prices on stock exchanges to aggregate information). Assets are traded in either an exchange or a dark pool, with the dark pool offering better prices but lower execution rates. Informed traders receive noisy and heterogeneous signals about an asset's fundamental. The author found that informed traders use dark pools to mitigate their information risk and there is a sorting effect: in equilibrium, traders with strong signals trade in exchanges, traders with moderate signals trade in dark pools, and traders with weak signals do not trade. As a result, dark pools have an implication effect on price discovery. That is, when information precision is high (information risk is low), the majority of informed traders trade in the exchange hence adding a dark pool enhances price discovery, whereas when information precision is low (information risk is high), the majority of the informed traders trade in the dark pool hence adding a dark pool impairs price discovery. This paper reconciles the conflicting empirical evidence and produces novel empirical predictions and it also provides regulatory suggestions with dark pools on current equity markets and in emerging markets.

Paul G. Mahoney & Gabriel Rauterberg (2017) discussed about the market structure regulation and the issues it has raised, including high-frequency trading, non-displayed liquidity, and market centres' fee structures, each of which has attracted criticism in the popular press and proposals or requests for comment by the Securities and Exchange Commission. In this researcher's have also proposed for alternative market structures. The following observations were made. First, there are a series of overlapping concerns about the current categorization system for trading venues as well as the structure of SROs and status of exchanges. Second, the current system relies heavily on broker-dealers as gatekeepers. Accordingly, the regulatory system should be attentive to whether competition sufficiently mediates the conflicting interests of broker-dealers and their customers.



OBJECTIVES OF THE STUDY

The study has been carried out with the following objectives:

- To study the main concepts involved in dark pools.
- To examine the opportunities and challenges of dark pools.
- To explore the new regulations by Securities and Exchange Commission over dark pools.

RESEARCH METHODOLOGY

The study is primarily based on secondary data. Data has been collected from various sources like websites, books and online journals and magazines.

WHAT ARE DARK POOLS?

Dark pools are an ominous sounding term for private exchanges for trading large block of securities. They are so named for their complete lack of transparency. Dark pools are not accessible by the investing public. The players who are involved in these dark pools are known as the institutional investors holding large block of securities who are interested in buying or selling those large block of securities. Dark pools came about primarily to facilitate block trading by institutional investors who did not wish to impact the markets with large order and consequently obtain for their trades. Dark pools provide trades and liquidity outside public exchanges and are based on one-to-one electronic platforms where buyer and seller come in to direct contact for the exchange of securities. Dark pools can serve as matchmakers between large institutional investors who want to buy or sell large number of shares of a particular stock.

Dark pools have become a term for trading venues where deals are executed away from the stock exchanges. They have grown popularity in the recent years, particularly among institutional investors, as a way to trade large blocks of shares without moving the market. A fund manager can put an order into the pool and have it matched by a dealer with a similar order. The prices are only posted publicly after the trade has been done. There are two key



commonalities in dark pools' operating protocols: the pricing mechanism and execution mechanism. First, the element of price discovery will not be disclosed by dark pools. Instead, they typically use a price derived from an existing primary market as their transaction price. The most commonly used pricing mechanism is the mid-point mechanism: a pricing method to cross orders at the concurrent mid-point of the National Best Bid and Offer (NBBO). Second, unlike exchanges where orders are cleared at the exchange price, in most of the dark pools, orders are not clear. Instead, dark pools adopt a rationing mechanism to execute orders. That is, traders anonymously place unpriced orders to the pool, and the orders are matched and executed probabilistically orders in the shorter side are Executed for sure, whereas orders in the longer side are rationed probabilistically. The pricing and execution mechanisms of dark pools' operation react the trade-off trading in a dark pool for an individual trader. On the one hand, dark pools have lower transaction costs than exchanges (typically because orders are executed within the NBBO, with the “trade-at rule” further enhancing such price improvement), and lessen the price impact for big orders.

PURPOSE OF DARK POOLS

The primary purpose of dark pools is to minimize market impact. By restricting access to undesired market participants and by not revealing quotes, dark pools enable institutional investors to minimize their information leakage and realise more effective executions. Dark pool trading introduces the opportunity of price improvement and minimizes the transaction costs by crossing orders at the midpoint of the quoted best bid and offer prices, thereby saving on both the bid-offer spread and on exchange fees.

TYPES OF DARK POOLS

Based on provider of the trading venue dark pools are classified. Each type of dark pool is a unique trading atmosphere that offers different incentives according to the demographic of the market participant. Each type of dark pool have a unique set of attributes that may or may



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not benefit all customers, but the objective of each venue is to create liquidity and provide a service to the trader.

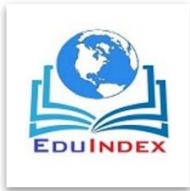
There are three basic types of dark pools:

- **Independent:** Independent dark pools are run by individual companies. Independent providers routinely offer lower transaction costs and reduce costs associated with low liquidity. The transaction prices are not calculated from the NBBO, so there is price discovery. Instinet, ITG and Smart pool are examples of independent dark pool providers.
- **Broker-Dealer Owned:** Broker-dealer owned dark pools are typically run by investment banks. These pools offer price improvement through NBBO and specialise in trade involving other banks or “buy-side” participants. There is an element of price discovery as these dark pools derive their own prices from the order flow. Morgan Stanley’s MS pool, Citi cross and Credit Suisse are a few examples of broker-dealer dark pool providers.
- **Exchange Owned:** Exchange-owned dark pools provide access to retail traders interested in off-exchange trading. They are receptive to high-frequency trading practices and often provide increased liquidity to market participants. Examples of exchange-owned dark pool providers are NYSE Euro next, BATS Trading and the International Securities Exchange (ISE).

ADVANTAGES OF DARK POOLS

Proponents of dark pools often claim an array of benefits, many of which are grounded in the pools’ anonymity. Supporters contend dark pools are more reliable, especially when compared to public exchanges, are cost-effective, and give participants freedom and control. The advantages of dark pools are as follows:

- **Limited market impact:** The main reason why dark pools came into existence was because of their promise to significantly reduce the market impact of large



orders. Institutional investors and traders have to constantly contend with the fact that the market moves adversely when they buy or sell large blocks of shares. As a result, they end up paying more than they would like for purchase transactions, and receive lower prices than they may have expected for sale transactions. The public markets' feature of complete transparency does not work to the advantage of large investors, since their trading intentions are visible to all. In contrast, dark pools are not accessible to the public and are completely opaque, large block trades can be crossed without retail investors being any the wiser about the parties involved, the trade size, or the execution price. As a result, trades executed in dark pools will have very limited market impact compared with similar trades executed on public exchanges.

- **Potentially better prices:** Since dark pools typically only have large players as participants, big orders can be matched by the pool operator at prices that may be more favourable than those on public exchanges. For instance, crossing orders at the midpoint of the best bid and ask prices would result in a better price obtained by both the buyer and the seller.
- **Lower costs:** Trades executed on dark pools do not incur exchange fees. This can add up to significant cost savings over time. Orders crossed at the midpoint of the bid-ask spread also reduce costs associated with the spread.
- **Monitoring:** Dark pools actively and effectively monitor and adjust their liquidity. Some dark pools categorize orders based on their toxicity. Each dark pool has different practices, in part to differentiate itself from the rest, so this cannot be a comprehensive list of all the monitoring techniques which they employ. Nevertheless, the point is that dark pools' methods inspire confidence among traders.
- **Less Unwanted Price Volatility:** Anonymity diminishes unwanted price volatility. First, competitors do not have information about other orders. Consequently, they are unable to act in a manner that leads to unfavourable price changes for other firms. The result is that firms seeking to sell large volumes of shares at a time will be able to get bids and offers than they would have in a public exchange. The size of a sale does not result in a harmful price movement. Should there be an order of an unusual size in a



transparent platform; the price may change unfavourably when everyone reacts to the extra supply. The savings from both these factors that result from being anonymous can be significant over multiple shares and trades.

DISADVANTAGES OF DARK POOLS

- **Off-market prices may be far from the public market:** The prices at which trades are executed in dark pools may diverge from prices displayed in the public markets, which puts retail investors at a huge disadvantage. For example, if a number of large institutions decide independently to dump their holdings of a stock, and the sale gets executed within a dark pool at a price well below the public exchange price, retail buyers who are unaware of the selling that has taken place privately are at an unfair disadvantage.
- **Possible inefficiency and abuse:** The lack of transparency in dark pools could result in poor execution of trades or abuses such as front-running (buying or selling for one's own account based on advance knowledge of client orders for a security). Conflicts of interest are also a possibility. For example, the pool operator's proprietary traders could trade against pool clients. The Securities and Exchange Commission has already cited violations and fined some banks that operate dark pools.
- **Loss of Price Discovery:** One of the most significant criticisms of dark pools is the loss of price discovery. Price discovery is when market price is determined. Factors such as supply, demand, participants' willingness to trade, past information, and other external events affect these prices. Dark pools hinder price discovery because they do not reveal information before trades are executed. Dark pools often give such information either voluntarily or to meet regulations, but post-trade information availability is neither universal nor easy to verify. Indeed, there are claims some dark pools double or triple count their trading volumes. Thus, it is harder to establish an accurate price quote for a security. Dark pool opponents have become more vocal about this downside as dark pools have grown. They argue as more dark pools handle



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a larger proportion of orders, the price derived from available information becomes less representative of the true price.

- **Other Concerns:** Some worry about increased no execution risks in dark pools. Trades depend on matching and matching orders may be harder in an anonymous environment. People do not know supply and demand making adjustments to an equilibrium point more difficult. Thus, those who are on the side with more orders may not be able to get their orders filled. Dark pools' algorithms remain confusing and it is difficult to quantitatively measure their performance. Many other worries about potential harms and abuse stem from anonymity and novelty issues, since both make it difficult to know if dark pools are truly good or bad.

REGULATIONS FOR DARK POOLS

US regulators are calling for dark pools and other alternative trading systems to provide more information on how they work as scrutiny of off-exchange equity dealings intensifies. In a unanimous vote, the Securities and Exchange Commission agreed to propose rules requiring such systems to file detailed information about their operations including trading by broker dealer operators on the ATS, which could pose conflicts of interest. These disclosures would also be made available to the public.

The Securities and Exchange Commission announced on 2015 that it has proposed rules to enhance operational transparency and regulatory oversight of alternative trading systems (ATSs) that trade stocks listed on a national securities exchange (NMS stocks), including "dark pools." "Investors and other market participants need more and better information about how alternative trading systems work," said SEC Chair Mary Jo White. "The proposed changes would represent a critical step forward in delivering greater transparency to investors and enhancing equity market structure." The proposal would require an NMS stock ATS to file detailed disclosures on newly proposed Form ATS-N about its operations and the activities of its broker-dealer operator and its affiliates. These disclosures would include information regarding trading by the broker-dealer operator and its affiliates on the ATS, the



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types of orders and market data used on the ATS, and the ATS' execution and priority procedures.

In addition, the proposal would make Form ATS-N disclosures publicly available on the Commission's website, which could allow market participants to better evaluate whether to do business with an ATS, as well as to be better informed when evaluating order handling decisions made by their broker.

The proposals also would provide a process for the Commission to qualify NMS stock ATSs for the exemption under which they operate and to review disclosures made on Form ATS-N. This would provide a process for the Commission to declare Form ATS-N filings effective or ineffective, as well as provide a process to review amendments. The proposed processes would enhance the Commission's ongoing oversight of NMS stock ATSs. . Regulators have generally viewed dark pools with suspicion because of their lack of transparency, and the controversy may lead to renewed efforts to curb their appeal. One measure which may help exchanges reclaim market share from dark pools and other off-exchange venues could be a pilot proposal from the Securities and Exchange Commission (SEC) to introduce a "trade-at" rule. The rule would require brokerages to send client trades to exchanges rather than dark pools unless they can execute the trades at a meaningfully better price than that available in the public market. If implemented, this rule could present a serious challenge to the long-term viability of dark pools.

DARK POOLS IN INDIA

Dark pool trading is a non-transparent off-market platform for matching buy and sells orders away from the regulated stock exchanges and created mostly for institutional investors, may not see the light of the day in stock exchanges. Dark pools trading forums are not favoured to Indian market because they are very complex and it is not ideal for India. SEBI prefers complete transparency in all stock market transactions, these off-market platforms a favoured as high frequency trading constitute a huge segment of the trades in exchanges, which in turn increases the cost of buy orders and pushing down sale prices. SEBI had made it clear that



“dark pools” cannot be permitted in India. The Executive Director of SEBI said that “If we allow dark pools to operate, then the bigger deals that happen in our stock exchanges will go to these dark pools. This will make price discovery very difficult in our exchanges”. Generally Asian regulators and exchanges have been reluctant to grant “dark pools” a free reign. This is because stock exchanges in Asia are seen as national assets and regulators are wary to allow “dark pools” as they lack transparency.

CONCLUSION

Dark pools have become an important part of equity market structure. Dark pools are rapidly growing in the US and European countries where considerable percentage of transactions are happening in these trading venues. These trading venues are more beneficial towards large institutional investors who don't want to impact the stock exchanges by their large block of securities. However, these dark pools are more featured by its lack of transparency and the element of price discovery. Therefore SEC have made it clear to bring about transparency in all the transactions in order to protect the interest of the investors and the general public. In order for the market to effectively govern, market participants need access to the information that allows them to make informed investment decisions. The dark liquidity market is, despite the passing of the Dodd-Frank Wall Street Reform and Consumer Protection Act in 2010, a highly unregulated market sector. With the passing of Reg NMS, the SEC instituted certain protocols intended to limit the perceived downsides to dark liquidity. However, calls for heightened back-end disclosure, a reduced daily trade volume threshold, and enhanced IOI disclosure left participants without meaningful evaluative tools. Therefore, the SEC would benefit by implementing an independent, dark market-wide reporting system addressing quality trade facilitation. A system that allows investors to draw meaningful comparisons between pools and their related services would help limit fragmentation, prevent against market manipulation, promote liquidity, foster predictability, reduce transaction costs, cure information asymmetry, and reduce barriers to entry for prospective dark market participants. To conclude, dark pools are having a large scope in US and European countries, but in the Asian countries it still has a long way to gain confidence in the stock market and its people.



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The SEC has proposed rules and regulations to bring transparency in dark pools when implemented would be a proper and effective way to balance the dark with the light.

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