

3-20-2018

Shedding Light On Dark Pools: Recent Regulatory Attempts Toward Transparency And Oversight Of Alternative Trading Systems

Roy Girasa
rgirasa@pace.edu

Jessica A. Magaldi
Pace University, jmagaldi@pace.edu

Joseph DiBenedetto
jdbenedetto@pace.edu

Follow this and additional works at: <https://digitalcommons.fairfield.edu/nealsb>

Recommended Citation

Girasa, Roy; Magaldi, Jessica A.; and DiBenedetto, Joseph (2018) "Shedding Light On Dark Pools: Recent Regulatory Attempts Toward Transparency And Oversight Of Alternative Trading Systems," *North East Journal of Legal Studies*: Vol. 37 , Article 5.

Available at: <https://digitalcommons.fairfield.edu/nealsb/vol37/iss1/5>

This item has been accepted for inclusion in DigitalCommons@Fairfield by an authorized administrator of DigitalCommons@Fairfield. It is brought to you by DigitalCommons@Fairfield with permission from the rights-holder(s) and is protected by copyright and/or related rights. You are free to use this item in any way that is permitted by the copyright and related rights legislation that applies to your use. For other uses, you need to obtain permission from the rights-holder(s) directly, unless additional rights are indicated by a Creative Commons license in the record and/or on the work itself. For more information, please contact digitalcommons@fairfield.edu.

**SHEDDING LIGHT ON DARK POOLS: RECENT
REGULATORY ATTEMPTS TOWARD
TRANSPARENCY AND OVERSIGHT OF
ALTERNATIVE TRADING SYSTEMS**

by

Roy J. Girasa*

Jessica A. Magaldi**

Joseph DiBenedetto***

The transfer of ownership of securities has historically been accomplished through the use of public exchanges, such as the New York Stock Exchange (“NYSE”) and NASDAQ, which are subject to stringent statutory and regulatory

* J.D., Ph.D., Professor of Law, Lubin School of Business, Pace University, Pleasantville, New York, rgirasa@pace.edu.

* * J.D., Assistant Professor of Law, Lubin School of Business, Pace University, New York, New York, jmagaldi@pace.edu.

* ** J.D., C.P.A., Professor of Law and Taxation, Lubin School of Business, Pace University, Pleasantville, New York, jdibenedetto@pace.edu

regulations. Typically, investors purchase and sell equity securities on exchanges based on current available pricing data. Large purchases or the unloading of shares on the open market may result in a substantial increase or diminution in the price of the shares. Large institutional investors such as mutual funds and the like are wary of making sizeable investments in particular securities because such investments may then cause the securities to fluctuate considerably and the price may be negatively affected.

To address this concern, “dark pools of liquidity” – or, simply “dark pools” – arose as a form of an alternative trading system (“ATS”)¹ in an effort to avoid national trading systems. Using dark pools, financial institutions are able to conceal the trades until they are placed. This practice avoids tipping their intentions and avoids a run-up or downturn of the securities prior to the trades.² Dark pools now account for more stock trades than the NYSE, although it is worth noting that the NYSE set up a dark pool of its own as a one-year pilot Retail Liquidity Program in 2012.³ Although the word “dark” in connection with dark pools (as the word “shadow” in shadow banking) connotes seemingly sinister transactions, no such implication should be ascribed to these methodologies of providing liquidity to financial transactions.

The methodologies of using these alternative platforms, abuses, and possible remedial alternatives were highlighted in a number of books, including Scott Patterson’s *Dark Pools*⁴, which discussed computerized trading algorithms, the history of dark pools, and the systems in place such as the Island, Datek, and Tradebot systems. The “Flash Crash” of 2010 is a

recent example of where, in a matter of a little more than a half hour, the stock market index collapsed, falling about 1,000 points (although the losses were later rapidly regained) due to the errant activity of a singular trader. By using algorithms, the trader allegedly placed many thousands of S&P stock index futures contracts with the intent of later disposing of them. High frequency traders (“HFTs”) apparently also were able to take advantage of the wild fluctuations in pricing that came as a result of the manipulation. The crash led to a Report of the Joint CFTC-SEC Advisory Committee, which made a series of recommendations in an endeavor to curb abuses and harm to investors.⁵

The abuses of HFTs were more particularly brought to light by Michael Lewis’ *Flash Boys*,⁶ whose iconic book was a best seller that was discussed in numerous communications outlets. The book highlighted how the construction of a \$300 million, 827-mile fiber-optic link through mountains and rivers from the Chicago Mercantile exchange to NASDAQ gave high frequency trading firms, which most often used dark pools for trading, a significant trading advantage by its slight (1 to 4.5 milliseconds) but vital communication time advantage.⁷ The book’s release and the uproar that followed led to investigations by the Federal Bureau of Investigation for possible insider trading violations and other violations under the Securities Exchange Act of 1934. Separately, the Securities Exchange Commission (“SEC”) undertook an in-depth review of the adequacy and possible need for additional regulatory safeguards to protect investors.⁸

PROS AND CONS OF DARK POOLS

The initial *raison d'être* for dark pools was to safeguard investors, particularly those participating in mutual funds and pension plans, from seeing their investments altered by potential adverse price fluctuations brought about by large institutional trades.⁹ By utilizing approximately 45 dark pools engaged in trades, the orders placed were anonymous, which came to light some period after the trades had taken place. Using dark pools realized cost savings from exchange trading fees exacted by public exchanges, stability of pricing, and reduction of risk. The HFTs were able to purchase shares a microsecond before a share order, *e.g.*, by pension funds, a microsecond before the public order of shares became public, profiting from the slight rise or fall in the purchase price thereby altering the price of the shares.¹⁰ Nevertheless, there has been much rethinking concerning whether the regulatory permissiveness of dark pools encourages misbehavior that may, in fact, outweigh the alleged advantages of HFTs. The remarkable growth of dark pools, which now constitute 40 percent of all U.S. stock trades, has led some to question whether the negative consequences of dark pool trades outweigh the intended good results.¹¹

There are obvious adverse results of dark pools' permissiveness. Investors purchasing or selling shares on "lit" exchanges may encounter a mispricing of the shares inasmuch as large dark trades may substantially impact the price thereof.¹² Based upon the multi-trillion dollar sums of all trades, a small mispricing brings about substantial financial consequences. The volume of such trades inevitably brings

about malfeasance such as: insider trading; diminution of income to public exchanges, such as the NYSE, which are highly regulated; less opportunity for investors utilizing public exchanges; lack of data required from brokers before the execution of a trade; favoritism of valued large institutional traders; and a general lack of information normally made available to individual investors.¹³

There are contrary views, as in any controversial area of research. Haoxiang Zhu of MIT, in an exhaustive mathematical analysis, concluded that rather than being harmful for price discovery, “under natural conditions, the addition of a dark pool concentrates informed traders on the exchange and improves price discovery.”¹⁴ He observed that improved price discovery on the exchange coincided with exchange liquidity, that delay costs hamper liquidity traders from crossing from one venue to another, and that dark pool price discovery becomes weaker the longer the information is delayed from the public.¹⁵ In another lengthy mathematical analysis of dark pools concerning the effect of undisplayed liquidity on market quality and fair access to sources of undisplayed liquidity, the authors concluded that dark pool crossing networks increase liquidity only “when it is added to a dealership market where traders cannot compete for the provision of liquidity by submitting limit orders.” When a dark pool is added to a Limit Order Book, orders tend to shift to the dark market, which thus offers market participants order migration rather than order creation. The depth and volume deteriorates on the Limit Order Book while total volume increases.¹⁶ High depth and small spread increase traders’ use of dark pools.

REGULATION OF DARK POOLS

Regulation Alternative Trading Systems

In 1988, *Regulation Alternative Trading Systems (ATS)* was the first major regulatory enactment governing ATS adopted by the SEC. It permitted ATSs to choose whether to register with the Commission as national securities exchanges or as broker-dealers. It also required ATSs to comply with certain additional requirements, concerning amending their books and records based upon their activities and trading volume.¹⁷ The purposes of the regulation were to strengthen the public markets for securities, while encouraging innovative new markets mainly due to the incorporation of new technologies designed to give investors additional services more efficiently and at a lower cost. The regulation provided a new regulatory framework for ATSs, addressed the disparities affecting investor protection and the markets as a whole due to the heretofore operation as private markets outside the national market system, available only to chosen subscribers regulated as broker-dealers, provided adequate surveillance for market manipulation and fraud due to the ATSs lack of obligation to provide investors a fair opportunity to participate in the ATSs or to treat their participation fairly and ensured that the ATSs are sufficient to handle rapid increases in trading volume, especially in times of market volatility.¹⁸

The regulation thus provided an incentive for the growth of ATSs by granting an exemption from the onerous regulatory requirements governing stock exchanges. The

statutory definition of an “exchange” under Rule 3b-16 was revised from that of a “market place or facilities for bringing together purchasers and sellers of securities or for otherwise performing with respect to securities the function commonly performed by a stock exchange”¹⁹ to mean any organization, association, or group of persons that “brings together the orders of multiple buyers and sellers and uses established, non-discretionary methods...under which such orders interact with each other, and the buyers and sellers entering such orders agree to the terms of a trade.”²⁰ The Rule excludes systems that perform only traditional broker-dealer activities, *i.e.*, “(1) systems that merely route orders to other facilities for execution; (2) systems operated by a single registered market maker to display its own bids and offers and the limit orders of its customers, and to execute trades against such orders; and (3) systems that allow persons to enter orders for executions against the bids and offers of a single dealer.”²¹

To be exempt from registration as an exchange under the ATS Rule, an ATS is required to be registered as a broker-dealer and file an initial operation report and appropriate amendments for major changes.²² It must also: display subscriber orders, if it has an order volume of five percent or more of a security; provide national securities exchanges the prices and sizes of the highest buy price and lowest sale price of the covered security; establish written standards for granting access to trading on its system; and establish procedures to ensure adequate systems capacity, integrity, and contingency planning wherein the ATS exercises 20 percent or more of trading volume in any single security.²³

Regulation NMS

The SEC adopted *Regulation NMS* in 2005,²⁴ which imposed substantive rules to modernize the U.S. equity markets in the light of the expansion of both new and expanded developments therein.²⁵ It adopted the “Order Protection Rule” that requires trading centers to establish, maintain, and enforce (with exceptions) written policies and procedures to prevent execution of trades at lower prices to those protected quotation displayed at other trading centers. The regulation provides that a quotation must be immediately and automatically accessible to investors. The “Access Rule” provides the requirement of a fair and non-discriminatory access to quotations and a limit on access fees to harmonize the pricing of quotations across different trading centers. It also requires each national securities exchange to adopt policies prohibiting members from acting in a pattern or practice of displaying quotations that lock or cross automated quotations.

A third rule, the “Sub-Penny Rule,” prohibits market participants from accepting, ranking, or displaying orders, quotations, or indications of interest in a pricing increment smaller than a penny, except for orders, quotations, or indications of interest that are priced at less than \$1.00 per share. The SEC also adopted amendments to the “Market Data Rules” by updating requirements for consolidating, distributing, and displaying market information, as well as amendments to the joint industry plans for disseminating market information that modify the formulas for allocating plan revenues, the so-called Allocation Amendment, and broaden participation in plan governance, the so-called Governance Amendment.²⁶

Regulation Systems Compliance and Integrity (SCI)

The SEC adopted *Regulation Systems Compliance and Integrity*,²⁷ which applies in part to ATSS that trade NMS and non-NMS stocks exceeding a designated volume, to reduce the occurrence of systems issues, to improve the resiliency of systems problems, and to enhance SEC oversight in order to strengthen the technology infrastructure of the US securities markets. It requires that the SCI entities adopt certain policies and procedures to ensure that they have the levels of capacity, integrity, resiliency, availability, and security to maintain their operational capability and promote fair and orderly markets. These entities are: required to take corrective action in the event of systems disruptions and related issues; notify the SEC and market participants of such occurrences; conduct annual internal review of qualified personnel; submit quarterly reports; and maintain certain books and records.²⁸

Proposed Regulatory Amendments to NMS ATSS

On November 18, 2015, the SEC proposed rules that would substantially affect ATSS that trade stocks on listed national market system (NMS) stocks on national securities exchanges.²⁹ The purpose of the proposed regulation is to enhance operational transparency and regulatory oversight of ATSS, which includes dark pools. The regulation requires disclosures on a proposed Form ATS-N, which includes information concerning the trading of NMS stocks, the types of orders and market data used on the ATS and its execution and priority procedures. The disclosures will be made publicly

available on the SEC website to enable market participants to have more complete knowledge of how decisions and actions are made by their brokers and to determine whether to make use of ATSS. The SEC can then make a determination whether or not to qualify ATSS for exemptions under existing regulations from the more onerous requirements of exchanges.³⁰

ENFORCEMENT ACTIONS

The major efforts of the regulatory authorities are designed to ensure transparency of trades of securities so that investors have an accurate reflection of the true market price of particular securities.³¹ One of the consequences of dark pools' trading in securities is that large traders are able to secure major positions in companies without the knowledge of investors until after purchases, thus avoiding a substantial increase or decrease in the value of the shares that would otherwise take place if accomplished openly.³² The SEC is cognizant of the manipulation of shares that almost inevitably take place, particularly by individuals or firms trading on inside information.

SAC Capital Hedge Fund

The indictment of individuals of SAC Capital hedge fund, including Matthew Martoma and other employees of the firm, concerning inside information that allegedly enabled the

firm to make very sizeable profits illustrates how dark pool funding enables such firms to reap profits through increases or decreases of large positions in a company before it becomes openly known to the investment community.³³ Martoma, who was SAC Capital's portfolio manager with respect to investment decisions in health care industries, ascertained information that a particular drug to alter Alzheimer's disease was not effective, which then enabled SAC Capital to illegally gain hundreds of millions in profits – and secured a \$9 million bonus for Martoma – by shorting 17.7 million shares of Elan and Wyeth stock worth \$700 million. He received a nine-year prison sentence and loss of gains and other assets.³⁴

Pipeline Trading System

The SEC instituted a series of enforcement actions consisting mainly of cease-and-desist orders coupled with significant fines against a number of firms engaged in activities involving dark pool transactions. The first action taken by the SEC against a dark pool trading platform was against Pipeline Trading Systems and two of its senior officers for failing to disclose to customers that the vast majority of orders received by it were filled by an affiliate of Pipeline. The company settled the action by a payment of \$1 million fine by the firm and \$100,000 each by its founder and chief executive officer as well as by its former president. Pipeline made alleged false claims that its trading platform was a “crossing network” that matched customer orders with those from other customers, thereby providing “natural liquidity.” The alleged falsity consisted of the fact that its parent company owned a trading entity that filled the vast majority of customer orders on

Pipeline's system. Other charges included alleged conflict of interest that resulted from paying the affiliate's traders using a formula that rewarded them in part for giving favorable prices to Pipeline's customers – which information was concealed from its customers – as well as falsely stating it treated all users the same and failing to protect customer's confidential trading information.³⁵

Barclays and Credit Suisse

More onerous actions were taken against Barclays Capital Inc. and Credit Suisse Securities (USA) LLC. Barclays Capital Inc. was accused of willfully violating §17(a)(2) of the Securities Act of 1933, §15(c)(3) of the Securities Exchange Act of 1934 and Regulation ATS, Rule 301(b)(2). Section 17(a)(2) of the '33 Act makes it unlawful to obtain money or property by means of an untrue statement of material fact or omission. Section 15(c)(3) of the 1934 Act, and the SEC Rules thereunder, require that a broker/dealer possess risk management controls and supervisory procedures reasonably designed to prevent entry of orders exceeding appropriate pre-set credit or capital thresholds for each customer. Regulation ATS, Rule 301(b)(2) requires certain designated forms be filed at least prior to 20 days before commencing operation as an ATS and when implementing a material change to its operation when such material becomes inaccurate.

Specifically, Barclays was accused of making misleading statements and omissions of material facts concerning the operation of its LX product feature entitled

Liquidate Profiling, which it alleged was a powerful tool to protect against predatory trading.³⁶ It was also alleged that Barclays failed to establish adequate safeguards and procedures to protect subscribers' confidential information and other related representations of its LX product.³⁷ As a result, a consent order was entered into by the parties, which prevented Barclays from causing present and future violations of the said Rule of the Exchange Act and included a censure and a fine of \$35 million.³⁸ In the New York Attorney General's complaint, which preceded that of the federal government, the allegations were comparable to that of the U.S. Attorney General, which resulted in an installation of an independent monitor at Barclays to conduct an independent review of Barclays' electronic trading business and further reforms to comply with New York law.³⁹

In January 2016, there were two proceedings against Credit Suisse Securities that resulted in comparable orders of cease-and-desist and censure, together with fines of \$20 million and \$10 million respectively.⁴⁰ The allegations concerned alleged obtaining money or property by means of making false statements or omissions thereof; failing to file timely amendments to required forms after implementing a material change to the operation of the ATS; limitation to fair access to services offered by the ATS by applying standards in an unfair or discriminatory manner; and proper executions of orders to buy or sell securities. There are pending or settled a multitude of additional SEC enforcement actions.⁴¹

The New York State Attorney General ("AG") has been particularly active in initiating proceeds against Barclays and

Credit Suisse. The AG sued the companies under New York's Martin Act,⁴² which gives wide-ranging powers to the Attorney General's office to investigate and prosecute securities-related fraud and malfeasance. Section 352-c makes it a crime to commit fraud, deception, concealment, suppression, false pretense, and promise with respect to the purchase or sale of securities, operate falsely as an exchange, and other related offenses. The prosecutions by the Attorney General's Office have evoked controversy in what appears to be overstepping the SEC for conduct ordinarily prosecuted by the SEC. With the new administration commencing January 20, 2017, there is a movement to curtail the powers of states to act against alleged securities fraud. Similarly, allegations made against Credit Suisse resulted in fines and comparable resolution.⁴³

Commentators at the Wharton School of Finance and the University of Missouri-Kansas City suggested that the fines represented the cost of poor enforcement of existing laws and the failure to create precedents as deterrents. They opined that regulators should better scrutinize HFT including dark pools in order to identify systemic risks, if any. Regulators, in their views, should not settle cases but rather should fully prosecute the charges alleged even if they should not prevail in order to create precedents to thwart potential future misbehavior. It cited New York State Attorney General's Eric Schneiderman, who stated that Barclays exposed its clients to predatory traders rather than protected them. It failed to police its dark pool and misled subscribers about data feeds.⁴⁴

There are technological efforts by the U.S. government to better gauge when unlawful insider trading takes place.

Thus, it has instituted a national market system plan to create a comprehensive database called the “consolidated audit trail” (CAT), which is designed to enable government regulators to track all trading activity within the U.S. equity and options markets. CAT requirements include compelling self-regulation organizations and broker-dealers to identify all customers and a complete life cycle of all orders and transactions therein. It requires that a plan processor create a central repository that would receive, consolidate, and retain trade and order data; operate, maintain, and upgrade the central repository; and ensure its security and confidentiality of all reported data.⁴⁵ It further requires a plan processor to submit certain information about the order including a unique identifier for the customer submitting the order; the identifier of the broker-dealer submitting the order; the date and time of the order or event; and the security symbol, price, size, order type, and other material terms of the order.⁴⁶

ADDITIONAL EFFORTS TO PROVIDE TRANSPARENCY

FINRA requires each ATS to report its weekly aggregate volume information on a security-by-security basis to it. FINRA then makes the information available free of charge to the public on a two-week delayed basis concerning Tier 1 NMS stocks (stocks in the S&P Index, the Russell 1000 Index and certain ETPs) and on all other NMS stocks and OTC equity securities subject to its reporting requirements two weeks after the initial reporting period. The list of FINRA equity ATS firms is set forth in Appendix A. This is a change from its previous policy of making the said information available mainly to professionals, which was based on

voluntary reporting by some ATSS on an aggregate, monthly basis. The goal is to increase market transparency and enhance investor confidence. Included are all dark pools' market facilities and other ATS, which, as of 2014, constituted more than 30 percent of the total of OTC trading in U.S. exchange-listed equities.⁴⁷

The NYSE has proposed a plan to limit trades on dark pools by its "tick size pilot program," which would increase a minimum bid to five cents from a penny with respect to stocks of companies with small market capitalizations. The restrictive change is being reviewed by the SEC, FINRA and BATAS Exchange Inc. have proposed less restrictive measures.⁴⁸ NASDAQ has launched a new SMARTS Surveillance for Dark Pools. SMARTS will enable regulators both in the U.S. and globally to better monitor dark trading activities. The program assists Multilateral Trading Facilities, ATSS, Crossing Networks, and market participants engaged in internalizing order flow or trading in dark pools to monitor alleged abusive behavior therein. According to its website, it delivers full cross-market surveillance, unfettered visibility and transparency for dark trading and a means to prevent abusive manipulative behavior that may lead to abuse.⁴⁹ It is part of a larger NASDAQ surveillance endeavor for surveillance for marketplaces and regulators, market participants, foreign exchange, and energy.⁵⁰

The regulatory trend towards greater transparency may lead to greater risks, which were the reasons for dark pool origination. Such trend has caused dark pools to undergo a "toxicity assessment" whereby users may become subject to

manipulation by HFTs and others and face potential significant fines for alleged violation of the multiplicity of US federal and state regulations and the increased regulatory oversight by global authorities.⁵¹ Another trend, perhaps having Barclays and Credit Suisse in mind as well as the increasing regulatory oversight, is the launch of Luminex Trading and Analytics LLC in October 2015. Luminex is a dark pool consortium engaged in large block trading of shares originated by T. Rowe Price and Invesco and joined in by Blackrock J.P. Morgan Asset Management, Vanguard, Goldman Sachs Asset Management and numerous other major financial players. Luminex alleges in its website that it is a “dark pool with the lights on.” It claims to be the first ATS to launch in an era of complete transparency with 100 percent transparency and compliant with all federal and state regulations. It sought to limit transactions costs and profit-driven conflicts of interests by removing broker-dealers and by limiting pre-trade information.⁵²

FUTURE REGULATORY TRENDS

The election of Donald J. Trump as President of the U.S., coupled with a Republican-led U.S. Senate and House of Representatives, have created substantial uncertainty as to whether any or substantial regulatory enactments will be disbanded. As President-Elect stated: “I will formulate a rule which says that for every one regulation, two old regulations must be eliminated.” He further advised his transition team to formulate executive actions designed “to restore our laws and bring back our jobs.”⁵³ As in all campaign rhetoric, it is difficult to separate hyperbole from future action, but it

remains clear that the Administration will be conservative-oriented, which most often believes that many regulatory measures act as an impediment to economic growth. Calls to end both the Patient Protection and Affordable Care Act⁵⁴ and the Dodd-Frank Wall Street Reform and Consumer Protection Act⁵⁵ will likely result in the said Acts be amended rather than repealed. It appears that the authority of the Financial Stability Oversight Council will be substantially diminished and banks will be given much greater freedom from regulations.⁵⁶

An SEC Commissioner, Luis A. Aguilar noted that ATSS will continue to play a major role in the future and identified that the issues include:

- (1) Given that average trade sizes on dark pools that trade equities are comparable to the same levels seen on the exchanges, does it differ for large-cap and smaller cap stocks and should block trading be rethought to account for the algorithm-driven trading that dominates the current markets?
- (2) Can ATSS attract sufficient liquidity to remain viable without engaging in misconduct and can it survive without high frequency and algorithm traders?
- (3) Does the current regulatory structure favor the expansion of dark pools and, if so, should the SEC should limit its growth or curb the volume of orders executed in dark pools as Markets in Financial Instruments Directive II, discussed *infra*, will do for

smaller orders in Europe?;

(4) Are ATs the best model for block trading and, if not, what other approaches would be better suited? ⁵⁷

INTERNATIONAL REGULATION OF DARK POOLS

IOSCO

The International Organization of Securities Commissions (IOSCO) in its *Principles on Dark Liquidity*, set forth its guidance for securities markets authorities concerning dark liquidity. The ostensible purposes for the guidance is to minimize the impact of dark pools and orders on the ability of investors to ascertain the actual price of securities traded by promoting pre- and post-trading transparency by the encouragement of transparency orders. Such measures are designed to mitigate the effect of potential fragmentation of information and liquidity; ensure that regulators have access to adequate information concerning dark pools and dark orders for surveillance and monitoring purposes; and ensure that market participants have sufficient information to ascertain how their orders are handled and executed. The principles are stated in Appendix B.⁵⁸

European Union

Dark pools have accounted for approximately 9.1 percent of stock trades in 2016, or three times the number of trades from 2010.⁵⁹ The increase has created concerns among EU regulators, who prefer trades in “lit” markets. The EU enacted Markets in Financial Instruments Directive II (MiFID II/MiFIR), which will come into effect on January 3, 2018 and will impose substantial regulatory limits on such trading venues. Limits to be imposed include four percent of overall trading in an individual security and eight percent of overall volume of each security with exceptions for trades of large orders.⁶⁰

It is expected that dark pools will be affected in significant ways, including the limitation of brokers to cross client orders internally as a result of the closure of Broker Crossing Networks; moreover, in addition to the four and eight percent limitations, execution of orders will be limited at its midpoint.⁶¹ Additional requirements include major increases in the types of financial instruments, entities required to report, and an increase of the number of fields within a transaction report that has to be provided (from 24 to 81).⁶² Some commentators have expressed reservations concerning MiFID’s alleging that the regulation arose from the financial crisis at the end of the last decade, but that dark pools had nothing to do with the crash. The allegations include the misplaced requirements for transparency that have lost sight of the interest of the ultimate investor; that the impact on price formation is unknown and the imposition of caps was at the behest of demands by the exchange lobby.⁶³

Switzerland

Swiss authorities are not bound by the new regulation inasmuch as the country is not a member of the EU. But, it is bound by its Financial Market Infrastructure Act, which imposes no such limits upon its dark pools. Thus, unless the EU interposes an objection to the Swiss Act, Swiss shares traded by EU firms on Swiss@Mid will have an advantage over comparable shares within the EU.⁶⁴

Brexit

The issue arises whether and to what extent dark pool trades will be affected by the United Kingdom's (U.K.) exit (Brexit) from the EU by virtue of a referendum within the U.K. on June 23, 2016. Initially, Morgan Stanley's MS Pool and Deutsche Bank's SuperX, and other major dark pools were compelled to suspend trading, which unlike public exchanges, could not handle the volume of trades immediately after the vote, even though there was a rebound shortly thereafter. Some commentators stated that this was illustrative of the superiority of trades on public exchanges over dark pools.⁶⁵

Hong Kong

Perhaps reflecting the worldwide trend of placing restrictions upon dark pools, Hong Kong imposed new regulations that substantially created greater transparency therein.⁶⁶ The Hong Kong Securities and Futures Commission imposed new rules that barred retail investors from trading in dark pools thereby preventing all but large institutional investors, such as fund managers and professional and experienced investors with at least HK \$8 million portfolios. The move affected Hong Kong's 15 dark pools, which now requires brokers to prioritize client trades over proprietary orders and exercise operational controls. Other restrictions include the requirement that dark pools must be members of its stock exchange thereby reducing competition with publicly traded securities. Among the dark pool operations affected are those of Goldman Sachs, Morgan Stanley, and Credit Suisse.⁶⁷

Canada

The Investment Industry Regulatory Organization (IIRO) of Canada issued a ruling in 2012 that sought to maintain the integrity of the pricing process by requiring small orders in dark pools to meet certain pricing standards and provide a level of playing field in the same marketplace for dark and lit orders. While acknowledging that there were additional costs as a result of its rules and a significant drop in dark pool trades; nevertheless, the IIRO found that there was

no statistically significant deterioration in market quality.⁶⁸ The changes issued by the Organization according to Liquidnet, a global institutional trading network, are: visible order priority, (*i.e.*, these orders had priority over orders from dark pools at the same price and same marketplace) and meaningful price improvement (*i.e.*, order below block size by a dark pool had to be better (one cent) than the displayed quote by one trading increment). Another significant change gave the IIRO the right to designate a minimum size for dark orders. The changes in Canada continued to preserve the execution of large orders by institutional investors, such as long-term pension and other comparable investors. The ability to execute large orders anonymously was not affected by the rules.⁶⁹

CONCLUSION

The financial markets will continue to search for new sources of liquidity to finance the expansion of world trade. As is historically evident, investors and financial market experts will continue to explore a multitude of methodologies to enhance financial benefits by devising schemes to avoid regulatory oversight and operate privately to maximize financial returns. The presidential election of 2016 and the assumption of office by a president who advocates the removal of two regulations for each one created, raises the question of whether there will be a diminishment of regulatory oversight that results in harm to unknowing investors from new schemes designed to maximize the benefits to the principals who create them. It must be left to future developments to determine whether governmental intervention will be required to prevent the economic chaos that occurred in the latter part of the first decade of the new century.

APPENDIX A**FINRA LIST OF EQUITY ALTERNATIVE TRADING
SYSTEM FIRMS⁷⁰**

ATS Name	ATS ID	Firm Name	Comment
AQUA	AQUA	AQUA SECURITIES L.P.	
GLOBAL OTC	ARCA	ARCHIPELAGO TRADING SERVICES, INC.	
AX TRADING, LLC	AXTN	AX TRADING, LLC	
BARCLAYS ATS ("LX")	LATS	BARCLAYS CAPITAL INC.	
BARCLAYS DIRECTEX	BCDX	BARCLAYS CAPITAL INC.	Used LEHM prior to Jan 26, 2015

BIDS TRADING	BIDS	BIDS TRADING L.P.	
TRADEBOOK	BTBK	BLOOMBERG TRADEBOOK LLC	Ceased on September 1, 2016
APOGEE	APOG	CITADEL SECURITIES LLC	Ceased on April 2, 2015
CITI CROSS	CXCX	CITIGROUP GLOBAL MARKETS INC.	
CitiBLOC	CBL C	CITIGROUP GLOBAL MARKETS INC.	
LIQUIFI	LQFI	CITIGROUP GLOBAL MARKETS INC.	Ceased on November 7, 2016
CODA MARKETS, INC.	PDQX	CODA	f/k/a PDQ ATS

MILLENNIUM	NYFX	CONVERGEX EXECUTION SOLUTIONS LLC	
VORTEX	VRTX	CONVERGEX EXECUTION SOLUTIONS LLC	Ceased on October 1, 2015
CROSSFINDER	CROSS	CREDIT SUISSE SECURITIES (USA) LLC	
LIGHT POOL	LTPL	CREDIT SUISSE SECURITIES (USA) LLC	Ceased on December 1, 2016
NXP	DFIN	Dash Financial LLC	
DBOT ATS, LLC	DBOX	DBOT ATS, LLC	
DEALERWEB	DLTA	DEALERWEB INC.	

SUPERX	DBA X	DEUTSCHE BANK SECURITIES INC.	
LEVEL ATS	EBX L	EBX LLC	
FANTEX BROKERAGE SERVICES, LLC	FTE X	FANTEX BROKERAGE SERVICES, LLC	Ceased Septem ber 2, 2016
FNC AG STOCK, LLC	FNC A	FNC AG STOCK, LLC	
SIGMA X	SGM A	GOLDMAN SACHS EXECUTION & CLEARING, L.P.	
SIGMA X2	SGM T	GOLDMAN, SACHS & CO	
IEX	IEXG	IEX SERVICES LLC	Ceased Septem ber 2, 2016

INSTINET CONTINUOUS BLOCK CROSSING SYSTEM (CBX)	ICBX	INSTINET, LLC	
INSTINET CROSSING	XIST	INSTINET, LLC	Used INCA prior to Jun 16, 2014
IBKR ATS	IATS	INTERACTIV E BROKERS LLC	
POSIT	ITGP	ITG INC.	
JPM-X	JPM X	J.P. MORGAN SECURITIES LLC	
JET-X	JEFX	JEFFERIES EXECUTION SERVICES, INC.	Ceased on April 1, 2016
KCG MATCHIT	KCG M	KCG AMERICAS LLC	
LIQUIDNET ATS	LQN T	LIQUIDNET, INC.	

LIQUIDNET H2O	LQN A	LIQUIDNET, INC.	
LUMINEX TRADING & ANALYTICS LLC	LMN X	LUMINEX TRADING & ANALYTICS LLC	
MERRILL LYNCH (ATS-1)	MLV X	MERRILL LYNCH, PIERCE, FENNER & SMITH INC	Ceased on June 1, 2016
INSTINCT X	MLI X	MERRILL LYNCH, PIERCE, FENNER & SMITH INC	
MS POOL (ATS- 4)	MSP L	MORGAN STANLEY & CO. LLC	
MS RETAIL POOL (ATS-6)	MSR P	MORGAN STANLEY & CO. LLC	
MS TRAJECTORY CROSS (ATS-1)	MST X	MORGAN STANLEY & CO. LLC	

CROSSSTREAM	XSTM	NATIONAL FINANCIAL SERVICES LLC	
OTC LINK ATS	OTCR	OTC LINK LLC	
PRO SECURITIES ATS	PROS	PRO SECURITIES, L.L.C.	
RIVERCROSS	RCSL	RIVER CROSS SECURITIES, LP	Ceased on February 1, 2017
BLOCKCROSS	BLKX	STATE STREET GLOBAL MARKETS, LLC	Used PULX prior to Feb 2, 2015
TRIPLESHOT	TSBX	TRIPLESHOT, LLC	Ceased on March 1, 2016
UBS ATS	UBSA	UBS SECURITIES LLC	

USTOCKTRADE SECURITIES, INC.	UST K	USTOCKTRA DE SECURITIES, INC.	
VARIABLE INVESTMENT ADVISORS, INC. ATS (VIAATS)	VIAT	VARIABLE INVESTMEN T ADVISORS, INC.	
XE	WDN X	WEEDEN & CO.L.P.	

APPENDIX B

IOSCO PRINCIPLES ON DARK LIQUIDITY

Transparency to Market Participants and Issuers

Principle 1: The price and volume of firm orders should generally be transparent to the public. However, regulators may choose not to require pre-trade transparency for certain types of market structures and orders. In these circumstances, they should consider the impact of doing so on price discovery, fragmentation, fairness and overall market quality.

Principle 2: Information regarding trades, including those executed in dark pools or as a result of dark orders entered in transparent markets, should be transparent to the public. With respect to the specific information that should be made transparent, regulators should consider both the positive and negative impact of identifying a dark venue and/or the fact that the trade resulted from a dark order.

Priority of Transparent Orders

Principle 3: In those jurisdictions where dark trading is generally permitted, regulators should take steps to support the use of transparent orders rather than dark orders executed on

transparent markets or orders submitted into dark pools. Transparent orders should have priority over dark orders at the same price within a trading venue.

Reporting to Regulators

Principle 4: Regulators should have a reporting regime and/or means of accessing information regarding orders and trade information in venues that offer trading in dark pools or dark orders.

Information Available to Market Participants about Dark Pools and Dark Orders

Principle 5: Dark pools and transparent markets that offer dark orders should provide market participants with sufficient information so that they are able to understand the manner in which their orders are handled and executed.

Regulation of the Development of Dark Pools and Dark Orders

Principle 6: Regulators should periodically monitor the development of dark pools and dark orders in their jurisdictions

to seek to ensure that such developments do not adversely affect the efficiency of the price formation process, and take appropriate action as needed.

ENDNOTES

¹ Regulation Alternative Trading System Rule 300(a), 17 C.F.R. § 200.300, defines an alternative trading system as “any organization, association, person, group of persons, or system: (1) that constitutes, maintains, or provides a market place or facilities for bringing together purchasers and sellers of securities or for otherwise performing with respect to securities the functions commonly performed by a stock exchange within the meaning of § 240.3b-16 of this chapter; and (2) that does not: (i) set rules governing the conduct of subscribers other than the conduct of such subscribers’ trading on such organization, association, person, group of persons, or system; or (ii) discipline subscribers other than by exclusion from trading.” Examples include dark pools, electronic communications networks, multiunit auctions, and order matching systems.

² The SEC defines dark pools as “a subset of ATs that, as a general matter, offer trading services to institutional investors and others that seek to execute large trading interest in a manner that will minimize the movement of prices against the trading interest and thereby reduce trading costs.” Exch. Act Rel. No. 61358 (Jan. 31, 2010), 75 FR 3593, 3599, Concept Release on Equity Market Structure, cited as footnote 3, Securities and Exchange Commission, Administrative Proceeding, File No. 3-17077, In the Matter of Barclays Capital Inc., (Sept. 23, 2014), <https://www.sec.gov/litigation/admin/2014/34-73183.pdf>. “Dark liquidity” is the volume of trades that take place therein.\

³ Paul Vigna, *The NYSE Gets Its Very Own Dark Pool*, *WALL STREET JOURNAL* (Jul. 5, 2012, 3:55 PM), <http://blogs.wsj.com/marketbeat/2012/07/05/the-nyse-gets-its-very-own-dark-pool/>.

-
- ⁴ SCOTT PATERSON, *DARK POOLS: THE RISE OF THE MACHINE TRADERS AND THE RIGGING OF THE MACHINE TRADERS AND THE RIGGING OF THE U.S. STOCK MARKET* (2012).
- ⁵ CFTC-SEC Advisory Committee on Emerging Regulatory Issues, *Recommendation Regarding Regulatory Responses to the Market Events of May, 6, 2010*, (February 18, 2011), https://webcache.googleusercontent.com/search?q=cache:2WMZG-VA2I8J:https://www.sec.gov/spotlight/sec-cftcjointcommittee/021811-report.pdf+&cd=2&hl=en&ct=clnk&gl=us_.
- ⁶ MICHAEL LEWIS, *FLASH BOYS: A WALL STREET REVOLT*, (2014).
- ⁷ *See id.*
- ⁸ For a discussion and comparison of the two books, see *Review of “Dark Pools” and “Flash Boys”*, THE MATHEMATICAL INVESTOR, <http://www.financial-math.org/blog/2014/04/review-of-dark-pools-and-flash-boys/>.
- ⁹ *People ex rel. Schneiderman v. Barclays Capital Inc.*, 1 N.Y.S.3d 910, 912 (N.Y. Sup. Ct. 2015).
- ¹⁰ Richard Summerfield, *How murky are ‘dark pools’?*, FINANCIER WORLDWIDE (April 2016), https://www.financierworldwide.com/how-murky-are-dark-pools/#.WHLNV00zXIU_.
- ¹¹ Christopher Mercurio, *Dark Pool Regulation*, 33 REV. BANKING & FIN. L. 69, 70 (2013).
- ¹² *Id.* A “lit” exchange or “lit pool” is a public market, where the parties to a transaction are known to one another.

¹³ Among the many commentators, see Business News, *Dark markets may be more harmful than high-frequency trading*, REUTERS (April 7, 2014), <http://www.reuters.com/article/us-markets-darkpools-analysis-idUSBREA3605M20140407>.

¹⁴ Haoxiang Zhu, *Do Dark Pools Harm Price Discovery?*, 27 REV. OF FINANCIAL STUDIES 747, 779 (2014).

¹⁵ *Id.* at 753-59.

¹⁶ Sabrina Buti, et al., *Dark Pool Trading Strategies, Market Quality and Welfare* (December 1, 2015). JOURNAL OF FINANCIAL ECONOMICS, 25-26 (forthcoming), available at SSRN: <https://ssrn.com/abstract=1571416> or <http://dx.doi.org/10.2139/ssrn.1571416>.

¹⁷ Securities and Exchange Commission, *Regulation of Exchanges and Alternative Trading Systems*, 17 C.F.R. Parts 202, 240, 242 and 248, (1998).

¹⁸ *Id.*

¹⁹ 15 U.S.C. § 78c(a)(1).

²⁰ Rule 3b-16(a), 17 C.F.R. § 240.3b-16(a).

²¹ Rule 3b-16(b), 17 C.F.R. § 240.3b-16(b). For a discussion of the changes, see *supra* note 8, at 9.

²² Rule 301(b)(3), 17 C.F.R. § 240.3a1-1(b)(1).

²³ *Id.*

²⁴ Securities and Exchange Commission, *Regulation NMS*, SEC, 7 C.F.R. Parts 200, 201, et al., <https://www.sec.gov/rules/final/34-51808pdf>.

- ²⁵ Edward M. Eng et al., *Finding Best Execution in the Dark: Market Fragmentation and the Rise of Dark Pools*, 12 J. INT'L BUS. & L. 39, 46 (2013).
- ²⁶ Securities and Exchange Commission, *Regulation NMS*, SEC, 7 C.F.R. 37496.
- ²⁷ SEC Regulation Systems Compliance and Integrity, 17 C.F.R. Parts 240, 242, and 249, 2 Fed. Reg. Vol. 79, No. 234 (Dec. 5, 2014).
- ²⁸ Securities and Exchange Commissions, *Responses to Frequently Asked Questions Concerning Regulation SCI* (Dec. 8, 2016), <http://www.sec.gov/divisions/marketreg/regulation-sci-faq.shtml>.
- ²⁹ Securities and Exchange Commission, *SEC Proposes Rules to Enhance Transparency and Oversight of Alternative Trading Systems*, PRESS RELEASE (Nov. 18, 2015), available at <https://www.sec.gov/news/pressrelease/2015-261.html>. The proposed rule is *Regulation of NMS Stock Alternative Trading Systems*, 17 C.F.R. Parts 240, 242, 249, available at <https://www.sec.gov/rules/proposed/2015/34-76474.pdf>.
- ³⁰ For a detailed discussion of the proposed regulation, see Andrew Owens et al., *Securities Alert: SEC Proposes Significant Changes for Alternative Trading systems* (January 4, 2016), [2016-01-04-4-secproposes-significant-changes f-for-alternative-trading-systems.pdf](https://www.sec.gov/news/pressrelease/2016-01-04-4-secproposes-significant-changes-for-alternative-trading-systems.pdf).
- ³¹ Brian P. Baxter, *The Securities Black Market: Dark Pool Trading and the Need for a More Expansive Regulation ATS-N*, 70 VANDERBILT L. REV. 311, 334 (2017).
- ³² Zhu *supra* note 13 at 779.

³³ Tom Winter, *Gazing Into 'Dark Pools,' the Tool that Enables Anonymous Insider Trading*, NBC NEWS (Jan. 23, 2013, 10:02 AM), www.cnn.com/id/100400981.

³⁴ U.S. Attorney's Office, S.D.N.Y., *SAC Capital Portfolio Manager Mathew Martoma Sentenced in Manhattan Federal Court to Nine Years for Insider Trading*, NEWS (Sept. 8, 2014), <https://www.fbi.gov/contact-us/field-offices/newyork/news/press-releases/sac-capital-portfolio-manager-mathew-martoma-sentenced-in-manhattan-federal-court-to-nine-years-for-insider-trading>.

³⁵ Securities and Exchange Commission, *SEC's Enforcement Program Continues to Show Strong Results in Safeguarding Investors and Markets*, PRESS RELEASE 2012-227, www.sec.gov/News/PressRelease/Detail/PressRelease/1365171485830.

³⁶ *In the Matter of Barclays Capital Inc.*, SEC ADMINISTRATIVE PROCEEDINGS, File No. 3-17077, (Jan. 31, 2016), <https://www.sec.gov/litigation/admin/2014/34-73183.pdf>. For a discussion of additional enforcement efforts, see Matthew Freedman, *Rise in SEC Dark Pool Fines*, 35 REV. BANKING & FIN. L. 150 (2015) at 150-62.

³⁷ *Id.*

³⁸ *Id.*

³⁹ *A.G. Schneiderman Announces Landmark Resolutions with Barclays and Credit Suisse for Fraudulent Operation of Dark Pools; Combined Penalties and Disgorgement to State of New York and SEC of Over \$154 Million*, PRESS RELEASE (Dec. 12, 2016), <https://ag.ny.gov/press-release/ag-schneiderman-announces-landmark-resolutions-barclays-and-credit-suisse-fraudulent>.

⁴⁰ Securities and Exchange Commission, *In the Matter of Credit Suisse Securities (USA) LLC.*, No. 3-17078 and 3-17079 (January 3, 2016), available at <https://www.sec.gov/litigation/admin/2016/33-10013.pdf>.

⁴¹ Securities and Exchange Commission, *Barclays, Credit Suisse Charged with Dark Pool Violations: Firms Collectively Paying More Than \$150 Million to Settle Cases*, PRESS RELEASE (Jan. 31, 2016), <https://www.sec.gov/news/pressrelease/2016-16.html>.

⁴² New York General Business Law, Article 23-A, §§ 352-353.

⁴³ Charlie Gasparino & Brian Schwartz, *Trump Administration Looks to Neuter NYS 'Martin Act'*, FOX BUSINESS (Nov. 15, 2016), <http://www.foxbusiness.com/markets/2016/11/15/trump-administration-looks-to-neuter-nys-martin-act.html>.

⁴⁴ *Will the New Light on Wall Street's Dark Pools' Bring Stronger Regulation*, KNOWLEDGE @ WHARTON (Feb. 12, 2016), <http://knowledge.wharton.upenn.edu/article/black-conti-brown-dark-pools/>.

⁴⁵ Securities and Exchange Commission, *SEC Approves Plan to Create Consolidated Audit Trail*, PRESS RELEASE (Nov. 15, 2016), <https://www.sec.gov/news/pressrelease/2016-240.html>.

⁴⁶ *Id.*

⁴⁷ Financial Industry Regulatory Authority, *FINRA Makes Dark Pool Data Available Free to the Investing Public*, NEWS RELEASE (June 2, 2014), <http://www.finra.org/newsroom/2014/finra-makes-dark-pool-data-available-free-investing-public>.

⁴⁸ Kurt Orzeck, *SEC Eyes Plan to Limit Dark Pool Trading in Tick Size Pilot*, LAW 360 (Jan. 26, 2016), <https://www.law360.com/articles/751232/sec-eyes-plan-to-limit-dark-pool-trading-in-tick-size-pilot>. See also *How Murky are 'Dark Pools'?*, FINANCIER WORLDWIDE (April 2016), <https://www.financierworldwide.com/how-murky-are-dark-pools/#.WHLNV00zXIU>.

⁴⁹ These behaviors include price manipulation, insider trading, front running, and cross-market manipulation. Surveillance, *Smarts Trade Surveillance for Dark Pools*, NASDAQ, <http://business.nasdaq.com/tech/surveillance/surveillance-solutions/smarts-dark-pools/index.html>.

⁵⁰ *Id.*

⁵¹ EY Financial Services, *Dark Pools and Toxicity Assessment* (undated), EY.COM, <http://www.ey.com/gl/en/industries/financial-services/fso-insights-dark-pools-and-toxicity-assessment>.

⁵² *Luminex is a Dark Pool with the Lights on*, LUMINEX (Nov. 1, 2016), <http://luminextrading.com/insight/luminex-is-a-dark-pool-with-the-lights-on/>. See also John McCrank, *Luminex 'dark pool' enlists 73 members ahead of trading launch*, REUTERS (Oct. 4, 2015), <http://www.reuters.com/article/luminex-stocks-idUSL1N1240G720151005>.

⁵³ Clyde Wayne Crews Jr., *Donald Trump Promises to Eliminate Two Regulations for Every One Enacted*, FORBES (Nov. 22, 2016), <http://www.forbes.com/sites/waynecrews/2016/11/22/donald-trump-promises-to-eliminate-two-regulations-for-every-one-enacted/#50b6c2b72b87>.

⁵⁴ The Patient Protection and Affordable Care Act, 42 U.S.C. § 18001 (2010).

⁵⁵ The Dodd–Frank Wall Street Reform and Consumer Protection Act, Pub.L. 111–203, H.R. 4173 (was signed into federal law by President Barack Obama on July 21, 2010).

⁵⁶ Andrew Ackerman & Monica Langley, *Full Repeal of Dodd-Frank Isn't Main Focus of Trump Transition*, WALL STREET JOURNAL (Nov. 11, 2016), <http://www.wsj.com/articles/full-repeal-of-dodd-frankisnt-main-focus-of-trump-transition-1478882550>.

⁵⁷ Luis A. Aguilar, *Shedding Light on Dark Pools*, PUBLIC STATEMENT (Nov. 8, 2015), <https://www.sec.gov/news/statement/shedding-light-on-dark-pools.html>.

⁵⁸ OICU-IOSCO, *IOSCO finalises principles to address dark liquidity*, (May 20, 2011), www.iosco.org/news/pdf/IOSCONEWS210.pdf.

⁵⁹ John Detrixhe, *Dark Pools' Record Signals Looming Market Shock for Europe*, BLOOMBERG (Sept. 2, 2016), <https://www.bloomberg.com/news/articles/2016-09-02/dark-pools-record-share-signals-looming-market-shock-in-europe>.

⁶⁰ *Id.*

⁶¹ Alistair Cree & Colleen Ruane, *MiFid 2: Impact of Dark Caps on Algorithmic Trading Strategies*, THINKING (undated), <http://www.itg.com/thinking-article/mifid-2-impact-dark-caps-algorithmic-trading-strategies/>.

⁶² London Stock Exchange Group, *MiFID II: An Update on Its Status and Impact*, ISEG.COM (Jan. 22, 2015), <http://www.lseg.com/markets-products-and-services/post-trade-services/unavista/resources/mifid-ii-update-its-status-and-impact>.

⁶³ Hayley McDowell, *Dark pools and the 'misplaced pursuit of transparency'*, THE TRADE (April 25, 2016), <http://www.thetradenews.com/Regulation/Dark-pools-and-the--misplaced-pursuit-of-transparency-/>.

⁶⁴ Tim Cave, *The new European dark pool that could be cap-free*, FINANCIAL NEWS (Oct. 2016), <https://www.fnlondon.com/articles/the-new-dark-pool-that-is-cap-free-free-20161018>.

⁶⁵ Shobhit Seth, *Brexit Effects: Banks Reduce Dark Pool Trading* (MS, BAC), INVESTOPEDIA (June 28, 2016), <http://www.investopedia.com/articles/markets/062816/brexit-effects-banks-reduce-dark-pool-trading-ms-bac.asp>.

⁶⁶ Gregor Stuart Hunter, *Hong Kong's Dark Pools Start to Dry Up After New Rules Rolled Out*, WALL STREET JOURNAL (March 4, 2016), <http://www.wsj.com/articles/hong-kong-dark-pool-trading-volume-sinks-after-new-rules-rolled-out-1457095088>.

⁶⁷ Enoch Yiu, *Hong Kong retail investors banned from trading on 'dark pool' electronic platforms from Tuesday*, SOUTH CHINA MORNING POST (Nov. 29, 2015), <http://www.scmp.com/business/banking-finance/article/1884924/retail-investors-banned-trading-dark-pool-tuesday>.

⁶⁸ Ben Carnarck, *Canada Reined In Dark Pools Without Market Harm: Regulator*, LAW 360 (May 8, 2015), <https://www.law360.com/articles/653805/canada-reined-in-dark-pools-without-market-harm-regulator>.

⁶⁹ Liquidnet, *New Canadian Regulations on Dark Pools Protect Institutional Investors*, PRESS RELEASE (April 16, 2012), http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0ahUKEwjzfxI47DRAhVM6yYKHUPcBQ4QFggcMAA&url=http%3A%2F%2Fwww.liquidnet.com%2Fuploads%2FCanada_Regs_Release.pdf&usq=AFQjCNGnXxlZF2D-NqizjEWXSndr6HI-Gw.

⁷⁰ Financial Industry Regulatory Authority, *Equity ATS Firms as of March 1, 2017*, <http://www.finra.org/industry/equity-ats-firms>. A list of dark pools divided into independent dark pools, broker-dealer-owned dark pools, consortium-owned dark pools, exchange-owned dark pools, other dark pools, and dark pool aggregators may be found in Wikipedia. . *See Dark Liquidity*, https://en.wikipedia.org/wiki/Dark_liquidity.