


2018

Equity Trading Evaluation Strategies in Switzerland after the European MiFID II

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Walden University

College of Management and Technology

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Linn Karstadt

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Walden University
2018

Abstract

Equity Trading Evaluation Strategies in Switzerland after the European MiFID II

by

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MBA, University of Flensburg, 2005

BBA, University of Flensburg, 2003

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Business Administration

Walden University

February 2018

Abstract

Swiss bank traders are affected by technological and regulatory challenges, which may affect their broker voting process and may result in a change of trading and evaluation behavior in 2018. Compounded challenges exist when broker evaluation strategies are not effective or Markets in Financial Instruments Directive (MiFID) II compliant. This qualitative, single case study, built on efficient capital market hypothesis and innovative disruption theory, was focused on effective broker evaluation strategies after MiFID II in Switzerland. The sample consisted of 4 buy-side traders, who shared their unique perspectives. Methodological triangulation was achieved through semistructured interviews, a review of the institution's publicly available data, and a literature review. The data analysis process consisted of a manual and systematic coding procedure for the sources of inquiry. In the findings, 3 strategies emerged: improvement of the existing organizational structure of the internal voting process, creation of advanced resources and internal technology as well as automation, and improvement of communication internally and externally to expand the trading desk profitability. Participants agreed that, although not regulatory or necessary in Switzerland yet, the broker review process at the organization under study needed to change dramatically to reach European MiFID II compliance. Implications for positive social change include strategies to help traders, trading desk leaders, and bank managers achieve regulatory compliance with MiFID II. The insight gained from this research may help banks and brokers to improve investment responsibility, broaden insight on research, trading, and client service, and promote stronger enforcement of regulations of electronic trading.

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Dedication

This doctoral study is dedicated to those whom I love the most: my husband, my parents, and my family. To my husband, Steffen, without your love, your patience, and your help, I would never have finished this undertaking. You believed in me when I did not believe in myself, and that helped me get to finish this study. Without you, I would not have achieved this milestone.

To my parents and family, over the last 4 years, I have been preoccupied and often less available. Thank you for understanding how important achieving this goal was to me. Your pride means a lot to me. As this process approaches completion, I hope that, in some small way, I have inspired each of you to follow your dreams. I love all of you!

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I thank the doctors and future doctors I had the privilege and honor to meet in my Walden classes and specifically in the 9000 sessions. We have shared so much together; you have all been amazingly supportive. You all made this process a little more bearable and fun.

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Section 1: Foundation of the Study

Technological and regulatory developments are changing the way banks organize their stock trading departments. Through the evolution of trading technology (e.g., trading systems) and the tightening of exchange regulations (e.g., Markets in Financial Instruments Directive [MiFID]), a significant shift from traditional sales trading to electronic solutions trading has changed the equity trading and brokerage in recent years (Gomber, Sagade, Theisen, Weber, & Westheide, 2016). Interactions between market participants have changed as high-frequency trading and algorithms replace human intermediaries. Through MiFID I the European equity markets are fragmented across several different venues, and the trading environment is complex (Gillet, Ligot, & Firouzi, 2017). In Swiss banks and financial institutions, equity traders must understand the effects of technological developments and regulatory challenges to incorporate changes in their trading behavior and yearly broker evaluations to ensure a smooth transition under MiFID II.

In this research study, I explored how new financial regulations for electronic stock trading influence the broker evaluation system in Switzerland. The results of this study may help equity traders in Switzerland make more informed decisions on trading, broker performance, and electronic trading results after the introduction of the pan-European MiFID II regulation on January 3, 2018. The study could be of interest to financial services institutions, regulators, and institutional investors as they may better understand how new trading technology and regulations affect the transparency of

electronic trading on the stock market. Swiss banks and their equity traders might benefit from the findings and be able to provide more informed broker reviews.

Background of the Problem

Equity trading technology in 2018 no longer aligns with the organization of the traditional stock exchanges. Professional investors are experiencing a transformation from traditional trading to computerized algorithmic trading solutions (Francioni, Freis, & Hachmeister, 2017). The evolution of trading technology has prompted a shift from traditional voice trading to electronic trading, and the current exchange is no longer a physical place. The exchange has become a system where traders enter, route, execute, and clear stocks mostly electronically, and trading algorithms and several venues per stock have changed the interactions between humans. Between 2000 and 2010, equity trading fragmented first in the United States and, toward the end of the decade, also in Europe (Menkveld, 2013). Next to the traditional exchange, several alternative trading venues now offer access to liquidity. Through several newer trading facilities, systematic internalizers, and electronic communication networks, dealers may be able to manipulate the equity markets (Callaghan, 2016). More than 50% of all securities trade on both public exchanges and dark pools, via electronic platforms (Henderson, 2014). To ensure the long-term success of a bank, equity traders must understand the impact of regulatory developments to incorporate changes in their broker evaluation.

Initially, the introduction of the MiFID I in November 2007 had the goal of creating a fair and competitive financial market (Ye, 2016). The implication of MiFID I was a fragmentation of the European equities landscape, and financial firms should not

underestimate the complexity of MiFID II (Gomber, 2015; Ye, 2016). Under the MiFID II regulation, which may fundamentally alter the trading landscape again, institutional banks and buy-side clients are required to adjust their strategies to incorporate new measurements of activity in their broker voting to better justify their commission payments. The buy-side institutions need to explore new strategies to find liquidity and manage trading and transaction costs. Since 2015, traders in the field of equities have discussed MiFID II. Due to its controversy, its implementation has now been moved back to January 3, 2018 (Thompson, 2017). The effect of monetary policy on the economy via the equity market is worth addressing, and brokerage payments should be revised after January 2018.

Banks pay a preagreed commission to a brokerage firm for execution and research. Most of the (full-service) brokers do not openly publish their commission rates (Fong, Gallagher, & Lee, 2014). The yearly trading order flow is determined by the ranking of the broker in the broker voting process where buy-side institutions survey their portfolio managers, analysts, and traders on the value of the research service (Maber, Groysberg, & Healy, 2014). Anand, Irvine, Puckett, and Venkataraman (2012) suggested that broker selection by the previous year's performance should also be a factor of a buy-side desk manager's liability to best execution. To continue to pay out fair commissions to the brokers, not only research efficiency and service quality but also trading should be evaluated in the buy-side voting process, as MiFID II suggests a separation of research and trade execution payments.

Problem Statement

The SIX Swiss Exchange (2016) was the first stock exchange, worldwide, to change from traditional floor trading to complete electronic trading in 1996. As of 2013, high-frequency trading volume accounted for 70% to 80% of all volume in the equity markets (Menkveld, 2013). The general business problem is that some Swiss banks' traders are being affected by technological and regulatory challenges, which may impact their broker voting process and may result in a change of trading and evaluation behavior. The specific business problem is that some Swiss banks' equity traders lack strategies for evaluating electronic trading in the yearly broker performance review after the introduction of MiFID II.

Purpose Statement

The purpose of this qualitative, single case study was to explore the strategies that Swiss banks' equity traders use to evaluate electronic trading in the yearly broker performance review after the introduction of MiFID II. Four successful equity traders from one bank in Switzerland were invited to participate in interviews regarding their strategies for the implementation of electronic trading evaluation. The data from this study contribute to new business knowledge and financial savings to brokerage clients within the financial industry. The findings can be used to show how innovation in trading technology can lead to more market transparency, less risk, and better service quality. The insight provided from this research will help banks and brokers to improve investment responsibility and broaden insight on stock market transparency. The implications for positive social change include the understanding and enforcement of

trading and exchange regulations to protect consumers and investors. Ultimately, research on the enforcement of MiFID II trading regulations and broker evaluations can positively influence social change by improving broker efficiency and performance. Also, research regarding electronic trading regulation will help to uncover risk mitigation strategies, which may result in a better quality of trade executions and investment security for clients. The findings of the study also contribute to the improvement of Swiss financial regulations, the national economy, and the sustainability of financial institutions.

Nature of the Study

For this study, the research method was qualitative. The three research methods are quantitative, qualitative, and mixed. Qualitative research is the optimal choice for exploring participants' experiences using interviews, rather than testing quantitative hypotheses (Marshall & Rossman, 2014). Yilmaz (2013) indicated that qualitative researchers seek to explore phenomena through open-ended questions. Quantitative research involves closed-ended questions and statistical data (Yin, 2014). Quantitative method is focused on generalizability and rigor, while a qualitative approach results in greater depth achieved using open-ended questions (Yilmaz, 2013). A mixed-method study incorporates the strengths of both the qualitative and quantitative study (Hesse-Biber, 2015). In this study, I explored the equity traders' experiences of the measurements in their broker review through open-ended questions rather than test a hypothesis. A quantitative method or the quantitative portion of a mixed-method study would not have been an appropriate choice, as I was not examining a relationship between variables.

To address the need to improve the current broker review of Swiss buy-side institutions, I used a single case study design. A case study involves a single, bounded case. I conducted interviews with equity traders of one bank to assess the strategies used in the current broker review system in Switzerland. When choosing a design, the researcher needs to consider the type of research question, the control mechanisms over behavioral events, and the focus on contemporary as opposed to historic events (Yin, 2014). Yin (2014) noted that a researcher might select a case study design to explore a realistic (real world), contemporary phenomenon and may describe single or multiple cases. Single case studies reflect a single problem and are appropriate when the researcher is testing theory (Robinson, 2014).

Some of the other key qualitative designs that I considered for this study included phenomenological, ethnography, narrative, and case study (see Marshall & Rossman, 2014). A phenomenological design provides a view of a human's lived experience of a phenomenon (Matua, 2015). The goal of this study was to uncover the process or strategy, not the personal variances in its application, which made me disregard a phenomenological approach. Ethnography is used to study people and examine cultures (Sharp, Dittrich, & de Souza, 2016). In a narrative design, a researcher describes a lifelong experience of a participant (Marshall & Rossman, 2014). As the focus of this study was to determine the strategy rather than the application of a strategy or a lifelong experience, an ethnographic or narrative approach was not relevant to the study subject.

Research Question

The overarching research question for this study was the following: What strategies do Swiss banks' equity traders use to evaluate electronic trading in the yearly broker performance review after the introduction of MiFID II?

Interview Questions

The interviews started with initial questions on the general review process that align with the research question. The interview questions included the following:

1. What is your particular role in your bank's broker review process?
2. How often per year do you review your brokers?
3. Who determines which elements your bank includes in the trading performance review with your brokers?
4. Can you explain how you differentiate high-touch and low-touch trading in your review?
5. What specific elements or strategies do you currently measure in the electronic trading portion of your broker review?
6. What strategies were less efficient in your previous evaluations?
7. What strategies are effective?
8. How much of this evaluation process uses automation?
9. How long has an electronic element been part of your broker review process?
10. How do you think brokers should be evaluated after the Introduction of MiFID II?
11. What additional information would you like to add which I did not ask?

Conceptual Framework

The conceptual frameworks guiding this research study were the management theory of disruptive technology and innovation and the efficient capital market hypothesis. Christensen (1993) first introduced the theory of disruptive technology by researching the effect that the computerization and the disk drive had on businesses. Christensen found that in innovation, academics should differentiate between different forms of disruptive innovation. In disruptive innovation, many scholars differentiate between two types of disruptive innovation: low-end disruption occurs when a product fulfills the low end of the market by providing more value for money demanded by customers like the Korean Brands entering the U.S. car market (Sultan, 2013). New market disruption can be an innovative product offered by a firm in a new market segment that is not yet used by competitors but can, after some resilience, change the market (Christensen, 1993; Sultan, 2013).

Banks continuously strive to include innovations and new services into their offering. A new financial electronic product can, for example, supply market participants with advantages such as reduced execution costs and faster trade execution. Building on disruptive technologies, I explored the strategies of electronic trading evaluation and regulations in Swiss banks. I applied the innovation of new disruptive technology aspect of Christensen's (1993) theory to find advantages of measuring electronic trading in Swiss banks.

The efficient capital market hypothesis was first described by Fama (1970), who stated that an efficient market must allow firms to make production-related investment

decisions and must enable the investor to invest in securities with prices that reflect all publicly available information. Fama constructed the weak-, semistrong-, and strong-form efficient market hypothesis, which describes the dependency of a price change in relation to available market information. Through new technological developments such as the Internet and fragmented equity markets, trading venues and public market information need better regulation to continue efficiency of the capital markets. I specifically applied the efficient capital market hypothesis aspect of Fama's theory regarding market information, price discovery, and minimization of information leakage through use of algorithms to find strategies to better measure equity trading in broker reviews of Swiss buy-side clients after the introduction of the MiFID II regulations.

Definition of Terms

The nature of researching within the studies of finance, disruptive market technology, and efficient market hypothesis necessitates the use of industry jargon as a means of discussing background, concepts, and theory. Throughout the study, I recurrently used the following technical terms:

Broker review A broker review is a yearly or biyearly voting process within buy-side institutions to determine the quality of research and trading execution of their institutional counterparties (Edelen, Evans, & Kadlec, 2013).

Dark pool: A dark pool is a venue that includes anonymous trading liquidity that is not visible or advertised at the conventional, lit stock exchanges (Nimalendran & Ray, 2014).

Electronic trading: Electronic trading is the process of a trader authorizing a computer to place orders on his or her behalf via a trading software or a brokerage platform (U.S. Securities and Exchange Commission, 2013).

Liquidity: Liquidity is the characteristic of a market where transactions do not excessively move prices and trades execute quickly without a long search for counterparties (immediacy). Liquid markets usually have low bid-ask spreads, high volume, and (relatively) low volatility (Arnoldi, 2016).

Markets in Financial Instruments Directive (MiFID): The MiFID is a legislation within the European Economic Area that came in force on November 1, 2007 that regulates investment services in financial instruments (e.g., shares, bonds, units in collective investment schemes, and derivatives), and the venues where those instruments are traded (Gomber, 2016).

Transparency: Transparency is the ability of market participants to observe trade information in a timely fashion (O'Halloran, 2015).

Assumptions, Limitations, and Delimitations

Assumptions

Researchers describe assumptions (facts that are true without verification) of their studies to communicate with their readers regarding the potential effect of the research (Marshall & Rossman, 2016). Assumptions are unverified facts considered true to the study that may carry a certain risk of potential prejudice (Wortham, 2015). Assumptions affect the way the researcher designs and carries out a study (O'Brien, Harris, Beckman, Reed, & Cook, 2014). For this study, I assumed the need for a revised broker review

exists because of the introduction of electronic trading and the change of communication between the market participants. Before the introduction of the Internet and subsequently electronic trading, the trader would place and confirm the order over the phone; however, today electronic systems transmit these orders automatically with almost no human intervention. I assumed that this creates a need for the order-placing trading institution to better measure and compare their brokers' use of trading technology.

In addition, I assumed that the participants of this study conducted annual or semiannual brokerage reviews in which they evaluated the brokers that service them. Another assumption was that the equity traders aim to deliver the best performing and cost-sensitive trading results. I also assumed that the participants would vote at minimum annually for their broker's execution. The participants of this study voted semiannually, which confirmed my assumption and the need for a revised broker review. A final assumption was that the participants in the financial community sought to improve the performance and transparency of their marketplace to increase investor satisfaction. I also assumed that participants would answer honestly and provide precise and accurate examples of strategies and outcomes. Reflecting on the research process, I found all assumptions regarding the broker review process were true. Assumptions regarding the financial community could not be verified during the research process but were true for these four participants.

Limitations

Limitations of the study include insufficient methodological guidelines (Yin, 2014) and are out of the control of the researcher. I focused on a few participants and did

not include equity traders of all Swiss financial institutions. Because of this boundary, the potential weakness in the study was not obtaining data from all Swiss financial institutions. Also, in Switzerland, financial institutions tend to keep data confidential and are hesitant to share their business information. By using multiple participants within the one institution who was willing to share their evaluation strategies and publicly available data, I strived to overcome this limitation and enhanced the validity of the data. Also, another limitation was that this research project was delimited to equity traders of one, single Swiss bank. Also, other Swiss or European equity traders were not included in the study; therefore, this study does not represent an international, European participant group.

Delimitations

Delimitations refer to the boundaries of a study (Marshall & Rossman, 2016). The delimitations of this study were the sample and methods for gathering data. This research project was restricted to equity traders of one, single Swiss bank, and may not transfer to other settings. Participants in this study worked in the specific role of an equity trader and had experienced the impacts of electronic trading. Application of evaluation strategies may vary from bank to bank; as such, these equity traders delimit the study.

Significance of the Study

Contribution to business practice and implications for social change are two critical components of a qualitative study. In this study, I explored what strategies Swiss equity traders need when evaluating their brokers after the introduction of the MiFID II regulation. Swiss banks can benefit from understanding how equity traders use new

strategies in broker selection to improve transaction transparency and the profitability of their organizational supply chains.

Contribution to Business Practice

This doctoral study has practical applications for business and the applications of innovation in finance. An example of innovation in finance was the invention of credit default swaps, which allowed investors in mortgage-backed securities to hedge their investments but led to the 2007 U.S. subprime crisis (Mahoney, Crooks, Tully, & Strafaci, 2017). As the financial markets move into computer-assisted trading, the challenge to the financial services industry is to determine the ways a financial institution evaluates their brokers regarding trading and execution performance after the proposed MiFID II regulation. To avoid harming stock market participants and to provide transparency across all investment levels, this research contributes to business practice. The desire to understand the expanding role of computerized trading systems and exchanges and their regulation through the MiFID II led me through this research to evaluate the effectiveness of the existing Swiss broker reviews to find gaps in the evaluation of electronic trading activity.

Implications for Social Change

From a social change perspective, the insight provided from this research may help banks and brokers to improve investment responsibility, broaden insight into trading transparency and client service, and promote stronger enforcement of exchange rules and regulations on electronic trading. Positive social change may occur if future trading regulations reflect the impact of innovation, which may change the brokerage evaluation

and payment system. Many factors, such as currency changes or political decisions that affect economy and society, also influence the stock market and its performance. The stock market may not be as dangerous as many uninformed investors think. Financial leaders in Switzerland, especially those in positions of financial authority, may use the results of the study to improve the Swiss trading and market structure. The findings could have positive implications to help individual and institutional investors in their investment decision making, which in return might lead to a better allocation of economic resources. These results also may influence social change by uncovering risk-mitigation strategies to alleviate risky and expensive trading being offered to customers. Institutional investors need to be a catalyst for social change within the financial community to secure investment security to the end investor.

A Review of the Professional and Academic Literature

The goal of the current research was to explore strategies that Swiss banks' equity traders use to evaluate electronic trading in the yearly broker performance review to comply with MiFID II regulations. In this literature review, I highlighted the historic and technological changes that have occurred with the introduction of electronic trading, its strategies, and the European and Swiss regulatory framework around broker evaluation and payments. To understand the previously published literature on the topic of evaluation of electronic trading and possible changes through unbundling, I analyzed the components of the topic of stock market function and regulation.

When searching for literature on this topic published within the last 5 years, I discovered the most relevant information to the topic of electronic trading was in the

form of newspapers, web pages, and nonpeer-reviewed journal articles. Although electronic equity trading is not new, most of the peer-reviewed literature on regulation has been published after 2008, when researchers outside of banks started to explore the topic of electronic trading regarding MiFID I, which was introduced the previous year. Most of the literature on electronic trading and venue selection was published after 2012, primarily with a focus on performance or market quality. A few books on electronic trading exist, but most of them are a collection of newspaper or specialist magazine articles. Only very few studies raised the topic of brokerage commissions and brokerage evaluation, and I found only a few articles on the expectations for what would happen to these after the MiFID II introduction.

In my search, I found 59 peer-reviewed sources that had a publication date within 5 years of my anticipated graduation and eight peer-reviewed sources with a publication date before 2014. The primary online sources and databases that I used were the Walden Library and included SAGE Premier, Google Scholar, EBSCOhost, ProQuest, JSTOR, and JEL and Google Scholar. These helped me gain an overview of peer-reviewed articles in the field. In addition to online research, I used the University of Zurich's Library, book shops, and Amazon.com to find recent books about electronic trading. The keywords I used to search were *disruptive innovation*, *electronic trading*, *broker payments*, *algorithmic trading*, *MiFID*, and *trading regulations*.

Independent research firms like Greenwich Reports, Rosenblatt Securities, or Tabb Group publish monthly and yearly reports on the development of electronic trading. These reports, as well as specialist magazines such as *The Trade* or *The Automated*

Trader Magazine, are mailed to traders but are not available to download or purchase for the public. I also examined these publications in my review to broaden my background knowledge of the topic.

Most peer-reviewed articles focused on the stock market development, the history of electronic trading, high-frequency trading, and the regulatory impact of electronic trading on the economy and customer. An aspect that has not been under closer inspection is the evaluation of broker payments regarding their electronic trading offering and the impact of changes in regulation such as MiFID II, which I have focused on in this study.

To address the research question in this literature review, I focused on six key topics. I have organized the following review by topics, beginning with the review of the relevant theoretical framework, the management theory of disruptive technology and the efficient capital market hypothesis, followed by the development of electronic trading and the market impact of high-frequency trading and algorithmic trading strategies. I have focused on venue selection and the relationship between lit and dark markets followed by the regulation of electronic trading and its changes in Europe, and specifically in Switzerland. This builds the groundwork for the last section, in which I consider studies with discussion of commission payments and brokerage evaluation.

This review includes the following main topic areas: (a) management theory of disruptive technology, (b) efficient capital market hypothesis, (c) electronic equity trading, (d) trading venue selection, (e) regulation of electronic equity trading, and (f) the

broker evaluation process and commission payments. A summary of the types of sources included in this review appears in Table 1.

Table 1

Synopsis of Sources Referenced in the Literature Review

Type of Literature	References within the last 5 years (2014-2018)	References older than 5 years (2013 and before)	Total
Books	1	-	1
Dissertations	-	1	1
Peer-reviewed articles	59	8	67
White papers	3	-	3
Other resources	3	1	4
Total	66	10	75

Management Theory of Disruptive Technology

Christensen (1993) first introduced the theory of disruptive technology and innovation while researching the impact that computerization and the disk drive had on businesses. Christensen found that in innovation one should differentiate between sustaining and disruptive innovation. Christensen further classified two types of disruptive innovations in his research: *low-end* and *new market*. Low-end disruption occurs when a product fulfills the low end of the market by providing more value for money demanded by customers. New market disruption can be an innovative product offered by a firm in a new market segment that is not yet used by competitors but can, after some resilience, change the market as such.

The disruptive effect on an organization can be quite significant. Sultan (2013) investigated innovative disruption as such, but specifically analyzed innovative disruption in organizations in the current technological environment. Sultan analyzed the impact of telephone, the Internet, and cloud computing on organizational knowledge, first defining these innovations and then searching in the literature for evidence of organizational impact. Employees play an essential role in the success of a firm. Sultan analyzed discontinuous innovations in two industries and showed how competition driven entirely by incumbents might result in a disruption in existent industries. King and Baartartogtokh (2015) found that in cases of innovative technology disruption the relative rate of improvement may be significant. Existing employees must adapt to newer technology more quickly, which can lead to significant contributions to a firm's success.

Disruptive innovations are not attempts to bring better products or services to existing clients in established markets. Instead, new entrants bring products that are more straightforward to use and possibly less expensive to those existing customers and markets. A negative example of disruptive innovation in finance was the invention of credit default swaps, which led to the 2007 U.S. subprime crisis (Mahoney et al., 2017). Christensen (1993) suggested that there is also a differentiation between customers that can influence the innovation and effectiveness rate in an organization. It becomes evident that sophisticated customers need another offering than less knowledgeable clients, as they will adapt in different ways and speeds to new technology and innovation. The customer is the bank's most valuable intangible asset, and because survival of the banking industry depends on maintaining a stable long-term relationship with customers, the bank

needs to orientate and adapt to customers' needs and demands (Dalir, Zarch, Aghajanzadeh, & Eshghi, 2017). A client's enthusiasm to adopt technology and electronic delivery channels can be lower than the bank's acceptance level (Gupta & Khanna, 2015). While ATMs and Internet banking are widely accepted, the use of mobile banking or online brokerage is still low. While previous studies have analyzed electronic delivery channels (e.g., Gupta & Khanna, 2015), the current study makes a valuable contribution to a bank's customer attraction strategy and how they evaluate the extent to which clients are willing to accept introduced services.

Organizational strategies can be very innovative and service- and customer orientated but still can fail because they lack long-term vision and internal control systems. Owning the best and newest information technology (IT) and monitoring systems does not guarantee risk-free banking. Innovative disruption is closely linked to corporate disruption after implementing new information and control systems in banks (Eastburn & Boland, 2015). Arvidsson, Holmström, and Lyytinen (2014) stated that an organization can technically succeed with the implementation of a new IT tool, but it might still strategically fail as the newly implemented system does not bring the anticipated organizational change. Spalek (2014) suggested that an external project manager can help organizational leaders to achieve goals throughout the entire business process. Senior executive bankers' behavior plays a more significant role than the actual adaptation to technology, and although banks are exceptionally sophisticated, the financial crisis in 2008 and 2009 caught them by surprise (Eastburn & Boland, 2015).

Circumstances outside of bankers' control often force change. Christensen (1993) urged his readers to understand the forces that bring change and the circumstance in which disruptions happens. Christensen explained that the circumstances are mostly operative, and the questions of what causes what to happen, when it happens, and why it happens need to be seen in the broader context of the organization. The disruption through electronic trading also influences the organizational infrastructure of a financial institution, such as rising costs of purchasing new equipment, personal computers, routers, software, and servers. IT systems with evaluation possibilities and storage functions will play a more significant role in the future of banking (Callaghan, 2016). Similarly, a disruptive tweet or social media posting is powerful enough to cause losses or profits of billions of dollars for a firm (George, Haas, & Pentland, 2014), and firms use digital intervention labs to track social media postings and reactions that might impact the company. Disruptive innovation as a concept can also be applied to regulations. Regulations could be disruptive in the institutional context and could alert the regulator to reduce the value of existing practices and technologies, which in return would create momentum for transitions (Kivimaa & Kern, 2016).

In times of transition, Kivimaa and Kern (2016) suggested using a mix of destabilizing old policies and creating new policies. In summary, a common theme among these academic studies was the infrastructural effect in banks, but the topic of disruptions and infrastructural changes through computerization of the trading process has not yet been addressed. The introduction of new trading instruments such as volume caps and large-in-scale trading venues may significantly disrupt the existing trading

strategies for professional investors. Banks and their counterparts need to adapt to newer disrupting technology in trading quickly to stay competitive and ensure a smooth transition into a MiFID II regulated future.

Efficient Capital Market Hypothesis

The efficient capital market hypothesis was first introduced by Fama (1970), who stated that an efficient market must allow firms to make production and investment decisions and allow the investor to invest in securities with prices that reflect all publicly available information. Fama constructed three forms of efficient market theories, which describe the dependency of a price change in relation to available market information. The *weak-form* hypothesis assumes that all publicly available and historic information is processed to determine the price of a stock. The *semistrong-form* hypothesis assumes that public information as well as nonmarket information is included, and price changes happen dynamically. Compared to the two previous forms, in the *strong-form* hypothesis, the efficient market price would also be influenced by private information, which makes this hypothesis hard to prove and more theoretical.

Fama's 1970 efficient capital market theory revolutionized the understanding of the financial markets (Masry, 2017). The efficient capital market theory supposes that actual prices are reflected by fundamental values of underlying securities and that there is no chance to receive a positive abnormal return when the decision-making process is incorporated only with publicly available information. Masry (2017) stated that the efficient capital market hypothesis indicates a transparent capital market in which all

participants are price takers and have all information, there are no transaction costs, and companies make effective investment decisions.

Even efficient markets are often said to be manipulated by communication and transaction cost. Kleinnijenhuis, Schultz, Utz, and Oegema (2015) found that public relation communication can influence the public news and consequently also the share price of a company. Lee, Alford, Cresson, and Gardner (2017) identified communication between market participants as necessary to the success of an efficient stock market and expected a further increase in the use of information communication technologies. Ceschi, Dorofeeva, and Sartori (2014) found that communication and innovation can improve decision-making and profitability. North (2016) found the neoclassical result of an efficient market only occurs when transactions are costless. North also stated that in times when transactions are costly, institutions matter. As a consequence, in times when transactions are not free, the bank needs to stay informed, communicative, and competitive - otherwise, the bank would disrupt the existing market structure. New regulations should enforce better information on relationships between financial market participants to increase transparency.

Although Kleinnijenhuis, Schultz, Oegema, and Van Atteveldt (2013) based their academic study on the efficient capital market hypothesis in relation to trading traditionally on one regulated exchange, the trading on multiple trading venues through high-frequency trading and the impact of trading strategies has not been sufficiently addressed. The introduction of electronic trading has raised questions about the transparency across different trading venues, potential information leakage, market

impact cost, and insufficient regulation, and MiFID II will attempt to tackle these controversies.

Electronic Equity Trading

In 1971, NASDAQ opened as the world's first entirely electronic exchange with a quoting system aiming to reduce the inefficient person-to-person stock transactions and to create a more transparent and faster system (Mansaku, Mansaku, & Tampakoudis, 2017). Mansaku et al. (2017) evaluated the exchanges market method and introduction of the three market tiers of small-, mid- and large-cap stocks in 2006 and concluded that the execution logic is fair and transparent making it an attractive marketplace for a stock to be listed. Other exchanges followed going down the electronic route.

Although most studies on electronic equity trading in the scholarly literature were written after 2012, Black (1971) already introduced the topic of complete automation before the computerization of most exchanges. Black indicated that a stock exchange could be incorporated, or even replaced, with an electronic network to eliminate in-person market makers and suggested that "a stock exchange can be embodied in a network of computers" (p. 30). Professional investors have experienced a transformation from traditional trading to computerized, algorithmic, trading solutions (Gomber et al., 2016). Henderson (2014) found that more than 50% of all securities trade via electronic platforms. In business and literature, there is convincing evidence, that electronic trading has changed the way the clients pass orders to the brokers and the exchange.

The financial community focused on the introduction of trading automation rules in the early 1990s when many financial markets switched to automatic matching (Gerig

& Michayluk, 2016) and the returns-generating process of stock trading turned out to be by far more complicated than traders using linear models in the traditional equity markets. Stock market buy signals generate higher average returns during downtrends than during uptrends (Lu & Lee, 2016). While the innovations in trading technology have changed the equity markets to more automated solutions with more competition between traders; they also increased trading volumes.

The academic research in electronic trading has so far put the focus on measuring the advancing electronic trading technology about operational methods of electronic trading, high frequency or algorithmic methods and market structure. In the last four years, an increasing number of papers documenting high-frequency trading activities have been published which discuss the impact of high-frequency trading on markets and regulators continue to discuss if high-frequency trading is beneficial or damaging to the stock market (Manahov, 2016). Leal, Napoletano, Roventini, and Fagiolo (2016) found that “high-frequency traders use directional strategies to exploit market information produced by low-frequency traders” (p. 49). Also, they found that more frequent order cancellation by high-frequency traders increase the incidence of flash crashes. Stricter regulation of electronic trading is needed.

The general impression of the public is that high-frequency trading has a negative impact on the stock market. The effects of high-frequency trading are under controversy (Thompson, 2017). Against the prevailing impression, academics like Arnoldi (2016), or Gerig and Michayluk (2016) were not able to detect any evidence that high-frequency trading impacts equity markets negatively. Automated liquidity providers make better

prices than traditional market makers (Gerig & Michayluk, 2016). While one assumes one can manipulate stock prices, high-frequency trading does not manipulate the markets and even has positive effects on liquidity and price discovery (Arnoldi, 2016). Only Comerton-Forde and Putninš (2013) found that equity stocks with lower levels of liquidity and higher levels of information asymmetry are most likely found to be manipulated. To summarize, these findings suggest that high-frequency trading does not manipulate the equity markets as assumed but that individual stocks can still be manipulated.

An argument is, that exchange services significantly influence trading behavior and volatility. Most papers classify traders by exchange-defined high-frequency trading flag or trading behavior regarding market quality. Brogaard, Hagströmer, Nordén, and Riordan (2015) identified groups based on the exchange services (colocation). By studying the behavior and market impact of these colocated/fast traders, Brogaard et al. found that an improvement in liquidity is driven by the fast traders' improved inventory management and that system upgrades at exchanges improve market depth. In another empirical study on colocation events Frino, Mollica, and Webb (2014) performed a similar study for Australian Securities and found as a positive effect improved liquidity but also increased volatility through high-frequency trading on exchanges. Frino et al. suggested that liquidity providers make more substantial profits because of lower adverse selection costs.

The existing literature relies on the spread as a measure of liquidity that is affected by high-frequency and dark pool trading. Comerton-Forde and Putninš (2015)

and Degryse, de Jong and Kervel (2015) found a positive association between dark pool market share and exchange spread. Their findings also suggest that low-latency activity improves the quality of the markets by decreasing spreads, increasing liquidity and lowering short-term volatility. In addition to the previously discussed studies of Comerton-Forde and Putninš and Degryse et al., Nimalendran and Ray (2014) also agreed that high-frequency trading activity reduces bid-ask spreads. Hagströmer and Nordén (2014) suggested that liquidity providers use high-frequency trading and last-minute decisions to benefit from an expected increase in the intensity of discretionary market orders by entering limit orders at prices deviating more from the midpoint than otherwise (p. 30). Nimalendran and Ray examined trades in large crossing networks and agree that the information content in a dark pool is positively associated with exchange spread. Brogaard, Hendershott, Hunt, and Ysusi (2014) stated that execution costs, which are part of the transaction costs, could increase because of faster information to public information by high-frequency trading.

Timing and speed of news and execution are the most critical factors for high-frequency traders. Thompson (2017) examined the financial security issues raised by high-frequency trading and found several issues associated with time. Thompson distinguished between (a) speed of execution, (b) data transmission technology, (c) location of the servers and (d) market/exchange speed. Through multiple venues per stock, the exchanges are competing against each other. O'Hara's (2015) view was that electronic orders allow the exchanges to compete with the skills of traditional broker-dealers by giving investors enhanced functionalities to control the execution of their

orders themselves. Algorithms trading on dark and lit exchanges emphasize speed, which results in trade latency reduction to million- and even nanoseconds.

Traditional market makers have lost their importance as electronic systems have taken over the liquidity provision in markets. Automated liquidity providers also have material effects on investors in the stock market. Through automatization the automated market maker can perform better price estimates, and can quickly and more frequently update quotes than the traditional market maker and has an advantage of information (Gerig & Michayluk, 2016). The traditional trader would suffer as he needs to pay the higher spread and higher transaction costs (Menkveld & Zoican, 2014).

Some scholars oppose claims from previous research that fast traders systematically exploit traders who transact at the traditional exchanges. Arnoldi (2016) found that speed is a weakness and at the same time an advantage of trading algorithms but not a manipulation. Arnoldi suggested that changes in the regulation to the term of manipulation itself are necessary. The findings oppose previous findings on exploitation.

While high-frequency trading aims at short-term investments with buying and almost immediate selling, algorithmic trading means using automated, statistical, strategic solutions to minimize market impact when trading. Only a few researchers have academically studied the influence of algorithmic strategies on the equity markets. Aitken, Aspris, and Foley (2015) examined the effect of algorithmic trading on both efficiency and fairness and found that trading algorithms has a net positive effect on the market quality. The optimal trading strategy needs an optimal mix of limit orders, which earn the spread and market orders, which keep the investor's inventory schedule on target

(Cartea & Jaimungal, 2015). Areas of concerns are prices, liquidity, volatility and market stability around trading principles and gaps around the regulatory framework in primary and secondary markets (Morelli, 2016). To summarize, while the rise of computerization in trading is raising concerns regarding manipulation, most academic evidence suggests computerization has improved the equity markets.

The literature further indicated that algorithmic strategies and high-frequency trading have evolved through the technological enhancements in trading, but the multiple venue execution opportunities pose challenges to stock traders. Measuring execution across multiple venues and different order types such as standard order types, algorithms or natural liquidity blocks has not yet been addressed and paying the right broker or venue after MiFID II needs to be questioned by market participants and academics.

Trading Venue Selection

Improvements in trading technology allow computer algorithms to dynamically monitor multiple trading venues and MiFID I created fragmentation which offered traders the possibility to exploit pricing differences across venues. Traders can select to execute their orders on a Lit venue such as the traditional primary exchange, but also at numerous alternative trading venues (electronic communication networks, multilateral trading facilities) or in dark pools. Unlike a traditional exchange or lit multilateral trading facilities, dark pools do not publicize information about their orders and best price quotations before the trade happens. Much of the literature on venue selection focus on dark pools and the question if dark pools or the traditional lit exchange has the better or

cleaner flow. Buti, Rindi, and Werner (2016) and Nimalendran and Ray (2014) showed mixed empirical evidence on the association between dark pools and liquidity.

The strategies needed by European traders in the modern equity markets have changed through the transformation of the trading landscape from traditional trading to very fragmented markets (Gillet et al., 2017). The high competition through multiple trading venues, systematic internalizers, and electronic communication networks might have increased the hope for some traders to manipulate the equity markets (Arnoldi, 2016). Gillet et al., (2017) found that the fragmentation of liquidity within the European markets may cause several damages. Through the increase of complexity and functionality of electronic order routing also the risk of information leakage, manipulation, front-running and other misuse of dark pool trading has risen to a significant level (Zaza, 2012). Trading in a dark pool can have adverse effects on market quality and liquidity (Buti et al., 2016). By analyzing a 3-year period of 112 different European stocks, the results of Bomans (2012) showed that different stock characteristics also have significant effects on fragmentation. Uninformed traders are more likely to execute in the dark pools, which in return increases adverse selection in the primary exchange (Comerton-Forde & Putninš, 2013).

Increasing use of dark liquidity is often associated with higher market depth, higher trading intensity and impact on price discovery. Previous academic studies show conflicting results regarding dark pool impact on price discovery and studies exist that support each of the different theories. Dark pools, which do not contribute to the process of information aggregation, have an amplification effect on price discovery (Ye, 2016).

With low information precision, adding a dark pool impairs price discovery while with high information precision, adding a dark pool can enhance prices.

Similarly, Zhu (2014) found that dark pools improve price discovery and Comerton-Forde and Putninš (2013) supported the theory that price discovery improves through dark trading. Zhu also predicted that the transparent or lit part of order flow is the informative part, compared to the one in dark flow. On the contrary, dark trades do not associate with lower levels of liquidity, but smaller dark trades did. Comerton-Forde and Putninš concluded that dark pool trading harms price discovery only when the proportion of non-block dark trades is high. This statement would conclude that Block trades do not impact price discovery. Empirically both sides have been proved which means that dark pool does not equal dark pool.

The exact definition of dark pool parameters is essential. Not all dark pools are created equal, and that exclusivity of a pool is a significant influencing factor for the quality of execution (He & Lepone, 2014). Only pools that accept limit orders may offer some price discovery which is usually within the national best bid and offer (Ye, 2016).

The question is if execution in dark pools is more profitable. A handful of papers study the profitability of dark pools in fragmented marketplaces (e.g., He & Lepone, 2014; Kwan, Masulis, & McInish, 2015). Dark pool execution probability increases with dark pool activity (He & Lepone, 2014). The side effect is that the execution probability in dark pools increases the trading friction in other exchanges (Kwan et al., 2015). Systematic internalizers, who can match client orders against internal orders, will have a competitive advantage as they can trade in smaller increments than the harmonized

minimum tick size schedule (Kwan et al., 2015). The misuse of dark pool trading rose to a significant level and lacks sufficient rules and regulations (Zaza, 2012). Multiple venue-trading through high-frequency traders has attracted the scrutiny of the regulators because of concerns that the marketplace is not fair and leveled anymore (Zaza, 2012). The adjustments of the suggested regulations under MiFID II, such as abolishing broker crossing networks, tightening the systematic internalizers requirements or narrowing the reference price waiver, aim to secure that trading in financial instruments happens as best as possible on organized and regulated market venues. The scope of the present academic research has not captured the full breadth of venues available after MiFID II on trading and evaluation strategies.

Regulation of Trading

The constantly changing technological environment in the equity trading markets has challenged traditional trading and regulatory concepts. The high-frequency traders caused the Dow Jones Index losing almost a tenth in value and rebounding immediately in 36 minutes through their computer-controlled strategies and better regulations, and regulatory definitions are needed (Busch, 2016). Technological developments in the securities market in the last 50 years have changed the structure and nature of trading and stated that policymakers face many new challenges impacting the secondary market's effectiveness (Morelli, 2016). Regulators need to collect and share more information and data globally to understand the scope of future measurements better (Morelli, 2016). The misuse of venue selection and especially dark pool trading has risen to a significant level because of lacking sufficient rules and regulations and suggested the introduction of a

fiduciary standard on managers of dark pools (Zaza, 2012). The operation of dark pools, the participants, the matching process and the reduction in information about the trading process are an area of concern for buy-side traders. Regulation of venues and especially dark pools is a complicated topic that global regulators try to tackle.

In contrast to the rules-based approach to regulation in the United States, the European Union has a more principle-based approach to regulation as each of the EU countries possesses different regulatory rules (Bomans, 2012). The first MiFID (MiFID I) came in force on November 1, 2007 and had changed the European trading landscape. The introduction of MiFID I in Europe spurred the creation of new alternative trading venues (Ye, 2016). Fragmentation and competition between venues for order flow increased over a 3-year window after the MiFID I rules were implemented (Bomans, 2012). Most authors, such as Busch (2012), Zaza (2012), and Bomans (2012), had hoped that investment services in financial instruments and the venues where those instruments are traded would be better regulated.

Major regulatory directives have tried to regulate electronic trading and high-frequency trading. High-frequency trading usually benefit from low relative tick sizes as they can have advantages of additional trading opportunities. The Federation of European Securities Exchanges tick size harmonization regulation was implemented on October 26, 2009 which decreased tick sizes by about 50% and was a step of regulating the electronic trading markets in Europe. With further regulation under MiFID II, which also aims for a pan-European harmonization of tick sizes, investment firms and trading venues must invest in technology to comply with data and storage requirements (Gomber, 2016).

The European Council, Parliament, and the European Commission reached an agreement on proposing MiFID II and Markets in Financial Instruments Regulation (MiFIR) in early 2014 that should have been implemented by January 2017 (Nowell & Vincent, 2015). Because of controversies in regulation the EU countries, this was further delayed until 2018. Nowell and Vincent (2015) theorized that the delay is related to problems with transaction reporting because of (mis)interpretation of uniform requirements across the EU borders and lack of understanding of fundamental concepts among all European parties. Cultrera, Pozniak, and Vermeulen (2017) investigated how the MiFID I directive was implemented in Belgian financial institutions and what the effects of MiFID II would be. The study was carried out within the financial institutions to determine the applications of the MiFID directives for the different stakeholders and the organizational implications. Cultrera et al. stated that MiFID II is “undoubtedly the most structuring European legislative text of the last decade for all financial actors” (p. 109).

MiFID II/MiFIR may have a significant impact on how clients will need to record trade data. Transaction reporting is a measurement the regulators use to monitor the equity market for market abuse, insider trading and market manipulation (Bannigan, 2016). Bannigan stated that this new, standardized transaction reporting regime will be implemented across Europe. Ehrenfeld (2016) stated that although reporting obligations in the financial industry have been implemented, regulation has made such obligations an inseparable part of securities market practice (p. 151). Some financial technology firms have developed software platforms to help asset managers meet MiFID II requirements

for research budgeting, valuation, trade reconciliation tools, payment authorization, and reporting.

The new regulatory framework of MiFID and MIFIR would significantly influence and possibly also reduce the traditional European over-the-counter (OTC) equities trading by investigating OTC transaction sizes from 2008 and to mid-2013 (Gomber, Sagade, Theissen, Weber, & Westheide, 2015). OTC trades are not infrequent and large but are somewhat frequent and small in Europe. Gomber et al. (2015) indicated that MiFID II/MiFIR might force these trades to be executed on a trading venue or SI, which may increase transparency and the price-discovery process.

Gomber et al. (2016) stressed that regulation is the “most important trigger of changes “in the equity markets in Europe with the implementation of the second MiFID in 2018 (p. 7) and was hoping that the new directive will bring significant changes. Crown, Gatti, Feldman, and Landless (2017) noted that the impact of MiFID II will be experienced also outside the European Union, particularly in relation to research product governance, dealing commission, trading obligations, and the new regime for accessing EU markets and suggest that non-EU firms need to assess their interaction such as the provision of investment research and dealing services with counterparties and markets to identify the possible impact of MiFID II. Morad and Waight (2016) added to this discussion by stating that MiFID II changes would impact trading, research and operational and organizational structure of a bank.

While MiFID II represents a significant step forward to protect investors and clients, it also proposes many strict rules which impose high costs and low revenues on

banks. MiFID II requires enormous efforts for the implementation for European market participants and suggests that the regulation of algorithmic trading and high-frequency trading, dark pool volume caps and obligations to curb OTC trading are the most important factors regarding equity trading (Gomber, 2015). The objective of the MiFID II reform process is to secure financial market stability and essential preconditions during the transformation of the equity markets would be a system of efficiently working financial market infrastructure (Francioni et al., 2017). Valiante (2015) found that through technological developments in trading, financial innovation and easier access to international finance, prompted by accommodating monetary policies, fueled the expansion of investment funds who were attracted by higher returns (p. 40). Valiante (2013) examined the legal classification issue for multilateral and bilateral trading venues and urged that these classifications need to be solved in the second revision of the MiFID framework. Valiante also stated that the classification issue added: “additional confusion to an already complex set of market infrastructures and execution mechanisms” (p. 81). MiFID II protects the financial players but is not as effective as it could be as it does not differentiate between market players with different levels of financial literacy such as institutional clients or retail clients (Franke, Mosk, & Schnebel, 2016). Also, MiFID II generates excessive compliance costs which will hurt especially the smaller retail banks. Useful directives to regulate the market require different advice for different financial players.

Thompson (2017) doubted that the MiFID II would be implemented without even further amendments as the controversy about high-frequency trading is too high. The

author believed the regulator was not doing enough to prevent fraudulent activity and suggested radical actions like the introduction of a transaction tax on high-frequency trading activity or a cap on trading speed. A long-term solution must be found, and an introduction of this tax may assist to regulate the marketplace and generate money for the individual states, but it may also disrupt the dark pool market to the extent that it would eliminate investment volume (Narotski, 2016). Transaction reporting is significant for regulators as it allows them to better monitor market players regarding market abuse and keeping the marketplace a fair one (Nowell & Vincent, 2015). Financial firms should not underestimate the complexity of MiFID (Gomber, 2016). The amount of data in reporting and storage will raise, and firms may be faced with internal technology upgrades to comply with these reporting rules (Nowell & Vincent, 2015).

Regulations for different social groups with different diverse views are needed to stabilize social welfare and financial stability (Marti & Scherer, 2016). Monetary regulations such as MiFID must focus on the financial stability of the stock market (Bannigan, 2016). A common theme found in the academic studies was the restriction of venues, but proposed regulatory changes like the double volume caps and their impact on trading strategies have not been addressed. To comply with MiFID II rules brokers will have to be evaluated more thoroughly for service and research quality and separately for execution, venue selection and flexibility to regulatory changes.

The Broker Evaluation Process and Commission Payments

Finding the fair value of execution payments after MiFID II is a challenge most buy-side institutions face in regard to the way they historically paid their brokers.

Gennaioli, Shleifer, and Vishny (2015) found that in traditional stock trading the trust in a money manager can lower an investor's risk perception but on the other hand make him pay higher commissions. Implications they draw are that in the traditional less-regulated cash markets psychological bias, the lack of investment knowledge and purposeful consultation through greedy money managers could impact the commission payments. The overarching question Game and Gregoriou (2016) asked was, if a broker always acts in the best interest of the client. Dubois, Fresard, and Dumontier (2014) researched the conflicts of interest of brokers and the "impact of legal attempts to mitigate these" (p. 493). They found that a directive against market abuse had addressed and minimized some problems around conflicting research but that the legal action needs to come from the individual countries' regulators.

Anand et al. (2012) found that trading costs could eliminate the value that a portfolio manager has added to a funds' performance. Brogaard et al. (2014) stated that gaps exist in the literature on the impact of high-frequency trading on the different components of transaction costs. They found that institutional execution costs declined from the early 2000s level but could not show any evidence that high-frequency trading is the reason for these lower execution costs. Brogaard et al. argued that understanding how technology influences trading costs should be a relevant topic for investors as well as regulators. Gomber et al. (2016) raised concerns that equity markets face challenging times regarding execution payments as transaction costs have gone down, but trade execution has increased in complexity. Dealing in the best interest of a client and

providing best execution is one reason why buy-side equity traders should evaluate their brokers.

The traditional broker payment process will change with MiFID II. Banks usually pay a preagreed fee to a brokerage firm for executing the trades, but unfortunately, most of the (full-service) brokers do not openly publish their commission rates (Fong et al., 2014). Maber et al. (2014) found that the total trading order flow is determined by the ranking of the broker in the broker voting process where buy-side institutions survey their portfolio managers, analysts, and traders on the value of the research service. The execution fee of sell-side high touch desks mostly includes some research service; while the low touch desks exclude that portion of the commission. As those desks offer less manual intervention in the trading process and an execution-only-fee, they can most of the times offer better rates. A significant amount of trading flow has moved from internal matching desks or high touch trading desks to low touch desks.

One way to avoid exchange fees has been internal matching, where a broker matches two client's trades with each other and charges both. Because the trade matches in-house, the exchange receives no execution fees. Rosov (2016) researched the specific example of payment for order flow mechanisms and arrangements in the United Kingdom, which before a ban in 2012 by the Financial Conduct Authority, gave market makers the chance to execute order flow internally instead of routing to the exchange and creating a conflict of interest. Rosov analyzed the orders before and after the ban on the London Stock Exchange and found a significant increase in these order types on exchange away from internal matching. Although service seems superior on these types

of transactions, if the flow is managed in-house a client can have difficulties judging the quality of the execution. Callaghan (2016) researched trade execution evaluation tools and noted that transaction cost analysis (TCA) is an ideal equity buy-side tool that analyzes the cost of a decision to trade over a specified period concerning various benchmarks. A popular benchmark across European trading desks is the volume weighted average price (VWAP), and Frei and Westray (2015) found that the popularity of the VWAP benchmark for both brokers and clients has reasons in its straightforward calculation, easy facilitation, and easy post-trade reporting. Callaghan recognized the complexity of benchmark evaluation and suggested a split between vendor-provided TCA and internally built evaluation solutions. Agreeing with the difficulty of internal solutions, Panayiotou, Gayialis, Evangelopoulos, and Katimertzoglou, (2015) researched the technological implementation process and found that leaders should communicate the strategic plan and purpose of implementing a new (external) IT system to the users.

MiFID II may have a significant effect on how clients will separate payments for execution and research in the future. Under MiFID II an asset manager can continue to pay for research in three ways. Either payment can account as a direct charge to clients, as a research charge collected alongside execution, or from a firm's profit and loss statement. O'Halloran (2015) found that 67% of buy-side respondents to his survey said they would use less research if they would be forced to pay cash for it. O'Halloran recommended using commission sharing agreements, where a broker pays a preagreed portion of the execution fee to the broker as research component and can use these to pay independent research providers or other suppliers. Although Bannigan (2016) and

Gomber (2015) described the regime and possible implications, O'Halloran is the only academic who recommended a concrete strategy. O'Halloran indicated that commission sharing agreements deliver better transparency than bundled proprietary research and may help in achieving best execution.

While a client could be pleased with a broker's executions and service in one year, he might not in the following year, so the client needs to find criteria to evaluate best execution. Measuring a broker on the last year's research and service has been a widely used strategy. There is a gap in the literature on examining the performance of trading desks (Anand et al., 2012). Brokers ranked as best performers during the portfolio formation month continue to deliver the lowest trading cost in subsequent months (Anand et al., 2012). Trading desks are benefitting by selecting better brokers. Broker selection by previous performance is a buy-side desk manager's liability to best execution and bundling execution and services can inhibit price competition among brokers (Anand et al., 2012). Conceptually these theories and studies contribute to the proposed research subject and offer valuable insight into the general topic. Nevertheless, the specific topic of broker evaluation strategies after MiFID II in Switzerland has not been addressed.

Transition and Summary

Section 1 included an introduction to the study, overviewing the effect of electronic trading in banks, their advantages and disadvantages, and the current strategies used in trading and broker evaluation. Literature about studies of electronic trading methods and venue selection presented the benefits of restructuring the current broker review of Swiss banks, forming the foundation for the study. With electronic trading

accounting for more than 70% of trading in equities, improved evaluation can translate into improved bank profitability and market player transparency. The literature also indicated that many traders struggle to evaluate electronic trading efficiently.

Consequently, empirical evidence shows only a minimal use of electronic evaluation strategies when selecting brokers. Critical elements in this section included the problem and purpose statement, nature of the study, the research questions, conceptual framework, the significance of the study, and a detailed review of the literature relating to electronic trading evaluation and its use in making informed broker selections decisions. In Section 2, I present the research and method design, population, sampling, data collection, data analysis, and instrument, as well as reliability and validity. Section 3 will include a discussion of the results and interpretation of findings as well as implications for business practice and social change.

Section 2: The Project

The objective of Section 2 is to elaborate on the purpose of the study and to describe the research design, design appropriateness, data collection, and procedures. I also describe data analysis techniques, population and sampling, and the internal and external validity of the study. Section 2 also includes a description of the ethical requirements in the research process of this qualitative single case study. Also, I explain my role as a researcher and how I mitigated biases.

Purpose Statement

The purpose of this qualitative, single case study was to explore strategies that Swiss banks' equity traders use to evaluate electronic trading in the yearly broker performance review after the introduction of MiFID II. Four equity traders from one bank in Switzerland were invited to participate in interviews regarding their strategies for the implementation of electronic trading evaluation. The data from this study contribute to new business knowledge and financial savings to brokerage clients within the financial industry. Also, the findings can be used to show how innovation in trading technology can lead to more market transparency, less risk, and better service quality. The insight provided from this research will help banks and brokers to improve investment responsibility, broaden insight on trading transparency and client service, and promote social change through stronger enforcement of exchange rules and regulations on electronic trading.

Role of the Researcher

A researcher's role focuses on data collection, data organization, and analysis of a big set of data that attracts a researchers' attention (George et al., 2014). The researcher of a qualitative case study seeks to explore the participants' perceptions of their experiences using interviews with open-ended questions, rather than testing the quantitative hypothesis (Marshall & Rossman, 2014). The researcher is the primary data collection instrument (Marshall & Rossman, 2016). My role as the researcher began with a review of the literature to better understand the background of the research topic. Marshall and Rossman (2016) recommended that previous knowledge could be beneficial in understanding the viewpoint of the interviewee.

Personal experience, knowledge, and values can introduce researcher bias and influence a research study when interpreting the results, and member checking can decrease the likelihood of personal bias (Birt, Scott, Cavers, Campbell, & Walter, 2016). My experience as a stockbroker in electronic trading in Switzerland dealing with buy-side financial institutions in Europe's stock trading sector provided me with a unique perspective. I worked for more than 10 years with buy-side clients on several electronic trading integrations aimed at improving the use of algorithmic trading within banks. Exposure to some of these client initiatives and integrations has allowed me to gain a deeper understanding of the importance of electronic trading and its evaluation system to buy-side clients in Switzerland.

I made sure the data collection process met the level of protocols put forth in the *Belmont Report*, which identified the principles regarding the ethics of research as respect

for humans, as well as used it as a guide for interactions with participants (Vitak, Shilton, & Ashktorab, 2016). Computerization and digital data collection create additional challenges for ethical data collection, as initially stated in the *Belmont Report*, which has governed U.S. research for more than 30 years (Vitak et al., 2016). Researchers are subsequently urged to follow three principles: respect for research participants, justice in participant selection, and beneficence.

Another role I had as a researcher was to maintain neutrality in this study. Maintaining neutrality ensures the validity of the research results (Lub, 2015). A potential risk existed in that I may have introduced certain biases to this study that relate to evaluation strategies used in the banks because of my professional background and experience. Ensuring objectivity and neutrality prevented biases from influencing my participant selection data collection and interpretation of the study data. An additional confidentiality agreement, which the research location asked me to sign, guaranteed my neutrality to the research location (see Appendix A).

One method to help reduce bias is to use an interview protocol (Marshall & Rossman, 2014). An interview protocol provides the researcher with a guideline and systematically focuses on the data collection process before, during, and after the interview (Yin, 2014). I developed an interview protocol (see Appendix B) to enhance the validity of my study, which contained the primary research subject, the purpose of the study, the central research question, and the interview questions list.

Participants

The focus of this case study was finding the strategies associated with evaluating electronic trading post-MiFID II in Switzerland. For this purpose, I identified potential participants through purposive sampling. When using purposive sampling, researchers aim to find study participants with the best insight into the case (Palinkas et al., 2015). Fusch and Ness (2015) indicated a direct connection between data triangulation and data saturation. The purposive sample size for this study was four equity traders of a Swiss bank who had already used strategies to conduct a review of their electronic trading activities. The strategy to gain access to the participants was through professional relationships, which I built through previous business meetings or on professional conferences. I was not in a position of power or authority or any other form of coercion when I conducted the interviews.

Wilson, Onwuegbuzie, and Manning (2016) suggested interviewing as a primary method for data collection in qualitative studies. When the participants agreed to participate in the interview, I asked them to sign a consent form before starting the interviews. An additional confidentiality agreement with the research location guaranteed the privacy of the participants and ensured that the participant's identities would not be revealed (see Appendix A). To protect my study participants, their identities and the organization name will remain confidential. Bromley, Mikesell, Jones, and Khodyakov (2015) suggested performing the study by following the ethics protocols of the *Belmont Report*. Interviews were audio recorded with a portable recording device. I took detailed notes during the interviews. After the interviews, I secured all documentation on a locked

computer where I will keep it for 5 years. After this period, I will personally delete any electronic data and shred paper documentation if requested by the participants.

Research Method and Design

For this study, the research method was qualitative. I selected this research method based on the focus of the study and the research question. The strategies that Swiss banks' equity traders use to evaluate electronic trading in times of changing technological innovations and regulatory challenges needed further exploring, and those strategies have implications for research, practice, and social change. Building relationships and personal interaction with the equity traders was an essential factor to access information on the research topic. The three different methodologies that researchers may use to conduct research are qualitative, quantitative, and mixed methods (Yilmaz, 2013).

Method

The qualitative research method is used to explore participants' perceptions of their experiences, typically using open-ended interviews, rather than testing the quantitative hypothesis (Marshall & Rossman, 2014). A quantitative method is a formal, objective, and systematic process using many participants to represent a population (Yilmaz, 2013). Quantitative methods are used to test a hypothesis and are focused on closed-ended questions. Qualitative researchers seek to explore experiences through open-ended questions (Yin, 2014). A mixed-method study incorporates qualitative and quantitative elements and can provide a more robust answer to a research question

(Marshall & Rossman, 2014). Both quantitative and mixed-methods designs prevent exploratory questioning, which made these methods unfeasible for this study subject.

In this study, I explored the equity traders' strategies of electronic trading measurements in their yearly broker review through interviews with open-ended questions rather than testing a hypothesis; therefore, a quantitative method or the quantitative portion of a mixed-method study would not have been an appropriate choice. With these considerations, I chose a qualitative method for my research study.

Research Design

When choosing a design, the researcher needs to consider the type of research question being asked, the control mechanisms over behavioral events, and the focus on contemporary as opposed to historical events (Yin, 2014). The designs I considered for this study were narrative, phenomenological, ethnography, and case study. In a narrative design, a researcher describes an individual story of one's life or a lifelong experience of a participant (Marshall & Rossman, 2016). Because the topic of disruptive innovation through electronic trading is a recent phenomenon, I disregarded narrative design. Ethnography is the direct observation of participants or a culture and literally means writing about the people (Ingold, 2014). The research topic was about studying a strategy rather than a culture, and thus ethnography was not a suitable design. A phenomenological design explores the perspective of a participant's lived experience or phenomenon (Marshall & Rossman, 2014). Henriques (2014) found that the phenomenological researcher seeks to describe lived experiences, which was not the scope of this study, and I therefore disregard this method.

According to Yin (2014), a researcher conducts a case study to explore a realistic (real world) contemporary phenomenon to understand decisions about the motives of the decision making. After carefully evaluating all methods, I determined the approach of a case study was the most appropriate to my research topic of broker evaluations in Switzerland after the introduction of MiFID II. Case study design requires triangulation, which is focused on the process and methods of data collection (Yin, 2014). Case studies deliver insights into the experiences in different situations that are either typical or very rare (Connelly, 2014). To address the need to improve the broker review system of Swiss banks, I chose a single case study design, and I conducted interviews with four equity traders of one Swiss bank.

Population and Sampling

The research design was a single case study on electronic trading evaluation strategies in Switzerland. The sample included four equity traders of one Swiss bank who showed significant progress in implementing evaluation strategies on electronic trading. The choice of four equity traders was sufficient to conduct multiple interviews and might have even led to more persuasive results (see Yin, 2014). Researchers use a sample size that aligns with the research questions and the purpose statement (Khan, 2014). The sampling strategy was purposive, by selecting participants based on the selection criteria of being an equity trader and someone who used the identified strategies in their work. The access to the participants was through professional relationships, which I built through professional conferences. The head of trading, whom I had invited to participate, forwarded my e-mail to his team. There is a higher chance of reaching data saturation if

the data collection is purposeful (Palinkas et al., 2015). Fusch and Ness (2015) indicated that there is no one-size-fits-all method.

Another important criterion for the selection of the participant was that the participants work for a Swiss bank that evaluates electronic trading in their yearly broker review. The participants must have participated in a broker review on electronic trading in this bank at least once and thus demonstrate experience in the topic, which the head of trading verified before signing the cooperation letter (see Appendix A). The number of years of working experience at the bank was not necessarily a selection criterion as electronic trading reviews are a recent phenomenon in Switzerland.

The sample size comprised four equity traders of one Swiss bank. The choice of four equity traders was sufficient to conduct multiple interviews, and Yin (2014) stated that this choice can even lead to more persuasive results. Because the goal was to understand participants' detailed perspectives related to the broker review after MiFID II, qualitative research with three to five participants was most appropriate. The sample size of four was appropriate because each participant had a unique perspective on the influences of MiFID II to their workflow. I asked the participants to sign a consent form before holding the interviews and will protect their identity by not sharing the name of the organization and participants. I saved the interviews on a secured computer and will keep the data for 5 years after the interview conduction. After that time, I will delete the voice recorded interviews and electronic documents and will destroy any paper protocols with the help of a paper shredder if requested by the participants.

Ethical Research

Ethical issues can occur in different factions of a research study starting at the subject matter, the research problem, data collection, and interpretation (Buschman, 2014). Universal guidelines protect participants before, during, and after the data collection phase of a study. Walden University has a strict approval process in place that researchers follow. This process requires the researcher to obtain Institutional Review Board (IRB) approval from Walden University to conduct the study. Before collecting the data, I obtained permission from the IRB at Walden University. A researcher is not able to recruit participants for the study without receiving IRB approval from Walden and the research location. Once Walden University IRB approved the doctoral study, I was able to start the data collection process and interviews. Walden University's approval number for this study is 08-30-17-0329778.

The purposeful selection of participants was based on their topic knowledge and scope of the research. The study participants must meet the study eligibility criteria (Buschman, 2014), which were being an equity trader and having at least participated in one broker review previously. The consent process involved an e-mail invitation, sent from me, to participate in an interview. Because I had met the head of trading previously at a conference, I had his e-mail address. Another component of the approval process was to obtain approval from the research location (see Appendix A). The head of trading returned Walden University's consent form with an added paragraph to which I had to agree prior to conducting the research at the bank. After Walden IRB agreed and I confirmed this to the head of trading, he shared my invitation with other traders on the

desk. The e-mail invitation doubled as the informed consent form that outlined ethical concerns to the participants. The invitation and consent form indicated the topic, design, and purpose of this qualitative case study, as well as the informed consent document describing the risks, participation, and benefits of the study. The form also included a discussion of the right to decline or withdraw from the study and outlined my efforts to protect their confidentiality and privacy.

The consent form that doubled as e-mail invitation also indicated that there was no incentive or payment for the participants of this study. The four participants invited by the head of trading decided to participate in the study. The head of trading invited me to conduct the interviews in a conference room in the bank, chosen by the participants to help ensure confidentiality. Implementation of a numeric coding system was followed to protect the participant's identity, ensuring confidentiality. Also, I am the only individual with access to the data collected. Lastly, I saved the interviews and protocol (see Appendix B) on a secured computer and will keep the data for 5 years after the study conduction. After this time, I will delete all files and shred any notes that I collected during the interviews or the analysis process (see Khan, 2014). The letter of cooperation and the interview protocol can be found in Appendices A and B.

Data Collection

Instruments

According to Marshall and Rossman (2014), the researcher, in a qualitative study, is the essential instrument for primary data collection by listening to the participants during semistructured interviews; therefore I was the sole instrument for the study of

strategies of electronic trading evaluation as I served as the primary data collection instrument by conducting semistructured, open-ended interviews with a prepared list of questions (Yin, 2014). These interviews were my primary source of data. The research questions were open-ended and encouraged participants to discuss and explore the specific strategies lacked. I created the questions as well as analyzed and evaluated the answers myself.

Data Collection Technique

In qualitative research, researchers can use various sources for collecting data (Yin, 2014). The collection of data for this study included a step-by-step process. I did not conduct a pilot study but chose interviews with open-ended questions following an interview protocol to collect the data for this study. Pilot studies are necessary when validated structured questionnaires do not exist (Aristidis, 2015). The semistructured interview strategy provides extended time for the researcher to probe the participant (Yin, 2014). The use of semistructured interviews allows the participants to discuss the process in their own words and allows the researcher to probe for more in-depth responses (Yin, 2014). Disadvantages of semistructured interviews include a potential that bias occurs during the interview that could affect the final findings of the study (Yin, 2014). To gain a better understanding of the bank's strategies and values and reduce bias, I also encouraged each participant to support their interview with member checking (Birt et al., 2016).

The head of trading forwarded my e-mail invite to his team. All 4 participants invited by the head of trading decided to take part. The head of trading invited me to

conduct the interviews in a conference room in the bank, chosen by the participants to help ensure confidentiality. Interviews were conducted on site, in a quiet room at the bank and with the permission of the bank's leadership and compliance (see Appendix A).

All participants were able to meet me for an interview during their work day as the head of trading made sure they were released from their duties during that time. None of the interviews exceeded 30 minutes. I followed an interview protocol (see Appendix B). Interview protocols in qualitative research increase a qualitative study's rigor (Dikko, 2016). The interviews were recorded on my iPhone 6 to heighten the validity and reliability. I can recommend using a smart phone with recording function to other researchers as a recording device as it is transportable to any interview location, it is a tool that I already own and was familiar with using, and it can record the types of audio files I needed. Also, I took notes of the participant's answers as a backup if the recording would have failed and to capture inaudible responses as well as my thoughts and the participants' reactions. The recording did not fail, and the notes helped me synthesizing the answers for better analysis and study results.

I synthesized the participants' responses and summarized the information to the participants to determine its accuracy through member checking. I used member checking to ensure the responses of the participants were authentic and reliable and to increase the likelihood that the data represented in the findings are accurate (Birt et al., 2016). I allowed the participant to comment on the findings within five days via e-mail. I did not receive any changes from the participants. Three participants answered by e-mail that they had no changes to the transcript and one participant did not answer within 5 days.

Data Organization Techniques

I organized my home office to store the physical materials from the data collection for a minimum of 5 years in a locked, secured file cabinet. After the conduction of the interviews, I uploaded the audio files on to my computer and deleted them from my iPhone. Once uploaded, I stored and saved them using a password. I then transcribed the files by typing them myself into Word Documents and uploaded the files to my analysis software of choice NVivo11. Also, I uploaded supporting public data into the analysis program. I did not use a voice activated software.

participant data is confidential, and I assigned each participant an identifier number (e.g., 1). I also used name files and notes according to this naming system and the associated participants. That way, I provide confidentiality and track participant responses within the data.

Data Analysis Technique

I intended to understand the factors contributing to the success and failures of broker evaluation strategies in Switzerland by interviewing four equity traders in a Swiss bank. Through the establishment of an interview protocol (see Appendix B), I asked open-ended interview questions to collect data and explore meanings within the study. The data analysis included sourcing, noting, reviewing, and categorizing the statements of the participants and categorization of data helped to identify emergent themes and conclusions (Yin, 2014). After searching for common themes in the interview transcripts, I applied coding on participants' transcribed, open-ended answers and to documents uploaded into the software. I (a) compiled, (b) disassembled, (c) reassembled, (d)

interpreted, and (e) concluded on the data. I conducted the data analysis with the commercially available software program NVivo11. I used categories that showed patterns from existing research on brokerage evaluation, as well as categories that were found during the interviews. NVivo11 helped me to analyze the data also by the frequency of recurring themes and compares the findings to previous studies to validate the findings. I can recommend NVivo11 because of its ability to organize, code, and maneuver through the data.

I offered the participants the opportunity to review my interpretations of their interviews through member checking. The process of the participants reviewing the interpretations might result in further data collection opportunities (Marshall & Rossman, 2016). Also, qualitative researchers use on member checking to ensure credibility (Birt et al., 2016). I offered the participants to comment on the findings within 5 days via e-mail. Not all participants took the offer. Three participants answered by e-mail that they had no changes to the transcript and one participant did not answer within 5 days.

To triangulate the data and understand the broader setting, participant interviews can be supported by multiple data sources (Cope, 2014). I used public information such as exchange data and data from the bank's public website to better understand the banks' trading practices in Switzerland and the study context broader setting. Connecting back to the framework of disruptive technology, I set the context and discussion of which strategies for evaluating electronic trading in the yearly broker performance are essential and of understanding the role that technology has played in the necessity and development of new strategies.

Reliability and Validity

Reliability

The reliable data collection process in a study must demonstrate consistency and repeatable results when using the same data collection procedures (Grossoehme, 2014). Reliability also refers to dependability which measures the extent to which the data are stable and consistent under similar conditions (Cope, 2014; Houghton, Casey, Shaw, & Murphy, 2013). Confirmability relates to the neutrality and accuracy of the data and is associated with dependability (Houghton et al., 2013). I followed an interview protocol (see Appendix B) with precise, open-ended research questions and planned data collection procedures to ensure consistency. I also ensured that participants were approached in the same manner to invite them to participate. Qualitative researchers use member checking to ensure credibility (Birt et al., 2016). I used member checking to increase the reliability of the data further.

Validity

In qualitative research, the internal and external validity of a study confirms its accuracy and trustworthiness (Yin, 2014). Houghton et al., (2013) suggested that carrying out the research in a believable manner and demonstrating credibility are two steps to ensure creditability. Yin (2014) indicated that researcher bias and competence could affect the creditability and confirmability of qualitative research findings and analysis. As I was the primary data collection instrument, I was aware of the possibility of introducing my bias into the research process. I described my procedures clearly, precisely, and thoroughly to minimize bias.

Methodological triangulation improves the validity of a case study (Yin, 2014). I reduced threats to validity from using a purposeful sampling technique for selecting interview participants who share the unique characteristics useful to the study's purpose (Etikan, Musa, & Alkassim, 2016). To mitigate bias, I triangulated the data to improve the validity of the research study results through member checking and comparing the interview findings to available public Swiss exchange documents and the bank's website (see Birt et al., 2016; Yin, 2014). Marshall and Rossman (2016) suggested that transferability is left up to the reader. Transferability can be used to assess if findings can be transferred to a new similar context while conserving the implications and meanings from a completed study (Elo et al., 2014; Houghton et al., 2013). If academics believe their case is similar to that one described in the study, they may relate the findings to their research and thus see transferability.

Transition and Summary

In Section 2, I stated my purpose statement, described the role of the researcher, and the relationship with participants as well as the population and sampling strategy. I explained why I chose a qualitative, single case study as my preferred research method and design to study electronic trading evaluations in Switzerland. Also, I covered the data collection instruments, data collection technique, data organization technique, and data analysis followed by research reliability and validity.

In Section 3, I present the study findings relevant to the research question, including analysis and interpretation of the results as well as to compare the findings with existing literature, other sources of data, and the conceptual framework. I suggest how the

findings can affect social change and application to professional practice. I also recommend any further needs for action or research.

Section 3: Application to Professional Practice and Implications for Change

Sections 1 and 2 included information to explain why this study is essential to institutional bank managers of equity trading desks as well as brokers. The two previous sections included information regarding the study design and the approach employed in completing the research. The participants were equity traders from a Swiss bank. Section 3 includes (a) an overview of the study, (b) a presentation of the findings by themes that emerged during data analysis using NVivo11 software, (c) the application to professional practice and implications for social change, (d) recommendations for action and for further research, (e) reflections, and (f) a summary and study conclusion.

Overview of Study

The objective of this qualitative, single case study was to explore strategies that Swiss banks' equity traders use to evaluate electronic trading in the yearly broker performance review after the introduction of MiFID II. I selected a single case study to collect and gain in-depth knowledge and rich data. I conducted semistructured interviews with four equity traders from one bank in Switzerland to answer the central research question: What strategies do Swiss banks' equity traders use to evaluate electronic trading in the yearly broker performance review after the introduction of MiFID II?

Criteria for selection were the participants' experience in having completed at least one previous broker review and working in a Swiss bank. Having met the qualifying criteria, four traders participated in interviews. As the interviewer, I used 11 open-ended questions (see Appendix B), and each trader responded to the same 11 open-ended questions. To ensure reliability and validity, I asked probing questions and used member

checking (see Yin, 2014) to get a better understanding of each individual's responses. A researcher uses open-ended and probing questions in a qualitative study format to better explore a topic and achieve complete answers that may provide data saturation (Marshall & Rossman, 2016).

The interviews took place in a conference room at the bank. The setting offered privacy for conducting the interviews and made participants comfortable to provide freely detailed responses to the interview questions (see Appendix B) that indicated the necessity of strategies for evaluating broker execution after MiFID II. None of the interviews exceeded 30 minutes.

I transcribed the open-ended interview responses and sent them back to the traders for member checking purposes. In addition to conducting interviews, I used the bank's website, public documentation, and the local exchanges business records to triangulate data. After I received the interview summaries back from participants, I imported the compiled data into NVivo11 and coded the collected data. I used the coded data, methodological triangulation, and data analysis to identify emergent themes. I developed themes/strategies from the information provided by the four study participants and publicly available website information of that bank. The three emergent themes/strategies were (a) develop and improve the existing organizational structure of the internal voting process, (b) create advanced resources and internal technology and automation, and (c) expand and improve communication internally and externally to expand the trading desk profitability.

Presentation of the Findings

The data collection process involved interviews with four equity traders from one bank in Switzerland to answer the central research question: What strategies do Swiss banks' equity traders use to evaluate electronic trading in the yearly broker performance review after the introduction of MiFID II? Results from the four participants' responses provided insight to address the central research question, and a review of public documents such as Swiss exchange data and the bank's website helped to triangulate and confirm data. Each participant described and discussed the structure that existed in their bank regarding the broker voting process. Also, the interviews revealed where the structure was less efficient and how the structure could improve through a strategic plan going forward.

Based on the central research question and data analysis, it became evident that one strategy alone is insufficient for implementing a successful broker evaluation system. I identified several themes and grouped them into three strategies to improve the broker voting process for Swiss banks to better comply with MiFID II regulations. The first theme related to internal strategies to improve the existing organizational structure of the voting process within the bank. The second theme related to strategies to improve internal technology and automation needed for an improvement of the broker review. The third theme related to a strategy to improve internal and external communication needs of the biannual broker review to increase the trading desks profitability.

Strategy 1: Develop and Improve the Existing Organizational Structure of the Voting Process Within the Bank

Developing and improving the existing organizational structure of the voting process within the bank was the first emerging theme in all four interviews. Participants' responses to Interview Questions 3, 4, 5, 6, 8, 9,10, and 11 indicated that improvements of the current review process are necessary for equity traders to implement a successful broker review after MiFID II in Switzerland. My analysis of the organization's public website information and participants' responses to the interview questions showed that implementing a new form of broker review to comply with MiFID II starts within the bank. Building on the theory of efficient capital markets as one of the conceptual frameworks of this study, the research findings of the first theme/strategy suggested that a bank that trades stocks on several markets needs to be informed but regulatory compliant to stay competitive within those markets it trades.

The interviews revealed general concerns about compliance and competition. Participants seem to worry about managing their daily workload in addition to MiFID II compliance projects. Another concern was the competition within the Swiss market. Some participants felt that their bank was not the fastest when it came to decision making and project support of individual teams, which might be related to not having all information on MiFID II needed. Masry (2017) suggested that the efficient capital market hypothesis indicates a transparent capital market in which all participants are price takers and have all information, there are no transaction costs, and companies make effective investment decisions. Also, the literature review confirmed that through MiFID,

electronic trading in general, and trading one security on multiple exchanges, markets are not as transparent anymore (Callaghan, 2016; Comerton-Forde & Putninš, 2015; Gomber et al., 2016).

According to North (2016), the neoclassical result of an efficient market only occurs when transactions are costless. North stated that in times that transactions are costly, institutions matter. Subsequently, in times when transactions are not free, the bank needs to stay informed and competitive in comparison to the other market participants—otherwise, it would disrupt the existing market structure and might run out of business. Building on the theory of innovative disruption as the second conceptual framework of this study, the research finding of the first theme also suggested that the disruption of electronic and algorithm trading in the existing stock market and the attempt to regulate it better can even lead to an improvement of the current Swiss and European broker review processes within the bank. King and Baartartogtokh (2015) suggested that in cases of innovative disruption the relative rate of improvement may be significant. Subsequently, the subthemes of Strategy 1 to help to improve the existing internal structure of the voting process should also be evaluated by rate of improvement and existing employees must adapt to newer technology more quickly, which can lead to significant contributions to a firm's success.

Several subthemes emerged from the findings as being critical elements and mechanisms as part of a strategy to improve the existing structure of the voting process within the bank (Table 2). The three emerging subthemes for the strategy of developing and improving the existing organizational structure of the voting process were (a)

separation of the vote from asset management, (b) separation of trading categories within vote, and (c) separation of pricing. The literature referenced in Section 2 of this study supported the data collected regarding the first strategy. The strategy emerged through P1's, P2's, P3's and P4's interview responses and the bank's website information on the organizational structure and showed the necessity of changing the existing review with the help of a strategic plan to integrate electronic trading. Furthermore, the interviewees suggested the need to improve organizational business processes through separation of the voting process from the asset management, separation of trading categories within the vote, and separation of pricing. Gomber (2015) noted that financial firms should not underestimate the complexity of MiFID II and should prepare in time with a proper organizational strategic plan, which the three subthemes also supported. A summary of the themes included in this strategy appears in Table 2.

Table 2

Mechanisms Related to Improving the Existing Structure of the Voting Process

Theme	<i>f</i>	% of frequency of occurrence
Separation of Vote from Asset Management	4	100
Separation of Trading Categories within Vote	4	100
Separation of Pricing	3	75

Note: *f* = frequency of themes.

Separation of the vote from asset management. Responses from participants showed that an element to improve the broker voting process is the separation of the

trading vote from the research vote of the asset management. All four participants noted that the current trading vote depends heavily on the vote of the asset management. The current review process is a two-step process in which the asset management team decides which brokers are on the broker list, and in a second step the asset management teams and trading teams give points to those brokers listed. Only brokers who deliver research to the asset management team are added to the bank's broker list.

Brokers who have no research or do not service the bank on the asset management side do not even have a chance to get on the list—even if their trading and execution capabilities might be better than of those brokers on the research list. Separating the vote of execution and trading from the asset management's research vote would give the trading desk the possibility to add brokers to the list who have outstanding trading capabilities. P2 mentioned that in the current broker review setup there is no chance for “spontaneous new entries” or smaller, more specialized brokers to the trading list as they must fight against competition on the research side first to even get on the research list. By the time they are on the research list for the first time, the trading desk has not tried or experienced their execution capabilities, and it takes another voting period until they can be evaluated efficiently.

P3 stated that the separation of the vote from the asset management would be a useful strategy for the bank, and if equality of the two votes were not a priority, the implementation of a successful new voting process to comply with MiFID II within the bank would even be at risk. P1's, P2's, and P4's responses confirmed P3's answers by stating that the elements included in the trading vote and the counterparties used for stock

execution should only be determined by the trading desk and no longer by the asset management after MiFID II. All participants believed that the current structure is not feasible after the introduction of the unbundling rules within the MiFID II regulations and that the bank needs to make changes across different teams and to the whole evaluation lifecycle. Documentation from the bank's website and participants' responses contained information relating to the bank's structure and trading culture. Participants described the position and structure of the equity trading and asset management teams, which revealed an imbalance in voting power and the trading lifecycle within the bank. The bank's website explained the goal and mission of the bank's asset management and trading, which showed no difference to other MiFID II-impacted Swiss banks. Morad and Waight (2016) indicated that MiFID II affects all areas of the trading lifecycle and drew similar findings.

Separation of trading categories within the vote. Measuring electronic trading in the broker voting process is a specific concern for buy-side financial institutions under MiFID II. With Interview Questions 4 and 5, I tried to question the existing evaluation system regarding electronic trading activities and the separation between high-touch and low-touch trading. Participants responded to Interview Question 6 and revealed strategies that failed to produce an adequate evaluation. In their responses to Interview Question 7, participants revealed effective strategies in their previous broker evaluations. Participants' responses indicated that another element to improve the broker voting process is the separation of trading categories within the vote.

The trading desk currently trades high-touch blocks, high-touch single orders, low-touch direct market access, low-touch algorithms, and low-touch basket trades, all of which use different amounts of manual intervention and thus need separate evaluation. All four participants noted that the present trading vote does not pay too much attention to detail in differentiating between the different order types the desk has to manage. P2 noted that, within the execution part of his vote, he evaluated the trading quality overall with points and the execution high-touch service with verbal comments, but he did not differentiate yet between order types. P3 stated that he was mostly evaluating the high-touch service with points and verbal remarks but not the low-touch portfolio trading service, which he already used. Each participant provided responses that indicated that future broker reviews should differentiate between the five order types as some brokers have different strengths in certain order types than others.

Some smaller brokers even only offer low-touch trading, or others exclusively high-touch trading, and thus they could not be evaluated on all five order types. P3 indicated that, in the current broker evaluation process, niche and smaller specialized brokers hardly have a chance versus the big brokerage firms as they did not come on the list at all due to lacking research service to the asset management team. A new evaluation for just the execution desk and a split into the five different order types would make the whole evaluation process fair and more transparent to brokers, clients, and even competitors.

P4 mentioned that trading time plays an essential role in the evaluation process. According to P4, “the time the trades happens is important.” Larger banks are often set

up with three trading desks in different geographic regions. With an office in the United States, a desk in Europe, and one in Asia, these banks can locally trade in their region and time zone. According to the participants' responses and bank website information, this Swiss bank trades all three regions out of their Swiss office and thus should differentiate these regions in their trading evaluation. According to P2 and P4, this differentiation is not done yet, and "most orders out of Europe are given to high touch brokers in the other region" to have a "second eye" on the trade as there is no coverage at the Swiss desk at night. These responses again support differentiating between trading categories, as out-of-region brokers therefore only receive high-touch business and should not be evaluated on low-touch flow. These findings were also reflected in the academic literature and public documents such as the MiFID II documentation and the Swiss Financial Authority website.

Separation of pricing. Responses from participants indicated that an element to improve the broker evaluation process is the separation of pricing between the executions and research services as also suggested by the MiFID II regulation. P4 noted that under MiFID II rates would be very transparent which might even increase the profitability of trading desks. So far, the trading desks commissions paid to the brokers included payments for research service which will not be the case after MiFID II. While the asset management desks are in negotiations for research pricing on a yearly or quarterly basis, P4 stated that the trading desk would continue to stick to a pay-per-trade model.

P4 stated that in the current environment it does not matter to him if he sends a trade via the low touch electronic or the high touch route as these price at the same rate.

MiFID II requires the bank to unbundle research and execution pricing in 2018. P2 indicated that with the current “all in” rate he prefers to give his business to high touch brokers as these need to be paid for their research services. This answer indicates that P2 neglects low touch brokers although execution could be even better. P1 supported P2’s answer by stating that because of the “all in” pricing he must send flow to specific research focused brokers for quota reasons and therefore neglect the predicted performance. Fong et al. (2014) stated that most of the (full-service) brokers still do not openly publish their commission rates. Gomber et al. (2016) raised concerns that equity markets under MiFID II will be facing challenges regarding execution payments, but trade execution has increased in complexity, which is in line with the interview results from this trading desk. Responses from all four participants and supporting literature about MiFID II indicates that this current practice negatively impacts the profitability of the trading desk and thus the overall performance of the bank.

Because the level of manual intervention per order type is different, P2 indicated that pricing should reflect this. P3 suggested a differentiation in pricing between high touch flow, algorithm flow, and portfolio trading flow. P1 suggested fair pricing would be to pay a lower rate for electronic and a higher rate for manual trades. The four respondents agreed with creating more transparency around trade execution and insisted that the three types of low touch execution need pricing significantly lower than the two types of high touch services as the manual intervention and supervision level differ. Therefore, a strategic plan to separate pricing of execution and research is a critical factor for equity trading desks to implement new evaluation criteria to improve the trading

desks and banks business performance. Francioni et al. (2017) stated that the objective of the MiFID II reform is to secure financial market stability, secure financial market infrastructure and to add market and pricing transparency which is in line with participants' answers and the documents found on the bank's website.

Strategy 2: Create Advanced Resources to Improve Internal Technology and Automation

The second theme related to strategies to improve internal technology and automation needed for an improvement of the broker review after the introduction of MiFID II. There were several strategies mentioned by all participants, in public documentation, and confirmed by previous research. I discovered that adding external technology, improvement of internal systems, and internal and external IT support were necessary strategies to improve internal technology and automation needed for an improvement of the broker review.

Questions 4, 5, 8, 9 and ten addressed the technological impact, system upgrade requirements, and automation process. Each participant provided responses that indicated the existence of some sort of automated process and programs designed to help with trade evaluation. P4 referenced specific efforts to improve the current internal and external system landscape. P3 posited that a trading measurement tool is an essential component of future broker evaluation processes which all buy-side institutions should implement to measure trading impact of dark pool trading, systematic internalizers and trading performance in general. P2 believed that predicted performance of trades should be more critical and done in-house to compare with the broker's pretrade analysis. A pretrade

analysis is often requested by the clients from multiple brokers to get an estimate of the expected market impact and outcome of the planned trades. In addition to pretrade analysis, P2 stated that posttrade evaluations should play a higher factor in the broker review, which agrees with the literature findings referenced in Section 2.

Two of the four respondents mentioned, in their answers to Question 5, that the traders cannot measure trading quality over a certain timespan. No information regarding the measurement of trading quality over a certain timespan was found on the bank's website or on the Swiss exchange's website. P2 noted that for their biannual vote it would be useful "to measure trading quality over a given 6-month period and not just at a given point in time with a two-week notice." This change would make the evaluation process more efficient. P1 stated that the current process does not allow them to monitor and "evaluate trading performance over for example the last 500 trades." All traders agreed that they need to add new technology to the desk to measure trading performance more efficiently.

From the traders' answers and requirements by MiFID II, it became evident that the traders need (at minimum) two additional tools. One tool needed would be a system that evaluates every electronic trade based on predicted and real performance and cost in the trades lifespan's market environment and long-term. Another tool would be an internal, improved, broker evaluation system, which helps the traders to make more informed broker voting decisions for example through feeds from the trade evaluation tool. P4 stated that implementing these tools, conducting training as well as long-term servicing of these tools should not be tasks of the traders but tasks of a separate

technology and IT unit within the bank. All respondents were passionate about the technological topic which further indicated the importance of system improvement to their daily workflow and profitability of the bank. On the bank's website, I found no documents on the introduction of TCA tools or any IT projects which indicates that this is still in the planning and has not been publicly announced yet. Public documents on MiFID II, on the other hand, describe TCA as a necessary tool to achieve MiFID II compliance.

While the subthemes of Strategy 2 relate less so to the efficient market theory other than staying competitive not to disturb the market environment itself, the theory of disruptive innovation is evident throughout all findings of the second emergent theme. All three subthemes indicated a precise alignment with the theory and literature. Nowell and Vincent (2015) stated that under MiFID II the amount of data in reporting and storage would raise and firms will be faced with internal technology upgrades to comply with these regulations. Christensen (1993) urged businesses to understand the forces and circumstances in which disruptions happened and stated that the circumstances are mostly operative. The strategic needs of the traders and the research location only emerged through the innovative disruption of traditional trading processes through electronic trading and subsequently created requirements for internal and external improvement of technology and adaptation to newer systems. Findings in this study indicated that bank managers and trading desk leaders should ensure the optimal use of trading tools and evaluation technology when preparing for broker votes after MiFID II. A summary of the themes included in this strategy appears in Table 3.

Table 3

Mechanisms Related to Improving Internal Technology and Automation

Theme	f	% of frequency of occurrence
Adding external technology	2	50
Improvement of internal technology	4	100
External and internal IT support	2	50

Note: f = frequency of themes.

Adding external technology. P2 responded that a TCA tool is a necessary component for compiling trading data over the year and not just over one day like their current system and thus would improve evaluation in the long term. P4 and P1, as well as P3, mentioned that their existing tool, where they can send trades, monitor executions and partial executions, only looks at single trade performance during the lifetime of this specific trade and thus does not help to evaluate a broker over a given period. This order management system combined with execution system connects the bank's front office to the broker and exchange and back to the operational office. P4 stressed that at the end of the (half-)year, the goal must be to give the broker detailed feedback on his continuous performance or failure to judge more efficiently.

P1, P2, and P3 noted that the introduction of an external TCA tool, as suggested, communicated and pushed forward by their head of trading was a necessary and useful strategy. These comments align with Panayiotou et al. (2015), who indicated that leaders should clearly communicate the strategic plan and purpose of implementing an IT system

to the end users. Gomber (2016) noted that investment firms must invest in technology to comply with data and storage requirements. This research aligns with answers from P4, who acknowledged that the bank must invest in external technology but questioned if an external TCA provider and TCA system can measure quotes and execution quality correctly under MiFID II's developing systematic internalizer regime. Each participant spoke of the importance of selecting the right TCA vendor. P4 noted that extensive research was necessary for choosing the right vendor and choosing the right software package also depends on cost and the trading desks business requirements.

P3 noted that the primary business requirement for an externally bought TCA system must be the ability to differentiate between all electronic trades such as low touch direct market access, low touch algorithms, low touch basket trades, and high touch single orders. P2 and P1 mentioned that the TCA system also should be able to differentiate between regions, countries, and sectors traded and most importantly show benchmark performance on electronic trades. P1 finds the "volume weighted average price" an effective benchmark which he uses to compare broker performance. P2 mentioned in addition to VWAP, the "20% participation rate" or "market on close" instructions are useful benchmarks that brokers should be delivering. Both P1 and P2s responses aligned with documentation and information in the trading literature. Frei and Westray (2015) found that the popularity of the VWAP benchmark for both brokers and clients has reasons in its straightforward calculation, easy facilitation, and easy post-trade reporting. Also, Callaghan (2016) noted that TCA is an ideal equity buy-side tool that

analyzes the cost of a decision to trade over a specified period concerning various benchmarks.

P4 questioned the validity of fair trade measurement in a TCA tool regarding block trades, as in their current trading set up, they send larger single stock orders first to an algorithm and cancel those orders if a high touch trader offers them a block at a fixed price. P4 was unsure how to show the brokers performance in an external TCA tool as the tool would only measure the first part of the trade. Also, the broker offering the block price could be a different one than the one who received the electronic order which creates, even more, complexity and needs to be addressed. The use of an external TCA system might only add to better evaluations but must be supported by another tool which allows manual input. Most academic literature and public documents mentioned TCA tools as a necessary IT tool to achieve MiFID II compliance but failed to investigate how manual intervention can be measured in the broker review.

Improvement of internal systems. All four participants noted that the existing trading tool does not allow them to differentiate between the different order types the desk is trading. Through the help of an external TCA tool, the traders would get the evaluations in a statistical format which makes it easier to distribute voting points to their brokers but still need an additional internal evaluation tool with the possibility of manual inputs. P4 mentioned that in an ideal world the TCA Tool and the internal broker evaluation tool could be merged and that he is looking at TCA vendors that offer an extension of the standard TCA capabilities by a broker ranking tool.

P2, who currently evaluates the trading quality overall with points and the execution high touch service with verbal comments, noted that “the old system, in which you could manually enter comments”, could still be valuable to a new TCA based internal voting tool and in some instances even necessary for a smooth transition. As noted by both, P2 and P4, one component that an external tool will not be able to measure efficiently is the settlement process after a trade’s execution. P4 discussed that a trade could outperform the benchmark and trader’s expectation, but when afterward the settlement fails this should be influencing the brokers’ performance evaluation. P2 also noted that the complexity of different regions and exotic order types demands an internal tool with an evaluation of settlement as a smooth settlement process saves the buy-side trader’s desk time not having to chase the broker. P4 believes that having only brokers on their trading list that have good trade operations teams in place will increase the trading desks’ efficiency and thus profitability in the long term.

The participants’ comments align with findings by Callaghan (2016), who recognized a split between vendor-provided TCA and internally built evaluation solutions. Arvidsson et al. (2014) warned that an organization could technically succeed in implementing a new tool, but fail strategically as the implemented system does not produce the anticipated organizational change. Participants’ responses regarding the internal evaluation tool and goals published on the bank’s website align with Arvidsson et al., as the bigger strategic goal internally and of MiFID II is to separate the broker voting process within the organization to reach the decisive goal of a better overall performance of the bank.

Internal and external IT support. Findings of this study suggest that the traders need internal but also external IT support. The vendor's TCA tool must be customized and serviced externally, and the internal IT desk must service the internal, improved broker evaluation tool. P1, who reckons only 45 % of the current evaluation process uses automation, suggested that the Bank's internal IT experts need to liaise with the external vendor tools experts before, during and after the TCA implementation. P2 mentioned that IT delays can occur on several sides, either internally, or on the broker's side and even on the exchange side and new technological infrastructure and internal and external IT support should be addressing these delays to ease the workflow of the equity trading desk.

Callaghan (2016) tied the creation of new TCA systems and their IT support back to innovative disruption and stated that new entrants to the IT systems markets supply trading desks with innovative solutions to improve an already functioning workplace and "emerge successfully onto the electronic trading space" (p. 115). The findings of this emergent theme support Callaghan, the framework of disruptive innovation and the existing literature on organizational business needs of banks through the introduction of MiFID II.

Strategy 3: Expand and Improve Communication Internally and Externally to Expand the Trading Desk Profitability

The third theme I identified was necessary strategies to expand and improve communication internally and externally to grow the trading desk profitability.

Participants responses to Questions 3,4,5, 7, 8, 9, and 10 identified a continuous intention

to increase the profitability of the trading desk through an efficient broker vote system after MiFID II and its corresponding communication. The research finding of the third theme suggested that the disruption of electronic and algorithm trading in the existing stock market and the attempt to better inform internal and external stakeholders through improved communication can lead to an improvement of the broker review processes within the bank. A Swiss bank's trading desk can improve profitability with wise handling of internal and external communication and information in preparation for a MiFID II conform broker review process

Two subthemes emerged from the findings as being critical elements in a strategy to improve the existing communication of the broker voting process within the bank (Table 4). The substrategies emerged through P1's, P2's, P3's, and especially P4's interview responses to Questions 3, 6, 7, 9, and 10. Themes that emerged as being necessary strategies to increase the trading desks profitability through communication strategies were an improvement of internal communication with management, with the asset management and within the trading team. Themes that emerged in the external communication strategy were communication and information of clients, vendors, and brokers. Public information, the bank's website, and literature confirm that information and communication within the bank, with their clients and with regulators are the key to a financial institution's success.

The change of communication between market participants through electronic trading as described by Callaghan (2016) has also had organizational effects. While literature describes a loss of communication through increased electronic trading activity

(Callaghan, 2016; Henderson, 2014) findings from this study suggest that effective communication strategies are still crucial to the success of an equity trading desk. Participants' answers aligned with findings from research completed by Lee et al. (2017) who identified communication between market participants crucial to the success of an efficient stock market and expect a further increase in the use of information communication technologies.

Building on the hypothesis of efficient capital markets as one of the conceptual frameworks of this study, the research findings of the third theme suggested that effective communication within the institution but more importantly outside the institution, in times where most transactions are done electronically, matter more than ever. While Masry (2017) stated that Fama's efficient capital market hypothesis indicates a transparent capital market in which all participants have all information - it becomes evident that through electronic trading the level of information of all market participants has shifted. One of the main reasons the efficient capital market hypothesis does not necessarily apply to today's stock markets is the second conceptual framework of this study: innovative disruption. A bank's trading desk needs to stay informed and competitive in comparison to the other market participants' trading desks - otherwise, it might run out of business and thus disrupt market structure in its home market. The literature referenced in Section 2 of this study also supported the data collected regarding the third strategy and the conceptual frameworks of the research. A summary of the themes included in this strategy appears in Table 4.

Table 4

Mechanisms Related to Strategies to Expand and Improve Communication Internally and Externally to Expand the Trading Desk Profitability

Theme	<i>F</i>	% of frequency of occurrence
Improvement of internal communication	4	100
Improvement of external communication	3	75

Note: *f* = frequency of themes.

Improvement of internal communication. Improvement of internal communication was one of the emergent themes within this third strategy that crystallized in all interviews. All four participants noted through different answers that trying to keep the entire organization working together to implement new broker evaluation systems is no small task. From the interviews, it became evident that the communication must happen at different levels within the organization. The three groups I identified as internal communication focus areas regarding the broker vote of this Swiss organization after MiFID II are (a) the management, (b) the organizations' other teams, and (c) the trading team itself.

First, communication of the overall strategy to improve the internal broker voting process with the help of new technology and systems to all relevant employees is the job of the dedicated teams' leaders but also their managers. All respondents mentioned leader interaction. All participants indicated that they rely on their manager to communicate evaluation related to topics to management. None of the participants said how

communication of broker review associated topics works top-down in the organization. Internal communication must be down-up with the teams addressing the necessity of a new system, the efficient and not efficient strategies to the management and top-down with the management communicating their strategy in the organization.

While the existing broker review system is not up to date anymore, managers of the bank must work and efficiently communicate with the corresponding teams the strategy to improve the review. The trading team might only see their reasons to enhance the review, but management should see the bigger picture such as the impact on the bank's organizational construct, risk and compliance effect and possibly the image of the bank itself to peers, market participants, and clients. Therefore, management is the second major decision maker of the improvement of the broker review process.

The findings from the interviews aligned with current literature. King and Baartartogtokh (2015) found that managers evaluate challenging problems from several different perspectives and find ways to leverage existing capabilities. Eastburn and Boland (2015) stated that senior executive bankers' behavior plays even a more significant role than the actual adaption to technology. From a conceptual framework perspective, Christensen (2013) explained that the circumstances of innovative disruption are mostly operative and the questions on what causes what to happen, when does it happen and why does it happen are happening in the broader context of the organization.

Second, communication to the organization's other involved teams is equally important during the process of improving the current broker review process. All participants mentioned that the separation of the vote from the vote of the asset

management team was a necessary step to improve the broker evaluation process.

Findings from this study and literature suggest that communication internally and with this specific team must be handled carefully. All participants mentioned the dependency of the trading team on the asset management team regarding the broker list. P2 called this process where he could not freely choose his brokers but need to pick one from the asset management's team list "freedom with restrictions."

The split of the actual vote into two separate voting processes is regulatory related but will change the power scale between the two teams and team leaders within the bank. P4 mentioned that in the current process the head of trading determines the evaluation factors, but asks the asset management head if he would like to include some elements as well. According to P2 and P3, the asset management head never asks the trading desk head if he would like to add some brokers to the list. These organizational imbalances might be straightened after the introduction of the new evaluation process, as currently the trading review is only a small part of the asset management review and in the future, will be a stand-alone review.

Third, communication within the trading team is the most crucial factor in this emergent theme of internal communication to improve the profitability of the trading desk. The team will reach its most effectiveness when communication between team members and with the team head works in a two-way fashion. During the interviews it became apparent that all team members communicate two-ways effectively with their team leader. Especially the more experienced team members, communicate strategies and evaluation tactics to their manager and are not afraid to raise issues internally.

Sitting on an actual desk next to each other keeps team communication alive as is not in danger to decrease through electronic chat rooms like the communication with their brokers as suggested by P3. Team members may even complain about the new technology they have to get used to on the desk, which again can unite a team even more. Literature and public documents such as the Swiss exchange data and the bank's website agree with the findings from this theme. Ceschi et al. (2014) even found that communication and innovation can improve group learning and decision-making and thus improve a team's profitability.

Improvement of external communication. Improvement of external communication was the second emergent theme within this third strategy. All four participants noted that the communication must not only happen across different levels within the organization but also externally. The three groups I identified as outside communication focus areas regarding the broker vote of this Swiss organization after MiFID II are (a) the clients, (b) the vendors, and, most importantly, (c) the brokers, as they are the ones that will be mainly impacted by changes in evaluation strategies.

First, client communication evolved as one external communication theme from the interviews. A client will have greater trust in his bank if he feels informed about the innovations and processes. Not all Swiss clients pass their trades on electronically yet, some still phone their advisor to place a trade. The trading desk has no direct interaction with the end client, but responses from P1, P3, and P4 indicated high reliance on the existing client communication process of the bank. While communication of trades is determined by the bank's overall strategy to adapt their clients to technology and online

trading, communication of the broker evaluation process needs to be directed from the trading desk through the correct communication channels.

The findings of this study agree with existing literature and suggest that clients, who might also be questioning how MiFID II might impact their trading, should be kept informed about current processes and changes in broker evaluation techniques to build out the existing customer relationship even further. The customer is the bank's intangible asset, and success of the banking industry depends on maintaining a stable long-term relationship with its customers; therefore it is more important than ever to orientate and adapt to customers' needs and demands (Dalir et al., 2017). Tying the results and literature back to the conceptual framework, Gupta and Khanna (2015) found that a client's enthusiasm to adopt technology and electronic delivery channels can be lower than the Banks acceptance level. Christensen (2013), on the contrary, suggested that customers can influence the innovation- and effectiveness-rate in an organization and found that sophisticated customers need another offering than less knowledgeable clients as these will adapt in different ways to innovation.

Second, communication with system vendors was the second emergent theme within the external communication theme. While the bank and its trading desk is searching for the right TCA tool to improve their trading measurement needs, all participants showed high reliance on their manager to make the best system choice. All participants mentioned certain evaluation elements that were important for their trading style which they continuously communicate to their team leader. P4 mentioned that looking after the right vendor and testing several vendors TCA versions takes time of his

actual trading job. Literature agrees that through the introduction of newer tools and the evolution of trading systems the equity trading desks are going through continuous changes (Gomber et al., 2016). Communicating the trading desks exact requirement is thus crucial to saving time during the search for the right vendor.

Third, broker communication was the most mentioned theme within the communication strategy. All participants agreed that they have good relationships with their brokers. P2, P3, and P4 used some of these brokers throughout their whole career at this bank and indicated that relationship to these is part of their success. These answers support my study subject and the assumption that MiFID II will bring changes to both buy and sell side evaluation. My findings suggest that it is more important than ever for the buy-and-sell side to work together closely and communicate developments, needs, and successes on both sides.

All participants indicated that the head of trading is handling the broker review communication which currently is a small part of the asset management review. Several answers of all participants showed a reliance on established communication processes and the team leader's expert skills to handle the upcoming change in broker evaluation communication. P2 stated that the head of trading's constant involvement with the topic across several levels made him also an expert in the bank. Like with vendors, P4 noted that keeping their brokers informed, required constant involvement which takes time off their hands to trade. P2, P1, and P3 stated that they talk daily to most of their brokers on the phone, but P3 expects that the oral communication with their counterparties will soon go down through an increase of use of electronic chat rooms.

P4 stated that the sole purpose of integrating broker evaluation processes within the bank was to maximize the organization's business performance and increase productivity. Effective communication of voting and performance results and settlement or IT related broker issues would increase the buy-side trading desks profitability, as the broker can better adjust to the buy-side client's targets, benchmarks and performance expectations. P4 finally commented that the rate of improvement might not be as fast as the regulatory deadline but by the time of the first bi-annual review in mid-2018 the organization should be compliant. P4's expectation on time seems in line with the bank's Swiss and even European peers and online publications as no bank has yet published that they are ready and prepared for MiFID II. The objective of the second MiFID II reform is to further secure financial market stability and one of the most critical preconditions during the transformation of the equity markets is a system of efficiently working financial market infrastructure (Francioni et al., 2017).

Applications to Professional Practice

Implementation of the broker review strategies identified from this study might help Swiss bank trading leaders to implement a successful trading evaluation system. The overall objective of the study was to explore what strategies Swiss bank's equity traders use to evaluate electronic trading in the yearly broker performance review after the introduction of MiFID II? The desire to understand the expanding role of computerized trading systems and their regulation through the MiFID II lead this research to evaluate the effectiveness of the existing Swiss broker review practice. Results from the participants' responses provided insight to address the central research question, and a

document and literature review helped to triangulate and confirm data. Trading Desk leaders should understand the strategies that best align with the buy-side business evaluating the sell-side business as noted by P4. However, trading desk leaders should be cognizant of the many evaluation strategies to choose, focusing on the strategies that align with their bank's overall strategy, trading business, asset class traded and necessary IT system integration (Arvidsson et al., 2014; Callaghan, 2016). Trading desk leaders should only implement evaluation strategies that are effective to their specific desk and disregard those strategies that are ineffective or just effective to others.

Participants' responses indicated that improvements of the current review process are necessary for equity traders to implement a successful broker review after MiFID II in Switzerland. The research finding of the first theme also suggested that the disruption of electronic and algorithm trading in the existing stock market and the attempt to regulate it better will lead to an improvement of the current Swiss and European broker review processes within the bank, which is consistent with the literature. King and Baatartogtokh (2015) suggested that in cases of innovative disruption the relative rate of improvement may be essential and while all participants indicated that the adaption to MiFID II is slower than expected, P4 stated that by the time the first semiannual broker review must be completed he expects this Swiss bank to be ready. No Swiss bank has until December 2017 published that they are ready and prepared for the changes this European regulation will bring, which is in line with statistics and business literature.

Separating the current voting process into two future votes will not only strengthen the trading desks performance but will also enhance the position of the trading

desk leader within the bank. While so far, the trading desk head and his teams voting were at maximum 20% of the overall vote, MiFID II creates the chance for two equally weighted votes within the bank: one for research and one for trading. This split will not only strengthen the competitiveness and profitability of the bank through fairer reviews but would strengthen the position of the head of trading as an equal counterpart to the head of asset management. Morad and Waight (2016) indicated that MiFID II changes would impact all areas of the trading lifecycle, including trading, research and operational and organizational structure. Organizational leaders of both, the asset management and the trading desk, can use this to balance the power within teams in banks better to create a fair and equal workplace with healthy team competition.

The introduction of a TCA system and a separate broker evaluation tool that can collect data through the TCA system is advisable to Swiss buy-side trading desks. I would recommend that the Bank's internal IT experts need to liaise with the external experts when choosing the TCA as well as before, during and after the TCA implementation as also mentioned by P4. Therefore, bank leaders should regard the needs of the bank's employees, particularly IT professionals with specific skill sets applicable to implementing the new TCA system. The absence of trained IT professionals could create delays in the TCA and broker review system implementation timeline. The banks' leaders should be mindful that implementing a TCA system is more than just updating software, but impact employees, vendors and broker relationships.

If a Swiss buy-side bank does not have IT personnel with the required skill set, I would advise hiring a project manager that helps the trading desk head with choice of

system, coordination of customization needs with the system vendor and integration. A project manager would take some workload of the team and team leader. According to Callaghan (2016), any consultancy firm that can help a bank to stay on the right side of compliance and best execution and can identify the necessary data while managing downstream IT implications of regulations will perform well in the years ahead. Spalek (2014) found that hiring an external project management team helps organizational leaders to achieve goals and objectives throughout the entire business process. P4 confirmed the research by Callaghan (2016) and Spalek (2014) by stating that the workload of system choice and integration in addition to meeting the regulatory demands of MiFID II is too high for a trading desk under normal operation.

When communicating with external IT suppliers and TCA vendors trading desk leaders should communicate the change even before full system installation and integration as this might help to mitigate communication errors and misunderstandings along the way. The trading and asset management team leaders should jointly collaborate and could communicate the status of the TCA implementation process and broker review system internally and address complaints and issues relating to the organizational changes through for example town hall forums.

Separating electronic and cash trading categories in the execution vote is a strategy that emerged as necessary through the responses of all participants. This strategy is in line with broker demands that have asked for separate reviews, because often on the broker's side, the cash trading and the electronic trading are handled already by different desks. Even within those desks, one finds separate traders for algorithm, direct market

access, and portfolio trading. Different categories will make an evaluation on both sides easier: members on the buy side know which is the best broker in which category, and members on the sell side will be able to shine in one category but not necessarily in all. Thus, even smaller, execution-only brokers can make it to the trading list as indicated by P2 and P3.

In professional practice, pricing and separation of voting categories go alongside each other according to MiFID II. The newly suggested separation of trading categories in the broker voting process will allow transparent prices where the buy side can reward a higher service level with a higher commission rate and pay for lower level service with an appropriate more economical rate. The clear separation of costs in the broker review should also solve the knowledge gap Brogaard et al. (2014) found on the impact of high-frequency trading on the different components of transaction costs. As Brogaard et al. stated, understanding how technology influences the trading costs is a relevant topic to investors as well as regulators.

While the trading desks are used to pay their commission form of a certain percentage to the broker; significant changes will come up on the asset management side. The clear separation of research and trading services in two separate reviews is demanding brokers to be transparent about their research commission rates. Most of the (full-service) brokers do not openly publish their commission rates (Fong et al., 2014) and pricing research to the buy side is looking to be a challenge. Although payments for broker services are currently “unbundled” in the sense that they are separately identified and accounted for by bank managers, the new regulation is proposing “full” unbundling.

In an unbundled trading world, managers must either pay for research out of their own pockets or agree with each buy-side client to a separate research payment account. This approach is intended to separate the asset management team's research spend from the bank's clients' trading volumes and ensure that the asset management team only pays for research it wants.

MiFID II only applies to asset managers that have a physical presence in Europe that are operating under a MiFID permission and regulated by a European regulator. As a result, Swiss financial institutions are not directly regulated by MiFID II but impacted and thus need to prepare. Crown et al. (2017) stated that the impact of MiFID II would also be felt outside the European Union, particularly in relation to research product governance, dealing commission, trading obligations, and the new regime for accessing EU markets. Crown et al. suggest that non-EU firms need to assess their interaction such as the provision of investment research and dealing services with counterparties and markets to identify the possible impact of MiFID II.

Implications for Social Change

The study findings might contribute to social change by changing the (negative) image of trading and brokerage. I conducted semistructured interviews, reviewed study participant responses and public documentation, and found the following strategies that included an improvement of existing organizational structure of the voting process within the bank, an improvement of technology and thirdly an improvement of internal and external communication needs of the bi-annual broker review to increase the trading desks profitability. The strategies might assist bank leaders in achieving regulatory

compliance with MiFID II as well as create a transparent banking environment for the public. The insight gained from this research may help banks and brokers to improve investment responsibility, broaden insight on research, trading and client service, and promote stronger enforcement of regulations of electronic trading.

Positive social change may occur if future trading regulations reflect the impact of innovation better, which may change the current, not transparent, brokerage payment system. Financial bank and regulation leaders in Switzerland, especially those in positions of financial authority, may use the results of the study to improve the Swiss equity trading and market structure. The results also may influence social change by uncovering risk-mitigation strategies to alleviate risky and expensive trading offered to customers. Institutional investors need to be a catalyst for social change within the financial community to secure investment security to the end investor.

Recommendations for Action

Findings and recommendations from this study may be useful for any business or organizational leader that is interested in the fair evaluation of brokerage services through the introduction of appropriate measurement tools. Adopting efficient separation of research and trading, implementing TCA tools and use effective communication strategies may allow buy-side trading desk leaders to use palpable methods to implement broker measurement systems successfully and increase the trading desk and bank performance. Moreover, all bank's stakeholders and teams involved in the pre-and post-TCA and evaluation system implementation may be interested in the findings of this

study. The result of this study may benefit current buy-side leaders by exposing ineffective and non-regulatory conform strategies that regulators should abolish.

Bank leaders on the buy-side trading desks need to keep up with innovative tools such as TCA innovations, big data management, and any data analysis tools.

Unstructured data like phone calls, chats or e-mails might create problems for evidencing best execution while sophisticated data processing tools can increase the transparency and allow a more analytic approach to data, which will enable better price formation for both the sell-side and buy-side (Callaghan, 2016). Through a clear separation of trading categories, at least the electronic channels can be measured efficiently. Bank leaders should pay attention to measuring the effectiveness of the manual channels as these will be under more scrutiny going forward.

Several business and professional channels are available for the dissemination of the study results such as trading and investment conferences, scholarly journals, trade professional and business journals. Additionally, the findings from the study may be appropriate for circulation through training and educational seminars regarding brokerage evaluation strategies or MiFID II adaption in Switzerland.

Recommendations for Further Study

I used a sample of one bank in Switzerland and selected publicly available documents, literature, and the bank's website as the basis for the study. I gathered data from four participants, using semistructured interviews. I identified vital perceptions and facts through the analysis of the data relating to the problem of having efficient brokerage measurement systems and strategies necessary for implementing a successful evaluation

system. The findings from this study warrant additional research and exploration of TCA and evaluation system implementation strategies for bank leaders. According to research by Callaghan (2016), all trading technology, data storage, and data analysis tools will increase tremendous growth in the next years. One recommendation for further research includes the exploration of innovative disruption of data storage and analysis tools and their practical application to banking under MiFID II. While every new tool creates implementation and training challenges for a desk leader keeping up to date with regulation and innovation is essential to stay competitive.

Also, further exploration of the topic of disruptive innovation in banking should include problems not discussed in the study to address the limitations of this study. Researchers could employ another qualitative, case study approach to the review of how buy-side bank leaders have reacted to responses to the problem of trading evaluation. Alternatively, future researchers could use findings from this study to develop a survey that serves as the foundation for a quantitative investigation of the relationship between implementing different TCA systems across buy-side trading desks and achieving MiFID II compliance.

Finally, I would also suggest conducting a study to compare TCA and brokerage evaluation systems of the buy side versus the systems and evaluation strategies of the sell side. A comparison between these systems and evaluation strategies could reveal evaluation strategies best suited to avoid unnecessary performance discussions, overpriced trading and transaction costs, IT and communication problems.

Reflections

When I began the pursuit of my doctoral studies, I was unsure of what to expect as I was driven by my job in banking and solely looked at the business side of trading. During the extensive research process and literature research, I gained an understanding of intensive doctoral-level research, which changed my perspective. The level of attention to details and alignment required for scholarly research were intense. The data collection process, particularly coding and data mining information that emerged during the semistructured interviews were time-consuming and proved itself difficult. All four participants were professionals who exhibited pride, professionalism, and passion about their work as equity traders in Switzerland. As a business professional with knowledge relating to electronic trading from the sell side perspective, the findings of this study affected me. The findings of the study displayed problems and experiences I encountered with a variety of clients. Although these four participants demonstrated some differences in their perspective, there were many similarities and challenges that all face. During this study, I have exposed business efforts, new strategies, and practices that are useful not to my profession on the sell but also to buy-side professionals. My primary goals in conducting the single-case study were to share awareness relating to areas of concern buy-side trading desk leaders face under MiFID II and enhance my competence to conduct doctoral, qualitative research.

Summary and Study Conclusions

To ensure the long-term success of a bank, equity traders must understand the impact of regulatory developments and technological challenges to incorporate changes

in their current broker evaluation. Trading desk and organizational bank leaders need effective strategic planning guidance to shape and define the critical success factors necessary to achieve and maximize a MiFID II conform broker review. MiFID II requires the buy side to separate research payments from execution fees to guarantee better transparency to the investor. Advances in technology such as TCA tools provide trading desk leaders systems to standardize, streamline, and integrate trade performance measurements into the broker evaluation system. However, delays in finding the right tools, implementation and cost negatively affected the targeted deadline of January 3, 2018. Gomber (2015) noted that financial firms should not underestimate the complexity of MiFID II and its changes for buy-side trading desks. Therefore, the specific business problem for this study was that some Swiss banks' equity traders lack strategies for evaluating electronic trading in the yearly broker performance review after the introduction of MiFID II. The qualitative single-case study allowed for the in-depth study of one buy-side trading team in Switzerland, which has successfully started the implementation process of a new broker evaluation system. I used the lens of the disruptive innovation and efficient capital markets theory for the conceptual framework. The purpose of this qualitative single-case study was to explore broker review implementation strategies of a Swiss bank, after the introduction of MiFID II. Four traders participated in semistructured interviews, and organizations' public documents and literature supported the interview data. After conducting interviews and thoroughly analyzing the data, three strategies and several subcategories emerged from the data including (a) develop and improve the existing organizational structure of the internal

voting process, (b) create advanced resources and internal technology and automation, and (c) expand and improve communication internally and externally to expand the trading desk profitability. The findings revealed that traders and leaders of Swiss buy-side trading desks need strategies such as an introduction of TCA tools, project management, strategies to improve communication internally but also externally, and continuous leader involvement to implement a successful broker evaluation system to comply with MiFID II. Traders should be cognizant of the many evaluation strategies to choose, focusing on the strategies that align with the strategy their bank, trading business, asset class traded and necessary IT system integration (Arvidsson et al., 2014; Callaghan, 2016). Evidenced by the findings of this study confirm the importance of a revised (bi)annual trading and broker review after MiFID II. Frequent broker reviews can help to keep up trading quality, reduce workload for the individual traders, and create a professional environment where through continuous communication brokers and trading system vendors will strive to improve trading performance for the buy-side clients.

References

- Aitken, M. J., Aspris, A., & Foley, S. (2015). Market fairness: The poor country cousin of market efficiency. *Journal of Business Ethics, online only*, 1-19.
doi:10.1007/s10551-015-2964-y
- Anand, A., Irvine, P., Puckett, A., & Venkataraman, K. (2012). Performance of institutional trading desks: An analysis of persistence in trading costs. *Review of Financial Studies*, 25(2), 557-598. doi:10.2139/ssrn.1272040
- Aristidis, V. (2015). The promotion of smoking habit through music: Pilot study. *Health Science Journal*, 9(3), 1-4. Retrieved from <http://www.hsj.gr>
- Arnoldi, J. (2016). Computer algorithms, market manipulation and the institutionalization of high frequency trading. *Theory, Culture & Society*, 33(1), 29-52.
doi:10.1177/0263276414566642
- Arvidsson, V., Holmström, J., & Lyytinen, K. (2014). Information systems use as strategy practice: A multi-dimensional view of strategic information system implementation and use. *The Journal of Strategic Information Systems*, 23(1), 45-61. doi:10.1016/j.jsis.2014.01.004
- Bannigan, V. (2016). A new European approach to transaction reporting. *Journal of Securities Operations & Custody*, 8(4), 330-340. Retrieved from <https://www.henrystewartpublications.com/jsoc>
- Birt, L., Scott, S., Cavers, D., Campbell, C., & Walter, F. (2016). Member checking: A tool to enhance trustworthiness or merely a nod to validation? *Qualitative Health Research*, 26, 1802-1811. doi:10.1177/1049732316654870

- Black, F. (1971). Toward a fully automated stock exchange, Part I. *Financial Analysts Journal*, 27(4), 28-35. doi:10.2469/faj.v27.n4.28
- Bomans, R. B. (2012). *Multi market trading and fragmentation: Effects on a sample of European equities* (Doctoral dissertation). Retrieved from <http://dare.uva.nl/cgi/arno/show.cgi?fid=484601>
- Brogaard, J., Hagströmer, B., Nordén, L., & Riordan, R. (2015). Trading fast and slow: Colocation and liquidity. *Review of Financial Studies*, 28(12), 3407-3443. doi:10.1093/rfs/hhv045
- Brogaard, J., Hendershott, T., Hunt, S., & Ysusi, C. (2014). High-frequency trading and the execution costs of institutional investors. *Financial Review*, 49(2), 345-369. doi:10.1111/fire.12039
- Bromley, E., Mikesell, L., Jones, F., & Khodyakov, D. (2015). From subject to participant: Ethics and the evolving role of community in health research. *American Journal of Public Health*, 105(5), 900-908. doi:10.2105/ajph.2014.302403
- Busch, D. (2016). MiFID II: Regulating high frequency trading, other forms of algorithmic trading and direct electronic market access. *Law and Financial Markets Review*, 10(2), 72-82. doi:10.1080/17521440.2016.1200333
- Buschman, C. (2014). *A total cost matrix analysis and the impact of international supplier management* (Doctoral dissertation). Available from ProQuest Dissertations & Theses database. (UMI No. 1617454817)
- Buti, S., Rindi, B., & Werner, I. M. (2016). Dark pool trading strategies, market quality,

and welfare. *Journal of Financial Economics*, 124(2), 244-265.

doi:10.1016/j.jfineco.2016.02.002

Callaghan, E. (2016). Future evolution of electronic trading in European bond markets.

Financial Stability Review, 20, 113-121. Retrieved from

<https://www.ecb.europa.eu>

Cartea, Á., & Jaimungal, S. (2015). Optimal execution with limit and market orders.

Quantitative Finance, 15(8), 1279-1291. doi:10.1080/14697688.2015.1032543

Ceschi, A., Dorofeeva, K., & Sartori, R. (2014). Studying teamwork and team climate by

using a business simulation: how communication and innovation can improve

group learning and decision-making performance. *European Journal of Training*

and Development, 38(3), 211-230. doi:10.1108/ejtd-01-2013-0004

Christensen, C. M. (1993). The rigid disk drive industry: A history of commercial and

technological turbulence. *Business history review*, 67(04), 531-588.

doi:10.2307/3116804

Christensen, C. M. (2013). The innovator's dilemma: when new technologies cause great

firms to fail. *Harvard Business Review Press*. Retrieved from

<http://soloway.pbworks.com>

Comerton-Forde, C., & Putninš, T. J. (2013). Stock price manipulation: Prevalence and

determinants. *Review of Finance*, 18(1), 23-66. doi:10.1093/rof/rfs040

Comerton-Forde, C., & Putninš, T. J. (2015). Dark trading and price discovery. *Journal*

of Financial Economics, 118(1), 70-92. doi:10.1016/j.jfineco.2015.06.013

Connelly, L. M. (2014). Understanding case studies. *Medsurg Nursing*, 23, 422-424.

Retrieved from <http://www.ajj.com/services/pblshng/msnj/default.htm>

- Cope, D. G. (2014). Methods and meanings: Credibility and trustworthiness of qualitative research. *Oncology Nursing Forum*, *41*(1), 89-91. doi:10.1188/14.ONF.89-91
- Crown, S., Gatti, S. F., Feldman, M., & Landless, P. (2017) MIFID2—the impact on non-EU firms. *Journal of Investment Compliance* *18* (3), 67-71. doi:10.1108/JOIC-06-2017-0039
- Cultrera, L., Pozniak, L., & Vermeulen, G. (2017). MiFID Directive: Which implementation within Belgian financial institutions. *International Business Research*, *10*(8). doi:10.5539/ibr.v10n8p106
- Dalir, M., Zarch, M. E., Aghajanzadeh, R., & Eshghi, S. (2017). The Role of e-CRM in the quality of customer-bank relationship. *Human Resource Management*, *4*(2), 12-22. Retrieved from <http://iaiest.com>
- Degryse, H., de Jong, F., & Kervel, V. v. (2015). The impact of dark trading and visible fragmentation on market quality. *Review of Finance*, *19*(4), 1587-1622. doi:10.1093/rof/rfu027
- Dikko, M. (2016). Establishing construct validity and reliability: Pilot testing of a qualitative interview for research in Takaful (Islamic Insurance). *The Qualitative Report*, *21*, 521-528. Retrieved from <http://tqr.nova.edu/>
- Dubois, M., Fresard, L., & Dumontier, P. (2014). Regulating conflicts of interest: The effect of sanctions and enforcement. *Review of Finance*, *18*(2), 489-526. doi:10.1093/rof/rft010
- Eastburn, R. W., & Boland, R. J. (2015). Inside banks' information and control systems:

- Post-decision surprise and corporate disruption. *Information and Organization*, 25(3), 160-190. doi:10.1016/j.infoandorg.2015.05.001
- Edelen, R., Evans, R., & Kadlec, G. (2013). Shedding light on “invisible” costs: Trading costs and mutual fund performance. *Financial Analysts Journal*, 69(1). doi:10.2469/faj.v69.n1.6
- Ehrenfeld, J. (2016) Global securities reporting: Industry trends, challenges and future perspectives. *Journal of Securities Operations & Custody*, 8(2). Retrieved from <https://www.swiftinstitute.org>
- Elo, S., Kääriäinen, M., Kanste, O., Pölkki, T., Utriainen, K., & Kyngäs, H. (2014). Qualitative content analysis: A focus on trustworthiness. *Sage Open*, 4(1). doi:10.1177/2158244014522633
- Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, 5(1), 1-4. doi:10.11648/j.ajtas.20160501.11
- Fama, E. F. (1970). Efficient capital markets: A review of theory and empirical work. *The Journal of Finance*, 25(2), 383. doi:10.2307/2325486
- Fong, K. Y., Gallagher, D. R., & Lee, A. D. (2014). Individual investors and broker types. *Journal of Financial and Quantitative Analysis*, 49(02), 431-451. doi:10.1017/s0022109014000349
- Francioni, R., Freis, J. H., Jr, & Hachmeister, A. (2017). Financial market regulation. In R. Francioni & R. A. Schwartz (Eds.). *Equity markets in transition: The value chain, price discovery, regulation, and beyond* (pp. 239-286). Cham, Switzerland:

Springer International Publishing.

- Franke, G., Mosk, T., & Schnebel, E. (2016). *Fair retail banking: How to prevent mis-selling by banks* (No. 39). White Paper Series. Retrieved from <https://www.econstor.eu/bitstream/10419/144161/1/863158579.pdf>
- Frei, C., & Westray, N. (2015). Optimal execution of a VWAP order: a stochastic control approach. *Mathematical Finance*, 25(3), 612-639. doi:10.1111/mafi.12048
- Frino, A., Mollica, V., & Webb, R. I. (2014). The impact of co-location of securities exchanges' and traders' computer servers on market liquidity. *Journal of Futures Markets*, 34(1), 20-33. doi:10.1002/fut.21631
- Fusch, P. I., & Ness, L. R. (2015). Are we there yet? Data saturation in qualitative research. *The Qualitative Report*, 20(9), 1408. Retrieved from <http://www.nova.edu/ssss/QR/index.html>
- Game, A. M., & Gregoriou, A. (2016). Do brokers act in the best interests of their clients? New evidence from electronic trading systems. *Business Ethics: A European Review*, 25(2), 187-197. doi:10.1111/beer.12066
- Gennaioli, N., Shleifer, A., & Vishny, R. (2015). Money doctors. *The Journal of Finance*, 70(1), 91-114. doi:10.1111/jofi.12188
- George, G., Haas, M. R., & Pentland, A. (2014). Big data and management. *Academy of Management Journal*, 57(2), 321-326. doi:10.5465/amj.2014.4002
- Gerig, A., & Michayluk, D. (2016). Automated liquidity provision. *Pacific-Basin Finance Journal*. doi:10.1016/j.pacfin.2016.05.006
- Gillet, R., Ligot, S., & Firouzi, H. O.,(2017) The challenges and implications of the

- Markets in Financial Instruments Directive (MiFID) and of its revision (MiFID II, MiFIR) on the efficiency of financial markets. *Financial Regulation in the EU*. 151-198. doi:10.1007/978-3-319-44287-7_8
- Gomber, P. (2015). Cash equity markets in Germany. *Journal of Applied Corporate Finance*, 27(4), 75-80. doi:10.1111/jacf.12148
- Gomber, P. (2016). *The German equity trading landscape* (No. 34). White Paper Series. Retrieved from http://safe-frankfurt.de/fileadmin/user_upload/editor_common/Policy_Center/Gomber_Equity_Trading.pdf
- Gomber, P., Sagade, S., Theissen, E., Weber, M. C., & Westheide, C. (2015). The state of play in European over-the-counter equities trading. *The Journal of Trading*, 10(2), 23-32. doi:10.3905/jot.2015.10.2.023
- Gomber, P., Sagade, S., Theissen, E., Weber, M. C., & Westheide, C. (2016). Competition between equity markets: a review of the consolidation versus fragmentation debate. *Journal of Economic Surveys*. doi:10.1111/joes.12176
- Grossoehme, D. H. (2014). Overview of qualitative research. *Journal of Health Care Chaplaincy*, 20(3), 109-122. doi:10.1080/08854726.2014.925660
- Gupta, N., & Khanna, V. T. (2015). Customer's adoption for technology-enabled delivery channels in selected public sector banks. *International Journal of Business and Management*, 10(12), 215. doi:10.5539/ijbm.v10n12p215
- Hagströmer, B., & Nordén, L. (2014). Closing call auctions at the index future market. *Journal of future markets*, 34(4), 299-319. doi:10.2139/ssrn.1786986

- He, W. P., & Lepone, A. (2014). Determinants of liquidity and execution probability in exchange operated dark pool: Evidence from the Australian securities exchange. *Pacific-Basin Finance Journal*, 30, 1-16. doi:10.1016/j.pacfin.2014.07.004
- Henderson, H. (2014). Reforming electronic markets and trading. *ERUDITIO*, 2(1), 68-88. Retrieved from: <http://www.worldacademy.org/eruditio/files/vol2issue1/v2-i1-book.pdf#page=76>
- Henriques, G. (2014). In search of collective experience and meaning: A transcendental phenomenological methodology for organizational research. *Human Studies*, 37, 451-468. doi:10.1007/s10746-014-9332-2
- Hese-Biber, S. (2015). Mixed methods research: The “thing-ness” problem. *Qualitative Health Research*, 25, 775-788. doi:10.1177/1049732315580558
- Houghton, C., Casey, D., Shaw, D., & Murphy, K. (2013). Rigour in qualitative case-study research. *Nurse researcher*, 20(4), 12-17. doi:10.7748/nr2013.03.20.4.12.e326
- Ingold, T. (2014). That's enough about ethnography!. *HAU: Journal of Ethnographic Theory*, 4(1), 383-395. doi:10.14318/hau4.1.021
- Khan, S. N. (2014). Qualitative research method: Grounded theory. *International Journal of Business and Management*, 9(11), 224. doi:10.5539/ijbm.v9n11p224
- King, A. A., & Baatartogtokh, B. (2015). How useful is the theory of disruptive innovation? *MIT Sloan Management Review*, 57(1), 77. Retrieved from <https://pdfs.semanticscholar.org>
- Kivimaa, P., & Kern, F. (2016). Creative destruction or mere niche support? Innovation

policy mixes for sustainability transitions. *Research Policy*, 45(1), 205-217.

doi:10.1016/j.respol.2015.09.008

Kleinnijenhuis, J., Schultz, F., Oegema, D., & Van Atteveldt, W. (2013). Financial news and market panics in the age of high-frequency sentiment trading algorithms.

Journalism, 14(2), 271-291. doi:10.1177/1464884912468375

Kleinnijenhuis, J., Schultz, F., Utz, S. & Oegema, D. (2015). The mediating role of the news in the BP oil spill crisis 2010: How U.S. news is influenced by public

relations and in turn influences public awareness, foreign news, and the hare

price. *Communication Research*, 42(3), 408-428. doi:10.1177/0093650213510940

Kwan, A., Masulis, R., & McInish, T. H. (2015). Trading rules, competition for order flow and market fragmentation. *Journal of Financial Economics*, 115(2), 330-

348. doi:10.1016/j.jfineco.2014.09.010

Leal, S. J., Napoletano, M., Roventini, A., & Fagiolo, G. (2016). Rock around the clock: an agent-based model of low- and high-frequency trading. *Journal of*

Evolutionary Economics, 26(1), 49-76. doi:10.2139/ssrn.2390682

Lee, S., Alford, M., Cresson, J., & Gardner, L. (2017). The effects of information communication technology on stock market capitalization: A panel data analysis.

Business and Economic Research, 7(1), 261-272. doi:10.5296/ber.v7i1.10936

Lu, T. H., & Lee, J. D. (2016). Is abnormally large volume a clue?. *International Journal of Economics and Finance*, 8(9), 226. doi:10.5539/ijef.v8n9p226

Lub, V. (2015). Validity in qualitative evaluation: Linking purposes, paradigms, and perspectives. *International Journal of qualitative methods*, 14(5),

1609406915621406. doi:10.1177/1609406915621406

- Maber, D. A., Groyberg, B., & Healy, P. M. (2014). The use of broker votes to reward brokerage firms' and their analysts' research activities. Working paper. Retrieved from http://www.hbs.edu/faculty/Publication%20Files/14-074_0459e3ee-3085-4c32-a487-5a01020a37c0.pdf
- Mahoney, M., Crooks, D., Tully, C., & Strafaci, E. (2017). Obviating the moral hazards that caused the recent banking crisis and future dislocations with the imposition of regulations, reserve requirements, revenue/risk adjusted payouts. *Review of Business and Finance Studies*, 8(1), 21-31. Retrieved from <http://www.theibfr.com>
- Manahov, V. (2016). Front-running scalping strategies and market manipulation: Why does high-frequency trading need stricter regulation? *The Financial Review*, 51(3), 363-402. doi:10.1111/fire.12103
- Mansaku, I., Mansaku, S., & Tampakoudis, I. (2017). An empirical comparison of the major stock exchanges: NYSE, NASDAQ and LSE in Perspective. *Academic Journal of Interdisciplinary Studies*, 5(3), 406. doi:10.5901/ajis.2016.v5n3s1p406
- Marshall, C., & Rossman, G. B. (2014). *Designing qualitative research*. Thousand Oaks, CA: Sage.
- Marshall, C., & Rossman, G. B. (2016). *Designing qualitative research* (6th ed.). Thousand Oaks, CA: Sage.
- Marti, E., & Scherer, A. G. (2016). Financial regulation and social welfare: The critical contribution of management theory. *Academy of Management Review*, 41(2), 298-

323. doi:10.5465/amr.2013.0469

- Masry, M. (2017). The impact of technical analysis on stock returns in an emerging capital markets (ECM's) country: Theoretical and Empirical Study. *International Journal of Economics and Finance*, 9(3), 91. doi:10.5539/ijef.v9n3p91
- Matua, G. A. (2015). Choosing phenomenology as a guiding philosophy for nursing research. *Nurse researcher*, 22(4), 30-34. doi:10.7748/nr.22.4.30.e1325
- Menkveld, A. J. (2013). High frequency trading and the new market makers. *Journal of Financial Markets*, 16(4), 712-740. doi:10.1016/j.finmar.2013.06.006
- Menkveld, A. J., & Zoican, M. A. (2014). Need for speed? Exchange latency and market quality. *Journal of Financial Economics*, 14, 71-100. doi:10.2139/ssrn.2442690
- Morad, M., & Waight, J. (2016). Clarifying MiFID II: Pre-trade transparency for non-equities. *Journal of Securities Operations & Custody*, 8(3), 218-227 Retrieved from <https://eds-b-ebshost-com.ezp.waldenulibrary.org>
- Morelli, M. (2016). Regulating secondary markets in the high frequency age: A Principled and Coordinated Approach. *Michigan Business & Entrepreneurial Law Review*, 6(1), 79-107. Retrieved from <http://mbelr.org>
- Narotski, D. (2016). Dark pools, high frequency trading, and the financial transaction tax: A solution or complication. *Drake Law Review*, 64, 797-919. Retrieved from <https://drakelawreview.org>
- Nimalendran, M., & Ray, S. (2014). Informational linkages between dark and lit trading venues. *Journal of Financial Markets*, 17, 230-261. doi:10.1016/j.finmar.2013.02.003

- North, D. C. (2016). Institutions and economic theory. *The American Economist*, 61(1), 72-76. doi:10.1177/0569434516630194
- Nowell, D., & Vincent, M. (2015). The evolution of EEA transaction reporting. *Journal of Securities Operations & Custody*, 7(4), 319-328. Retrieved from <https://www.henrystewartpublications.com>
- O'Brien, B. C., Harris, I. B., Beckman, T. J., Reed, D. A., & Cook, D. A. (2014). Standards for reporting qualitative research: A synthesis of recommendations. *Academic Medicine*, 89, 1245-1251. doi:10.1097/acm.0000000000000388
- O'Halloran, T. (2015). Funding of research under MiFID II. *Journal of Securities Operations & Custody*, 7(4), 355-361. Retrieved from <http://www.ingentaconnect.com>
- O'Hara, M. (2015). High frequency market microstructure. *Journal of Financial Economics*, 116(2), 257-270. doi:10.1016/j.jfineco.2015.01.003
- Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N., & Hoagwood, K. (2015). Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Administration and Policy in Mental Health and Mental Health Services Research*, 42(5), 533-544. Retrieved from <https://www.ncbi.nlm.nih.gov>
- Panayiotou, N. A., Gayialis, S. P., Evangelopoulos, N. P., & Katimertzoglou, P. K. (2015). A business process modeling-enabled requirements engineering framework for ERP implementation. *Business Process Management Journal*, 21(3), 628-664. doi:10.1108/bpmj-06-2014-0051

- Robinson, O. (2014). Sampling in interview-based qualitative research: A theoretical and practical guide. *Research in Psychology, 11*(1), 25-41.
doi:10.1080/14780887.2013.801543
- Rosov, S. (2016) *Payment for order flow in the United Kingdom*, CFA Institute.
Retrieved from <https://www.cfainstitute.org/ethics/Documents/20160817.pdf>
- Sharp, H., Dittrich, Y., & de Souza, C. R. (2016). The role of ethnographic studies in empirical software engineering. *IEEE Transactions on Software Engineering, 42*(8), 786-804. doi:10.1109/tse.2016.2519887
- SIX Swiss Exchange. (2016). *Pioneer for more than 20 years*. Retrieved from https://www.six-swiss-exchange.com/news/overview_en.html?id=20_years_pioneer
- Spalek, S. (2014). The influence of country of origin on project management: an international empirical study. *Procedia-Social and Behavioral Sciences, 156*, 4-7.
doi:10.1016/j.sbspro.2014.11.109
- Sultan, N. (2013). Knowledge management in the age of cloud computing and Web 2.0: Experiencing the power of disruptive innovations. *International Journal of Information Management, 33*(1), 160-16. doi:10.1016/j.ijinfomgt.2012.08.006
- Thompson, G. F. (2017). Time, trading and algorithms in financial sector security. *New Political Economy, 22*(1), 1-11. doi:10.1080/13563467.2016.1183116
- U.S. Securities and Exchange Commission. (2013) *Fast answers*. Retrieved from <http://www.sec.gov/answers/ecn.htm>
- Valiante, D. (2013). Setting an institutional and regulatory framework for trading

- platforms. *Journal of Financial Regulation and Compliance*, 21(1), 69-83.
doi:10.1108/13581981311297830
- Valiante, D. (2015). Three narratives on the changing face of global commodities market structure. *Credit and Capital Markets-Kredit und Kapital*, 48(2), 243-308.
doi:10.3790/ccm.48.2.243
- Vitak, J., Shilton, K., & Ashktorab, Z. (2016). Beyond the Belmont principles: Ethical challenges, practices, and beliefs in the online data research community. *Proceedings of the 19th ACM Conference on Computer-Supported Cooperative Work & Social Computing*, 941-953. doi:10.1145/2818048.2820078
- Wilson, A. D., Onwuegbuzie, A. J., & Manning, L. P. (2016). Using paired depth interviews to collect qualitative data. *The Qualitative Report*, 21(9), 1549.
Retrieved from <http://nsuworks.nova.edu>
- Wortham, S. (2015). Clearing away assumptions through philosophy and research. *Studies in Philosophy and Education*, 34(2), 125-136. doi:10.1007/s11217-014-9419-2
- Ye, L. (2016). *Understanding the impacts of dark pools on price discovery*. Retrieved from <https://arxiv.org/pdf/1612.08486.pdf>
- Yilmaz, K. (2013). Comparison of quantitative and qualitative research traditions: Epistemological, theoretical, and methodological differences. *European Journal of Education*, 48(2), 311-325. doi:10.1111/ejed.12014
- Yin, R. K. (2014). *Case study research: Design and methods* (5th ed.). Thousand Oaks, CA: Sage.

Zaza, K. (2012). A fiduciary standard as a tool for dark pool subscribers. *Stanford*

Journal of Law, Business & Finance, 18, 319-340. Retrieved from

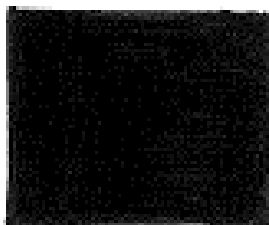
<https://journals.law.stanford.edu>

Zhu, H. (2014). Do dark pools harm price discovery? *Review of Financial Studies*, 27(3),

747-789. doi:10.1093/rfs/hht078

Appendix A: Research Location's Letter of Cooperation

Letter of Cooperation



Dear Linn Karstadt,

Based on my review of your research proposal, I give permission for you to conduct the study entitled Broker Evaluations after MiFID II in Switzerland with [REDACTED]

As part of this study, I authorize you to conduct interviews with selected traders from the trading team as well as a post interview review of the synthesized answers (memberchecking). Individuals' participation will be voluntary and at their own discretion.

We understand that our organization's responsibilities include answering interview questions regarding above topic at a location chosen by the individual trader/participant and memberchecking. We will not provide any further resources or data.

We reserve the right to withdraw from the study at any time if our circumstances change.

I understand that the student will not be naming our organization in the doctoral project report that is published in Proquest.

I understand that the data collected will remain entirely confidential and may not be provided to anyone outside of the student's supervising faculty/staff without permission from the Walden University IRB.

I confirm that I am authorized to approve research in this setting and that this plan complies with the organization's policies.

Des Weiteren macht Dich die [REDACTED] hiermit darauf aufmerksam, dass sie aufgrund gesetzlicher Regelungen (Wahrung des Bankkundengeheimnisses, Wahrung des Berufsgeheimnisses, Wahrung der beruflichen Schweigepflicht, Wahrung des Fabrikations- und Geschäftsgeheimnisses) gewährleisten muss, dass Studierende/Doktoranden, welche im Rahmen ihrer Doktorarbeit Kenntnis von derartigen Informationen erlangen, diese Informationen geheim halten. Bitte bestätige mir per Email, dass Du die im Rahmen der Interviews erhaltenen Informationen streng vertraulich behandeln und Stillschweigen bewahren wirst.

Sincerely,



Appendix B: Interview Protocol

Date:

Time:

Location:

Interviewer:

Participant Identifier Number:

Interview protocol Script

Introduction to participant:

- To participant; “Hello, my name is Linn Karstadt. I am a doctoral student at Walden University. The final part of my requirements to complete my Doctorate of Business Administration degree program is to conduct a research study on the topic of broker evaluation. Firstly, thank you for your willingness to participate in this research study. The purpose of this qualitative, single case study is to explore the strategies that Swiss banks’ equity traders use to evaluate trading in the yearly broker performance review after the introduction of MiFID II. Do you have any questions regarding the topic before we start?”

(answer any questions if no questions proceed to data protection)

Data Protection:

- To participant: “Your responses to the interview questions will be confidential. Participants will be preliminarily identified with a number in order to protect

personal information. You are participant number X

(Assign number and record the number at the top of the page)

Consent:

- To participant: “Do you have any additional questions or concerns regarding the informed consent email that you previously received with the invitation to participate?”

(answer any questions if no questions: proceed)

Audiotaping the interview:

- To participant: “This interview will be audio recorded to ensure that representation and transcription of your perspectives are accurate. I will test the audio equipment before we get started to make sure this interview is recorded.”

(Perform test of equipment ensuring the recorder is working correctly)

Further considerations:

- To participant: “Just some considerations before we get started:
 - your participation in this research study voluntary
 - you can withdraw from the study at any time also during or after the interview
 - the audio recording of this interview along with any other data collected for this study will be saved on a password protected USB Flash drive. Any manual documents and the USB Flash Drive will be maintained in a locked deposit box for 5 years. At the end of the 5-years, all data will be destroyed.

- Are there any additional questions you have that I can answer?

(If yes: answer the questions; if no questions proceed to the interview start)

Beginning interview:

- To participant: “I will now start with the interview and will besides recording it also take notes. Please do not hesitate to interrupt me at any time if you have questions.”

(Start recorder, ask questions, take notes)

Ask Interview questions:

12. What is your particular role in your banks broker review process?
13. How often per year do you review your brokers?
14. Who determines which elements your bank includes in the trading performance review with your brokers?
15. Can you explain how you differentiate high-touch and low-touch trading in your review?
16. What specific elements or strategies do you currently measure in the electronic trading portion of your broker review?
17. What strategies were less efficient in your previous evaluations?
18. What strategies are effective?
19. How much of this evaluation process uses automation?
20. How long has an electronic trading element been part of your broker review process?
21. How long did it take your organization to implement this format of broker

review?

22. What additional information would you like to add which I did not ask?

Concluding interview:

- To Participant: “Thank you for your willingness to help on this topic and research study. After the interview is transcribed, I will begin to analyze the data that I have collected and interpret the findings of the information I have received from you. Once the interpretation process is complete, I will be sending you a synopsis of your interview to review for accuracy and ask that you review the summary to confirm my interpretation of the information you provided is accurate. I would ask you to please to respond within 5 days via email if you find there is an inaccuracy. If I do not receive a response from you within the timeframe, I will consider that the interpretive summary is accurate”.

(Review contact information with participant)

(Thank the participant, stop the recorder and finish the interview)

Appendix C: NIH Certificate

