ST. MARY'S UNIVERSITY
SCHOOL OF GRADUATE STUDIES

COMPARATIVE STUDY ON CURRENT FLOOR BASED TRADING SYSTEM AND ONLINE TRADING AT ETHIOPIA COMMODITY EXCHANGE

BY

SAMSON GEBRE-MICHAEL

NOVEMBER 2014
ADDIS ABABA

COMPARATIVE STUDY ON CURRENT FLOOR BASED TRADING SYSTEM AND ONLINE TRADING AT ETHIOPIA COMMODITY EXCHANGE

A THESIS SUBMITTED TO ST.MARY'S UNIVERSITY,
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BY

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I

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APPROVED BY BOARD OF EXAMINERS

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Dean, Graduate Studies   **Signature**

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II

DECLARATION

I, the undersigned, declare that the thesis entitled 'Comparative Study on Current Floor Based Trading System and Online Trading at Ethiopia Commodity Exchange' is my original work, prepared under the guidance of Dr. Mesfin Lemma. All sources of materials used for the thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or in full to any other higher learning institution for the purpose of earning any degree.

NAME: SAMSON GEBRE-MICHAEL

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ST. MARY'S UNIVERSITY

NOVEMBER 2014

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ENDORSEMENT

This thesis has been submitted to St. Mary's University, School of Graduate Studies for examination with my approval as a University advisor.

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ST. MARY'S UNIVERSITY
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AKNOWLEDGEMENT

ACRONYMS

API	Application Program Interface
BCC	Business Conduct Committee
CBOT	Chicago Board of Trade
CFTC	Commodity Futures Trading Commission
CIO	Chief Information Officer
CME	Chicago Mercantile Exchange
CSA	Central Statistics Agency
DN	Delivery Notice
ECX	Ethiopia Commodity Exchange
ECXA	Ethiopia Commodity Exchange Authority
EFY	Ethiopian Fiscal Year
GDP	Gross Domestic Product
GTP	Growth and Transformation Plan
IT	Information Technology
IVR	Interactive Voice Response
LAN	Local Area Network
LCP	Last Closing Price
LIFFE	London International Financial Futures Exchange
MCC	Media and Communication Center
MCP	Member Client Position
MoFED	Ministry of Finance and Economic Development

NEAA	National Exchange Actors Exchange Association
NOR	Net Obligation Report
PER	Post Execution Report
SEC	Securities Exchange Commission
SPSS	Statistical Package for Social Sciences
SMS	Short Message Service
STP	Straight Through Processing
UNCTAD	United Nations Conference on Trade and Development
UPS	Uninterrupted Power Service

ABSTRACT

The Ethiopia Commodity Exchange [ECX] is an organized market place that brings buyers and sellers to trade standardized contracts using its floor based trading system. The fundamental factors to establish successful commodity exchange includes having an efficient and robust trading platform. The focus of this research is to analyze the economic significance and limitations of the current trading system and assess the prospects and challenges of online trading and factors affecting its feasibility of implementation in ECX. Even if the country launches floor based trading system in April 2008, market actors are facing extensive physical strain, slow order of entry and execution, not being able to trade in multiple products and exchanges simultaneously, not being able to get instant market data. The study used a mix of quantitative and qualitative research method to collect and analyze data relevant for the study. Questionnaire and in-depth interview were used to gather relevant data for the study. The study collected data from 375 Members and Clients out of which 279 are found to be good for analysis. In-depth interview was conducted with ECX, ECXA and NEAA experts. Descriptive statistics was used to analyze the data. One item mean, frequency, and correlation were used accordingly. The study found that there is significant capacity problem with major skills gap with traders. The current system has its own significance in balancing the power of negotiation of traders by disseminating reliable data, and limitations in lack of market integrity, poor price discovery mechanisms and limitations in session and ticket writing times. It also found that there is good perception towards online trading system. Moreover, the Exchange expects transparency, greater market oversight, market integrity and more commodities by deploying online trading system and challenges mainly infrastructural problems, and capacity of traders. Based on the findings, the paper recommends deploying an integrated surveillance system, reasonable allocation of session time, awareness on rules, in-depth training of staff and traders and building a redundant system were recommended for both trading systems accordingly.

Key Words: Floor Based Trading, Online Trading

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CHAPTER ONE

INTRODUCTION

1.1. Background of the Study

One major factor associated with the produce of Agriculture sector is the seasonality in supply. However the demand of the commodity is spread over the whole year (Nigussie, Tanner, and Twumasi, 2011). Hence a system of trading to ensure continuous supply of seasonal agricultural crops has evolved. Chicago, one of the original birthplaces of modern futures trading, was an ideal location for commodities trading due to its close proximity to farmland. Chicago has long boasted two of the world's oldest commodities markets: the Chicago Board of Trade (CBOT), founded in 1848, and the Chicago Mercantile Exchange, CME, originally started as the Chicago Butter and Egg Board in 1898. These markets helped bring together buyers and sellers of commodities in one designated area, thus making it easier to find someone to trade with. And standardized contracts called futures started to be traded (Gorham and Singh, 2009).

Instruments or contracts traded on commodity exchanges include futures, options and other derivatives. Trading in these instruments began with floor trading, also called open outcry systems. In open outcry systems, traders assembled in a pit in the exchange and traded commodities by indicating their bids or offers to others in the pits. Commodity futures markets help with price discovery and provide a way to hedge for producers and buyers of commodities. However, commodity trading has moved to electronic trading from open outcry systems, following the trend in financial securities trading (Thomas, 2008).

Even though in most exchanges trades take place in electronic trading, ECX has started its operation with the introduction of floor based trading with spot contracts that are traded for immediate payment and delivery. The existing open outcry trading system at the headquarters restricts the market expansion potential of the Exchange, restricts the direct

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participation of large number of market actors located at the remote parts of the country at both the supply and export end. It is impractical to accommodate all trade sessions in one trading floor at ECX headquarters as more commodities are added. While more trading floors can be built, the more economical and sustainable option will be to provide online trading platform and allow trading from anywhere. The flexibility to set longer trading session time to maximize the chance for trading to get best value for commodities is hampered by the inherent space and time limitation of the current open outcry system of the Exchange (ECX, 2010).

If the Exchange devises a mechanism to facilitate remote trading through online trading system, as stated in its rules (ECX, 2010) these market actors can make a significant contribution to the trading volume and liquidity of the exchange.

This research paper has attempted to analyze the practice of commodity trading at the Exchange floor market and the related challenges that are encountered due to the absence of online trading that facilitates market actors' potential access to the market where they can directly submit orders and/or view status of their orders. Still, introducing electronic trade in Ethiopia requires a lot of effort. In this view, an attempt has been made to identify the fundamental requirements for the introduction of online trading along with its potential benefits and challenges.

1.2. Background of the Ethiopia Commodity Exchange

In Ethiopia, where the economy heavily depends on agricultural production and the development objective of the government focuses on agriculture, it is imperative to consider a market for agricultural products. Agriculture, like the cases in many other developing countries, is the backbone of the Ethiopian economy. The sector contributes 41% to GDP, 85% of employment and 60% of the country's export earnings (CSA, 2011). According to the Growth and Transformation Plan (GTP) of the country, the sector is expected to drive the other sectors of the economy. One of the components of the

development of the agricultural sector is strengthening modern marketing system such as ECX (MoFED, 2010).

ECX was established by proclamation to transform the country's agriculture into market-oriented production system, to promote participation of small scale farmers by providing up-to-date market information, and in general to bring efficient, orderly and unified marketing system for agricultural commodities. This can be considered as a major effort taken by the government to develop a modern marketing system in the country. Accordingly, ECX has put in place a system that brings buyers and sellers together, the market is regulated and governed by rules and regulations, has members to trade on physical or online trading platform on standardized contracts (FDRE, 2007).

ECX, the first modern market in Ethiopia which commenced operation in April 2008, currently trades contracts in coffee, sesame, maize, wheat, white pea beans and mung beans. ECX is a market place where buyers and sellers come together to trade based on warehouse receipts, assured quality, delivery and payments. It is a commodity exchange that provides market integrity, enhances market efficiency, ensures market transparency and allows risk management (www.ecx.com.et).

ECX Mission and Vision

Vision: to transform the Ethiopian economy by becoming global commodity market of choice.

Mission: to connect all buyers and sellers in an efficient, reliable, and transparent market by harnessing innovation and technology and based on continuous learning, fairness, and commitment to excellence.

In organized market, the actual business activity of exchange is left to members that are drawn from the private sector. The ECX is established for the benefit of members, who acquire their membership by fulfilling criteria set by the Exchange's internal rules and regulations. Individuals, business organizations, public enterprises and cooperatives

engaged in trading of commodities are eligible to become members of the Exchange (ECX, 2010). Hence, ECX has brought different market actors as members to its trading platform to benefit out of its system.

ECX contributes to standardized quality of commodities, efficient, risk-free and transparent trading as well as dissemination of market information to all stakeholders. In addition to providing a pure trading marketplace, ECX is based on a broader integrated scope of business operations which includes: (i) quality grading and certification, (ii) warehousing and electronic warehouse receipting, (iii) trading, (iv) market data dissemination and (v) clearing and settlement.

1.3. Statement of the Problem

Floor based trading and online trading are the two major methods of trading used by traders of financial products and commodities. Pit trading, also known as floor trading, is the trading of stocks or commodities manually in the exchange trading floor. It was the main type of trading until late 1990s. But the introduction of online trading of stock and commodities have certainly lowered the popularity of pit trading and now more and more pit traders are moving to electronic trading system (Gorham and Singh, 2009).

Online trading empowers the market at large by providing online access to the market where members and their respective clients, in particular, can submit orders and/or view status of their orders. This eliminates any misunderstanding regarding the client's instruction to the member while providing visibility to trade status and execution for both the client and the member (Gastineau, 2010).

Even though in most exchanges trades take place in electronic trading, ECX has started its operation with the introduction of floor based trading with spot contracts that are traded for immediate payment and delivery. The existing open outcry trading system at the headquarters restricts the market expansion potential of the Exchange, restricts the direct participation of large number of market actors located at the remote parts of the country at

both the supply and export end. It is impractical to accommodate all trade sessions in one trading floor at ECX headquarters as more commodities are added. While more trading floors can be built, the more economical and sustainable option will be to provide online trading platform and allow trading from anywhere. The flexibility to set longer trading session time to maximize the chance for trading to get best value for commodities is hampered by the inherent space and time limitation of the current open outcry system of the Exchange (ECX, 2010).

According to the revised rule of the exchange, there are efforts and monitoring/surveillance mechanisms being implemented and in place to monitor the market, in the current floor trade which is conducted at the ECX. However, it continues to remain as a challenge to eliminate possible collusion and other incidents, including deliberate entry of different transactions on the tickets from what has been agreed up on the floor during the trade session, trades being submitted on the tickets for transactions not "shouted out" on the floor during the trade sessions, and market manipulation behaviors by market participant or a group to deceive in prices or volume of a commodity (ECX, 2010).

The current floor based trading employed by the exchange has its own significances and limitations. But electronic trade is by far the most efficient and effective mode of trade world-wide (Honda, Schwartz, and Tiwari, 2004). As market actors in floor based trading like the one at ECX are facing extensive physical strain, slow order of entry and execution, not being able to trade in multiple products and exchanges simultaneously, not being able to get instant market data as charts and instant news on same time, the time for having online trade is inevitable. Moreover, the actual owners of the commodities traded, known as clients are not having direct access to the market independent of brokers as the existing central trading floor restricts the direct participation of large number of market actors located at the remote parts of the country both at the supply and export end, they do not have instant and speedy access to their accounts, and they are not also the decision makers regarding the basic trading components like price and quantity. Solving the stated problems would enhance the prospects of online trading and this paper tries to identify the challenges of implementing online trading and its feasibility through the research.

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The recently published newspaper (MCC, 2013) which presented clients complaints on such incidents can be evidence. The clients have complained on the transparency and reliability of the members who execute trades on their behalf. Such related incidents are presumed to be significantly reduced, if not eliminated, with the implementation of online trading.

In addition, the researcher selected ECX as a study site mainly for the reason that it is the researcher's place of work and a good understanding of challenges and prospects of the study. This has gave the researcher the opportunity to analyze the practice of commodity trading at the Exchange floor market and the related challenges that are encountered due to the absence of online trading that facilitates market actors' potential access to the market where they can directly submit orders and/or view status of their orders. Still, introducing electronic trade in Ethiopia requires a lot of effort. Hence, the researcher has also attempted to identify the fundamental requirements for the introduction of online trading along with its potential benefits and challenges.

1.4. Research Questions

Based on the above statement of the problem, the study attempted to address the following questions.

1. What is the economic significance and limitations of the ECX floor based trading model to market actors?
2. To what extent can an online market be feasible in Ethiopia in terms of the various factors?
3. What are the potential benefits of online trade to the exchange in general and the market actors in particular?
4. What are the challenges of implementing online trading at ECX?

1.5. Objective of the Study

1.5.1. General Objective

The general objective of the study is to compare the economic significance and limitations of the floor based trading system employed by ECX with online trading system's prospects and challenges; and analyze the factors affecting the feasibility of implementing online trading in ECX.

1.5.2. Specific Objectives

Based on the above general objective, the study has the following specific objectives.

- ➢ To assess the economic significance and limitations of the current ECX floor based trading model to market actors.
- ➢ To identify the fundamental factors that determines the feasibility of online trade in Ethiopia.
- ➢ To assess the potential prospects of introducing an online trade to the ECX in general and market actors in particular.
- ➢ To identify the possible challenges that could be faced in implementing online trading at ECX.

1.6. Significance of the Study

The study is expected to generate the following benefits. The research paper is expected to provide an insight into ECX management's efforts of providing efficient service to all market actors and its plan to introduce online trading in the country. This work is expected to provide additional information for the expert team that is engaged in the design and development of online trading. Moreover, the study has helped in identifying possible challenges that could be faced and detect any opportunities. Informing and updating different stakeholders on the limitations and significances of the current trading method is also the other significance.

Besides, the identification of fundamental requirements, the establishment of online trade

is expected to help the operational managers during operational design of online trading model. The researcher also presumed that this research paper would contribute for accumulation of knowledge in the study area and can be used as input for other online trading platforms and serve as a basis for undertaking similar researches on the subject matter.

1.7. Scope of the study

The study is delimited to ECX's members who are actively transacting as intermediary and trading members here at Addis Ababa headquarters and clients of these members located in regional towns. The study focused on comparing the current trading system with that of online trading at the ECX. The time horizon of the research covered a period of 3 months (August 2014- October 2014). From research methodology point of view, the researcher used only descriptive and exploratory research methods as they were the best to describe the current floor based model and explore the online trading model respectively. The study was also limited to examining the issues of floor based commodity trade and online trade from ECX member and clients perspectives.

1.8. Limitations of the Study

Practice of floor based commodity exchange is new to Ethiopia and most literature available on the area of study is about online futures trading. The major limitation of undertaking research in this context is lack of sufficient secondary resources and standardized questions to measure the research problem.

From research methodology's perspective the research was limited to using exploratory and descriptive research methods as they were deemed to be best to describe and explore the two trading systems. As the research period under consideration was August 2014 to October 2014, it is low trading season at ECX trading floor. Hence, it was challenging to reach members and clients of ECX which hindered the collection of data. Respondents' knowledge about online trading was also the other limitation which affected the response

rate of questionnaires distributed. Furthermore, due to lack of budget, the researcher used own effort and methods to collect data from respondents.

1.9. Operational Definitions

Open Outcry   A vanishing method of communicating on a stock, commodity or futures exchange that involves verbal bids and offers as well as hand signals to convey trading information in the trading pits (www.investopedia.com).

Trading Floor   The floor where trading activities are conducted. Trading floors are found in the buildings of various exchanges, such as the New York Stock Exchange and the Chicago Board of Trade (www.investopedia.com).

Electronic Trading   It is any trading relationship that relies up on the use of computer technology for inter-organizational communications, normally involving telecommunication links (Cunningham and Tynan, 1993).

Contract   Standardized agreement to buy or sell a specified commodity, detailing the amount, grade and price of the commodity and the date on which the contract will mature and become deliverable for purposes of trading on an Exchange (ECX, 2010).

Member   Any person recognized as an Exchange Actor by the Authority that fulfills the requirements of the Exchange (www.ecx.com.et).

Client   A person on whose behalf a member trades or from whom the member accepts instructions to trade (www.ecx.com.et).

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1.10. Organization of the Paper

The study is structured in five chapters. The first chapter the introductory part, which contained a brief background of the study, an overview of ECX, statement of the problem, research questions, and objectives of the study. The chapter also discussed the significance, scope, limitation, definition of terms and organization of the research report. The second chapter deals with literature review, in which review of scholars' work in the research topic is presented. The third chapter discussed research design and methodology that is used to undertake the research. In this chapter, the design of the study, the sample size, source and tool of data collection and procedure of data collection are presented. Chapter four dealt with the findings of the study in which data analysis, presentations and interpretations are presented. Finally, the fifth chapter presents the summary of findings, conclusion, and recommendations.

CHAPTER TWO

RELATED LITERATURE REVIEW

2.1. Introduction

This chapter is structured in to three sections. The theoretical literature presented the general concepts about commodity and exchanges, market structures, floor based trading focusing on its significance and limitations, electronic trading with emphasis on its prospects and challenges. The second part, the empirical literature presented selected international scholarly works related to the subject matter focusing on the transition from floor based trading to online trading and comparing the two trading systems. Most of the literatures in the two sections are about online trading system but an attempt is made to describe and relate to the floor based trading system. Building on the literature review the third section of the chapter finally introduces the conceptual framework for the study.

2.2. General Concepts on Commodity and Exchanges

Commodity can be defined as any good or service that member of a society can conceive culturally as a separate class of goods having primarily intrinsic or exchange-value, as opposed to use-value, and which must be exchanged in an institutionalized market place or system of trade, often through individuals other than the primary producers of those goods and services (Stone, Angelique, and Peter, 2000).

A simple definition of trading is the exchange of goods or services and money between buyers and sellers. Whether it is the exchange of agricultural goods or credit default swaps, the essential idea of trading has not changed. The fundamental requirement being, buyers and sellers must meet, negotiate a price, and exchange goods for money. Prior to the development of modern technology, this process required participants in trading to come together to a specified place to find buyer and seller by themselves and negotiated the terms of each trade (Gorham and Singh, 2009).

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According to Harris (2002), exchanges design markets to minimize the search cost of trading. They usually organize markets so that everyone who wants to trade gathers at the same place. A common gathering place helps traders find those traders who will offer the best prices.

Gabre-Medhin and Goggin (2005) stated that, many believe that a commodity exchange connotes a highly sophisticated market system, with an electronic-based, highly evolved system of trading in future commodity positions, exemplified by markets such as the Chicago Board of Trade, the Tokyo Grain Exchange, or the London Metal Exchange, among others. To many, a commodity exchange is an advanced market mechanism for use in industrialized countries, out of the reach or inappropriate to low-income countries. Exchange trading emerged in the 1840s, when Chicago became a commercial center with railroad and telegraph lines connecting it with the East of the United States of America. Prior to that, grain traders in Japan had experimented with the idea in 1730. One of the world's largest and oldest commodity exchanges, CBOT was established in 1848 by 82 grain traders in what was then a small Midwestern town, in conditions not too different from that of Ethiopian agriculture today, in response to a bumper harvest when farmers who went to Chicago and could not find buyers had to dump their unsold cereal in Lake Michigan. CBOT was launched in 1864 and followed in 1877 by the London Metal Exchange (Rashid, Nelson, and Garcia, 2010).

Exchanges once exclusively organized their markets on physical trading floors. Now they can organize their markets within organized communication networks that allow buyers and sellers to arrange their trades remotely. Electronic market places have rapidly expanded as the costs of electronic communications technologies have dropped (Harris, 2002).

2.3. Market Structures

According to Schmidt (2011) markets differ in their organization and trading rules. Some markets that are highly organized and regulated by government agencies are called

exchanges (or bourses). In the United States, the trading of stocks, bonds, and several other securities is regulated by the Securities and Exchanges Commission (SEC). However, trading of commodities including spot, futures, and options is regulated by another government agency, the Commodity Futures Trading Commission (CFTC). As per Harris (2002) descriptions market structure consists of the trading rules, the physical layout, the information presentation systems, and the information communication systems of a market. The structure determines what traders can do, and what they can know. It therefore affects trader strategies, the power relationships among different types of traders, and ultimately trader profitability. Always consider what effects market structures have on trading strategies and on the balance of power between various types of traders (Harris, 2002).

2.4. Floor Based Trading

Smidt (1985) defined trading floors as an active futures exchange in a large room, sometimes nearly as large as a football field. Trading takes place in roughly circular areas called pits, which are flat in the center and have wide steps rising in concentric stages to the edge. Traders stand in the center facing out or on the steps facing in. The steps help them to see one another. A trading floor usually has several trading pits, near which are booths with telephones or other electronic equipment, which are assigned to member brokerage firms. Orders from customers are sent to a booth used by the brokerage firm and transmitted by messenger to a broker in the appropriate trading pit. Trading floors also have a variety of devices to display information (Smidt, 1985).

There are many organized futures, options, and stock exchanges, which use the floor based trading to trade their contracts and securities. Exchanges such as (CBOT), the (CME), and London International Financial and Futures Exchange (LIFFE). The largest oral auction market is the US Government Long Treasury Bond futures market. This market, which is organized by the CBOT, regularly attracts 500 floor traders. It may be the most liquid market in the world. The smallest oral auctions may include only two traders (Harris, 2002; Schmidt, 2011).

In a floor based trading, according to Harris (2002), traders arrange their trades face-to-face on an exchange trading floor. Some traders cry out their bids and offers to attract other traders. Other traders listen for bids and offers that they are willing to accept. Most traders do both. Trades occur when a buyer accepts a seller's offer, or when a seller accepts a buyer's bid. In the former case, the buyer will call out "take it" to accept the offer. In the latter case, the seller will call out "sold" to accept the bid. Buyers and sellers often take turns bidding and offering until they agree on a price and quantity to trade. Traders offer liquidity when they make bids or offers to trade. Traders take liquidity when they accept bids or offers.

Figure 1: *Open Outcry Trading Process*
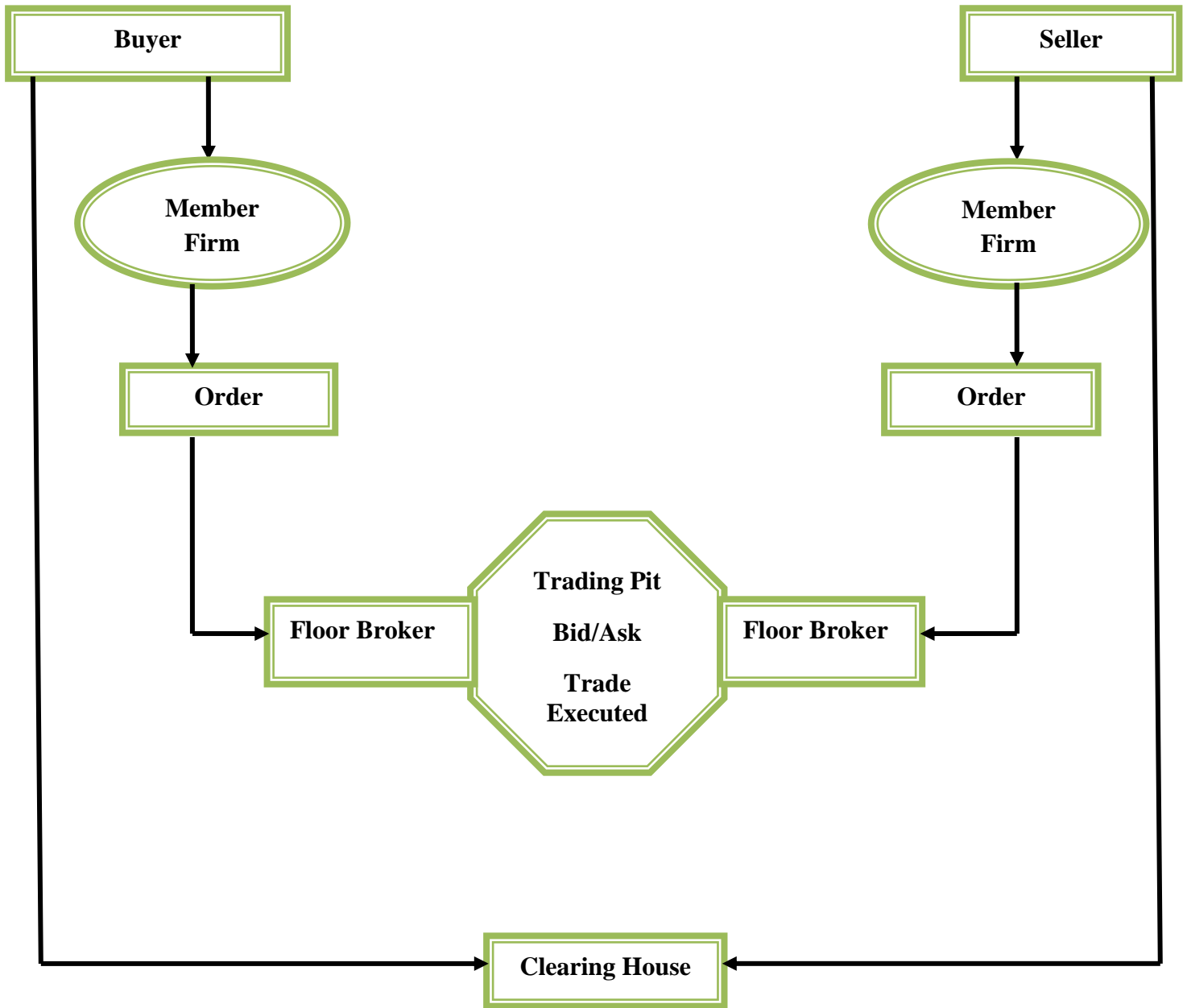
*Source: A Web-Based Financial Trading System (*Ming, Stallaert, and Whinston, 1999)

2.4.1. Economic Significance of Floor Based Trading

Honda et al. (2004), presumed the computerization of information dissemination would give electronic trading a strong informational advantage vis-a`-vis a floor. Nevertheless, Sofianos and Werner (1997), in their analysis of floor broker participation on the NYSE, find that floor brokers do contribute additional liquidity. Marco and Roell (1992) point out a further advantage of a floor-based trading system: they explained that it gives participants the opportunity to observe who trades what with whom, how urgently they seem to want to trade.

There are a number of other ways in which a floor trader may add value. Honda et al. (2004) identified some of these additional values that floor trading created such as: the trader might obtain knowledge of the presence of a contra party, mitigating price impact; the trader could "round up" multiple counter parties, again cushioning the impact by trading in what may be viewed as a spontaneous call auction; the trader could anticipate periods when liquidity is high and trade more often and in larger sizes during such periods; the trader could avoid trading in periods when trading is low; and the trader may possess superior ability to read momentum in the market and to time trades accordingly.

Numerous studies have examined the contribution of floor based trading to liquidity. Tsang, (1999) referred different writers in his research who listed strong arguments that floor based trading can contribute to market liquidity by providing easy access to the market   and the stimulating synergy on the floor triggers competitive responses which are essential to the creation of a liquid and viable market (Tsang, 1999).

2.4.2. Limitations of Floor Based Trading

A potential drawback of trading via the floor is that handling costs are higher for orders worked on the floor than for orders delivered electronically through Post E xecution Report (PER), and the fixed cost component may be appreciable. Consequently, the floor may be an attractive venue for large, predominantly institutional participants who are concerned with controlling market impact. The PER, on the other hand, may be attractive to small,

predominantly retail participants whose orders are not large enough to have market impact or to justify the higher fixed cost component of floor-based order handling(Honda et al., 2004).

With open outcry, because of the congested trading pits, different prices may prevail simultaneously in different areas of the pit. Even though hand-held computers can provide real-time information to pit traders, segmented market liquidity is still possible. This is a clear sign that such markets are not completely efficient. Another concern is fairness in the way orders are matched. In open outcry, orders with competitive prices could be left unmatched if the traders are not visible enough in the pit (Tsang, 1999).

2.5. Electronic Trading

Technology plays three main roles in futures trading: (i) providing general information such as price, volume, and news; (ii) routing orders; and (iii) matching orders. The extent of the automation generally falls between two extremes: the first would be where pit traders obtain only electronic news but trade in open outcry, while in the other, the physical trading pit is completely eliminated, and orders are entered and matched via a computer network (Tsang, 1999).

According to Gorham and Singh (2009), the term "electronic trading" encompasses a wide variety of systems, ranging from simple order transmission services to fully fledged trade execution facilities. An electronic trading system is a facility that provides some or all of the following services: electronic order routing (the delivery of orders from users to the execution system), automated trade execution (the transformation of orders into trades) and electronic dissemination of pre-trade (bid/offer quotes and depth) and post-trade information (transaction price and volume data). These systems have found wide acceptance in fixed income and foreign exchange markets in recent years and can affect the market's structure and its dynamics. In contrast to the broad definition, a narrow definition of electronic trading systems is limited to facilities that automate all aspects of the trading process, including trade execution. The architecture of fully automated systems is often complex and differences between the various systems can be quite subtle.

Electronic trading is both location-neutral and allows continuous multilateral interaction. For trading purposes, the common physical location of users is unnecessary as long as they can connect to the system. Consequently, electronic trading systems facilitate cross-border trading and cross-border alliances and mergers between trading systems to a greater extent than traditional markets. Electronic trading is scalable by increasing the capacity of the computer network. With traditional markets, the size of the floor has to be physically expanded, or the number and/or capacity of intermediaries active in a phone-based market increased a much more costly process (Gorham and Singh, 2009).

Thus, successful electronic trading systems can potentially exploit economies of scale and reduce operational costs to a far greater extent than can traditional markets. Scalability also tends to widen the reach of dealers, who have access to a far wider customer base than formerly. Electronic trading is integrated. Electronic trading potentially allows straight-through processing (STP), which is the seamless integration of the different parts of the trading process, starting from displaying pre-trade information and ending with risk management (Gorham and Singh, 2009).

According to Kim (2007), electronic and algorithmic trading has become a significantly larger focus for financial institutions, securities regulators, and different exchanges. Market developments along with tougher regulations have made equity trading more complicated and less profitable. Automation and new technologies have changed the trading game dramatically in the past five years or so. The speed of financial information is outpacing anyone's forecast. The traditional clerks running across the trading floor with order slips and men in pits negotiating bid prices may soon be replaced by the sound of traders typing in their parameters onto their broker screens to facilitate order flow using programs and algorithms (Gorham and Singh, 2009).

2.6. The Emergence of Electronic Trading Networks

Algorithmic trading has become another method for large brokerage firms to grasp an advantage over their competitors for lower-cost executions; however, smaller players such as agency brokers also see algorithms as a way to level the playing field and infringe on the bigger bulge-bracket firms. Algorithmic trading originated on proprietary trading desks of investment banking firms. It began to expand executing client orders because of new markets and the need to remain in line with new players in the brokerage industry. This has created a more competitive environment for traditional dealers with services such as direct market access through the Internet (Baird, 2001; Kim, 2007).

According to Cunningham and Froschl (1999), the rapid growth of online trading has shown the financial services industry a radically different way of doing business, one which the client does much of the work and in return pays lower charges.

2.6.1. Prospects of Electronic Trading

Gorham and Singh, (2009) summarized that electronic exchanges offer many benefits to every constituent, from traders to regulators. Globalization, more tradable products, and a vast ocean of real-time data, along with global networks and powerful computers, have led to fundamental changes in the way markets function. Buy-side firms can now execute complex order types and route them to exchanges through broker-neutral platforms. It has been a busy few decades for financial markets globally. The transformation to electronic trading has allowed exchanges to fundamentally change their structure and their business model. One of the biggest drivers of this change has been the adoption of technology by the financial markets. The benefits of the new model have been significant and, as exchanges continue to grow, the financial markets will continue to find creative ways to reap the rewards (Cunningham and Froschl, 1999).

2.6.1.1. Globalization: Bringing the World Closer Together

The physical boundaries of exchanges limited their growth and market share. Although traders could trade by telephone, customers off the floor were at a disadvantage to the

traders on the floor. Any significant growth for an exchange would require a bigger physical floor, which is costly to build and maintain (Gorham and Singh, 2009).

2.6.1.2. Surge in Volume

Siddaiah, (2011) believed that trading on the floor was fun and chaotic. It was a unique work environment cherished by the financial community for over a century. However, the growth in financial markets in recent years would be unthinkable in the floor-trading environment. Manual trading, clearing, and settlement could never be able to keep up with the volume growth seen in the last decade. The trading community used computer screens and automated trading applications to trade more products across multiple exchanges, fueling the surge in volume across them (Gorham and Singh, 2009).

2.6.1.3. Innovative Products Increasing Growth

The electronic trading model has also helped exchanges launch new products. It is far easier to list a new product today than it was in the floor-trading days. The exchange no longer has to worry about the physical space needed for the new product nor find market makers and/or specialists to encourage liquidity. Technology has allowed exchanges to experiment with innovative products and see what works without adding significant cost (Gorham and Singh, 2009).

2.6.1.4. Cost

According to Bhaskar (2006), electronic trading is based on accepting an electronic order over the network, entered through digital computing devices. Traders need reliable servers that are much cheaper than manning telephones and fax stations for accepting and executing orders. As a result the cost of transaction is comparatively cheaper in electronic trading (Gorham and Singh, 2009).

2.6.1.5. Availability of Data

Domowitz and Steil, (2001) found that electronic systems incorporate information into the price faster than traditional systems. Trading is a numbers game. Whether trading on the floor or electronically, traders always make their decisions based on numbers. Traders base their decisions on numerous criteria, such as the exchange volume, price of the product, volume of a particular product they are looking to trade, and the last price at which a product was traded. They also look at external data describing the market fundamentals, such as unemployment numbers, interest rates, and productivity numbers (Gorham and Singh, 2009).

2.6.1.6. Transparency

The financial markets are much more transparent than ever before. Exchanges provided an open Application Programming Interface (API), which allowed the trading community and technology firms to directly connect to the exchanges. Anyone with a computer and Internet connection can access real-time market data from exchanges around the world. Technology has brought transparency to a financial market that was once opaque in the floor-trading days (Gorham and Singh, 2009; Ranganatham and Madhumathi, 2006).

2.6.1.7. Greater Oversight of Trading Activity

The regulators, risk managers, and exchanges prefer the electronic trading model because they rely on accurate and timely information on trading activity. More information on each trader allows for better monitoring and risk controls. In the electronic trading model, there is an audit trail of virtually every mouse or keyboard click a trader makes (Gorham and Singh, 2009).

2.6.2. Challenges of Electronic Trading

The report by Committee on the Global Financial System on 'The implications of electronic trading in financial markets' by Helen, Hawkins and Sato (2001) came to the conclusion that electronic trading is more cost efficient and offers the potential to make

markets more transparent. However, the committee also concluded that electronic trading raises a host of issues and potential problems. For example, if the exchange goes down or connection gets lost, users of the electronic trading systems could be at a disadvantage. Another aspect is the usage of exchange bandwidth. One user should not be allowed to monopolize the information flow, which requires imposition of bandwidth costs on users of electronic trading. However, the restriction on bandwidth may not be the same for all users (Tsang, 1999).

While many exchanges are moving towards electronic trading, Tsang (1999), noted that there are still several obstacles to this transition, such as concerns with the stability of the system, especially when the trading volume is high and the need for computerized procedures to prevent mistakes in typing information on trades.

Gorham and Singh, (2009), stated like many innovations, challenges are also introduced or exacerbated by electronic exchanges. Greater speed and globalization mean that there is less room for error and problems can instantly spread around the world. For all its advantages, technology is still rather fragile and unreliable. People are still prone to error and bursts of panic. The result can be greater volatility and, sometimes, ad hoc resolutions to glitches in the electronic infrastructure. According to these writers the listed below items are identified as challenges to online trading. These are:

2.6.2.1. Dependency on Each Other

The world of electronic trading brought the speed, reliability, efficiency, and growth to financial market that would have been unimaginable in floor-trading. The new model is far more complex and interdependent than its predecessor. The exchanges and trading community rely on technology providers for connectivity to the financial markets (Tsang, 1999).

2.6.2.2. Technology Glitches

As we have seen, technology is now an integral part of financial markets. Today every step of the trade cycle passes through computers and networks. All technology can fail.

Computers and networks are hardware devices that do not have infinite life spans. They will fail at any time without notice. The electronic trading architecture is built on software programs that communicate with each other (Tsang, 1999).

2.6.2.3. Exchange Outages

Since the exchanges began their journey of transformation, they have faced many challenges in building a reliable infrastructure. For exchanges today, their technology has to work seamlessly. Any outage has a direct impact on the trading volume on the exchanges. An unreliable exchange could literally lose liquidity and significant market share (Gorham and Singh, 2009).

2.6.2.4. Market Volatility

Exchanges around the world are completing their migration toward electronic trading. The trading community is getting accustomed to the availability of real-time data and the trading applications used to route orders. One of the other major impacts of technology is the potential volatility in the market that can be caused by system latency and capacity issues (Tsang, 1999).

2.6.2.5. Inefficiency: Out-Trades in the Electronic Trading World

The world of electronic trading might have gotten rid of trade cards and the crowded floors, but it has not entirely eliminated trading errors. Trading still relies on humans. Whether it is a trader entering trades on a computer screen or creating rules for automated trading systems, humans are still the key element in the trade cycle, and thus the trading errors continue. In the world of electronic trading, speed rules trading, so when errors occur they are significant and extremely costly for the financial markets (Gorham and Singh, 2009).

2.7. Problems with Transition

Since open outcry trading has been used for more than a century, there is strong resistance to change. Exchanges such as the CBOT and the CME, which have a long history of open outcry trading, have encountered opposition when proposals were made to go electronic. Substantial job losses can result when computer systems replace pit traders. Since pit traders are often members (part owners) of the Exchange, this poses a strong barrier to conversion. Threatened with potential job loss, these members may use their voting power to influence the Exchange's decision. Traders also argue that it would be costly to replace open outcry with electronic trading, since automation would not be able to replicate the quick reactions and keen instincts of an experienced trader (Tsang, 1999).

2.8. Empirical Review

Lau, Yen, and Chau (2001) studied the adoption of online trading by investors in the Hong Kong Financial market. Feasibility of changing in to a new system can be viewed from different perspectives, technical operational, financial and social/ organizational. Lau et al. (2001) used a research model based on the decomposed version theory of planned behavior, to study the factors that affect investor's adoption of on-line trading. They used correlation analysis to perform and investigate whether the hypothesized attributes, variables and belief structures are correlated with each other. The result of their analysis indicates that regarding the hypothesized model, there was a strong statistical magnificence that perceived usefulness, perceived ease of use and compatibility significantly affects the attitude to words using the proposed system, implying that investors will possess positive feelings for using online trading if it can enhance their efficiency and effectiveness of placing orders. They concluded that on line trading is likely to improve the process of placing orders, provide an electronic audit trial for each transaction, and there can be trading around the clock.

Hendershott, Jones, and Menkveld (2011) analyzed if electronic trading improves liquidity. For their study they have investigated the relationship between electronic trading and liquidity. They studied the issue taking the NYSE data for a period covering December

2002 up to July, 2003 their results reveals that electronic trading lowers the costs of trading and increases the informativeness of quotes. The researchers have also noticed some caveat during their study as the period considered for the study was a period of price volatility, an open question remains unanswered on electronic trading and liquidity are equally beneficial. Citing the problems that could be caused by liquidity providers in times of price declining, they may simply turn off their machines when markets spike downward. To establish causality, they used the staggered introduction of auto quoting as an instrumental variable for electronic trading.

Harris (2000) in his survey of the issues floor versus automated trading systems, consider how both systems differ in fairness, convenience, capacity, speed, efficiency and cost. His research conclusion revealed that electronic trading systems are generally cheap to use and operate. These characteristics ensure that active markets and markets that serve small traders will use the electronic trading system extensively. In addition the researcher concluded that electronic trading system allows traders to exercise direct market access. On the other hand the researcher pointed the benefits of floor trading concluding that floor trading markets are better than that of the automated ones when the brokers need to exchange information about each other before they trade. Harris also noted that operational fairness can be easily achieved in electronic trading while to get this in floor based trading traders must be highly skilled to follow the trading rules faultlessly. It all depends on the skill and honesty of the traders who arrange the trades.

2.9. Conceptual Framework

Building on the preceding literature and borrowing ideas and concepts from Lau et al. (2001) on adoption of online trading in commodity exchanges, Eleni (2006), on floor based trading and UNTCAD report (2009) on commodity exchanges, the researcher constructed a model to achieve the objectives of the study.

According to Eleni (2006), the fundamental factors to establish successful commodity exchange includes having an efficient and robust trading platform and viable regulation and enforcement. A comparative study by UNCTAD (2009) on commodity exchanges also stress

the wide range of development impacts exchanges may have on developing countries in terms of price discovery, risk management, development of commodity markets and finance, market internationalization and use of IT services stressing on price discovery. Lau et al. (2001) studied the social/organizational perspective to identify the factors that affect investors' adoption of online trading. They identified that the decision to use the online trading system is influenced by the perceived usefulness, relative advantage, perceived ease of use, and compatibility.

The conceptual framework developed for the study considers the current context of ECX and examine the floor based market performance using four dimensions to achieve the objective of the study. It looks the function of exchanges from operational dimension; price discovery, facilitation of physical trade, reliability and accuracy of market information, and regulation and enforcement. Price discovery is a function of price dissemination which reduces information asymmetries among traders, multiple offer to sell and bid to buy, large trading volume (UNCTAD, 2009; Eleni, 2006).

Informational efficiency and operating efficiency are the two most important factors that contribute to a successful futures exchange O'Connor, (1993). Informational efficiency means that all traders have equal access to public information and that the information is quickly reflected in trading prices. Operating efficiency means that the most cost-efficient trading technology is used and that market prices and trading costs are determined competitively in liquid financial markets. Commodity exchange as a financial service provider to market actors is expected to render efficient service by availing electronic trading platforms that are efficient and effective. Hence, the study evaluates the readiness of traders for such trading platforms, their attitudes to words the new system in terms of perceptions on ease of use, usefulness, compatibility and relative advantage. The rational for the inclusion of these variables in this study is that, without knowing the current capacity of the market actors and their attitudes to words electronic trading, it would be difficult to plan the launch the new electronic trading system (Lau et al., 2001).

Figure 2: *Conceptual Framework*
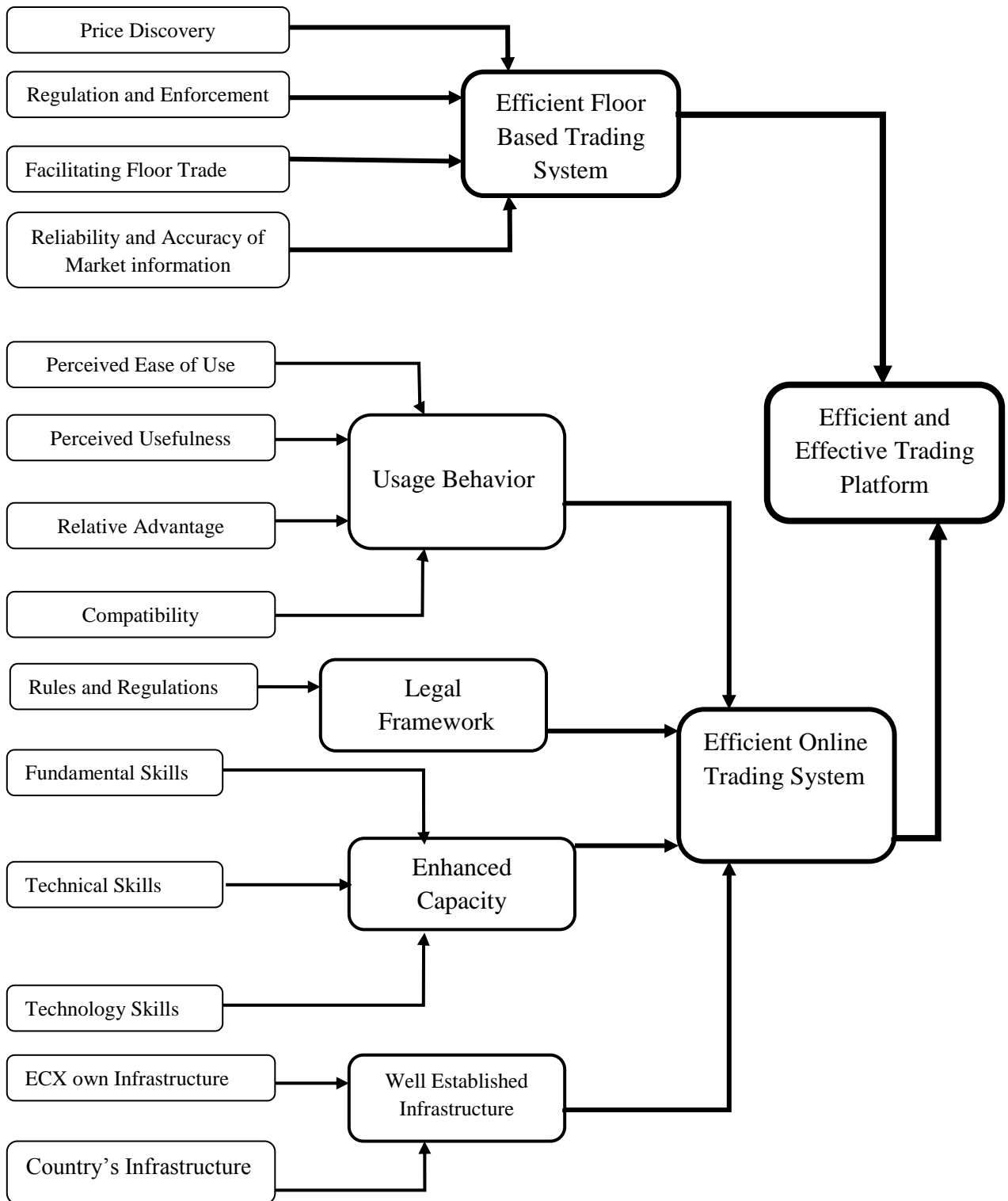
Source: Researcher's Schematic (2014)

CHAPTER THREE

RESEARCH DESIGN AND METHODS

There is no general agreement on research design and methodology. There is no single blueprint for planning research. Research design is governed by the notion of fitness for purpose. The purposes of the research determine the methodology and design (Cohen, Manion, and Morrison, 2000). This implies that researchers plan, design and approach a given research problem in different ways in order to achieve the research objective and answer the research question.

The next section discusses the research design and methodology that was used to achieve the objective of the study. Research design, sample size and sampling method, source and method of data collection, procedure of data collection and method of data analysis will be presented as follows.

3.1. Research Design

In order to achieve the general objective of the study, the researcher used a combination of descriptive and exploratory research methods. Descriptive method is set out to describe and to interpret what is going on. Descriptive research, according to Tavakoli (2012), is concerned with conditions or relationships that exist; practices that prevail; beliefs, points of views, or attitudes that are held; processes that are going on; effects that are being felt; or trends that are developing. The main objective of descriptive research is to analyze the state of affairs as it prevails at the time of the study. In this view, descriptive research will help to analyze the existing trading practice at ECX floor based market. In addition, it helps to show the relationship between the floor based trade and online trade.

Exploratory research, according to Robson (2002), is a valuable means of finding out 'what is happening; to seek new insights; to ask questions and to assess phenomena in a new light'. It is particularly useful if there is a need to clarify and understand a problem,

such as if there is uncertainty in the precise nature of the problem. In light of this, the study has used this research design to explore the challenges, prospects and feasibility of the online trading system.

3.2. Data source

The research data was collected from different sources using the various data collection tools. The study used both primary and secondary data sources and collection approaches.

Primary Data

The primary data was comprised of the background, experience, attitude, and perception of respondents. Questionnaire was used to collect the needed information from selected sample members and clients of the Exchange. Semi-structured interview was used to collect thorough information from experts working at the Exchange, ECXA and NEAA.

Secondary Data

Secondary data was collected through desk research to identify the extendibility dimension on the research construct and to clarify and substantiate the result from the primary data. Journal articles, case studies and reports, and research papers available on floor based trading and online trading platforms are used to carry out the study.

3.3. Population

The target population for the study was ECX members and their clients in selected regions. The population size was determined based on the number of members at the ECX Headquarters and their clients in applicable regional cities. As of June 30, 2014, ECX has 346 members and 13543 clients. Clients from Addis Ababa, Adama, Assosa, Bedelle, Bonga, Bure, Dilla, Dire Dawa, Gimbi, Gonder, Hawassa, Humera, Jimma, Kombolcha, Metema, Nekempti and WolaytaSodo cities are considered for the study as the Exchange has warehouses in these regional towns (www.ecx.com.et). All coffee, sesame and pea beans traders were considered for the study as these commodities are traded as mandated ones at the Exchange on daily basis.

Table 1: *Types of Membership at ECX and their applicability for the study*

Type of Membership	Number of Members	Applicability for the Study
Intermediary Members	323	Applicable
Trading Members	23	Applicable
Total	**346**	

Source: ECX internal database

It would have been easy to consider only members and their floor representatives to get the information needed but as the clients' information is vital for the study, it not only helped in identifying the challenges and feasibility of the new system but also helped in identifying the significances and limitations of the floor based trading. In addition to this ignoring the clients in the planned regional trading centers would make the whole work futile. This has instigated the need for considering 13514 clients as a target population. Thus, a total population of 13860, which is comprised of 346 members and 13514 clients, was considered for the study.

Table 2: *ECX clients, the commodity type they trade and their applicability for the study*

S.No.	Commodity	No. of Clients	Applicability for the Study
1	Coffee	5840	Applicable
2	Sesame	6238	Applicable
3	Pea beans	1436	Applicable
	Total	**13514**	

Source: ECX internal database

Table 3, shows the list of ECX regional delivery centers with their commodity type and their applicability for the study. Applicability for the study was determined by the fact that

the selected towns were selected by the senior management of the Exchange as future online trading centers (Capital, 2014). Thus, the selected regional towns are representative regional warehouses for the study, as they are all handling the three commodities that are traded at the Exchange trading floor.

Table 3: *ECX regional warehouses and their applicability for the study*

No	Warehouse Location	Commodity Type			1Applicability for the Study
		Coffee	**Sesame**	**Pea Beans**	
1	Addis Ababa	X	X	X	Applicable
2	Adama			X	Applicable
3	Assossa		X		Not Applicable
4	Bedelle	X			Not Applicable
5	Bonga	X			Not Applicable
6	Bure		X		Not Applicable
7	Dilla	X			Not Applicable
8	Dire Dawa	X			Not Applicable
9	Gimbi	X			Not Applicable
10	Gonder		X		Applicable
11	Hawassa	X			Applicable
12	Humera		X		Applicable
13	Jimma	X			Applicable
14	Kombolcha			X	Not Applicable
15	Metema		X		Not Applicable
16	Nekempt		X		Not Applicable
17	WolaytaSodo	X			Not Applicable

Source: www.ecx.com.et

3.4. Sample Size and Sampling Techniques

The choice of sample size is governed by the confidence level and confidence interval the researcher needs; the type of analysis to be taken and the size of the total population.

Taking these competing influences the final sample size is a matter of judgment and calculation (Saunders, Lewis, and Thornhill, 2009).

In addition, Saunders et.al. (2009), recommended the use of an expert systems such as Ex-Sample™ to calculate the appropriate sample size. The software calculates the minimum sample size required for different statistical analyses as well as the maximum possible sample size given resources such as time, money and response rates. Given the population the researcher took in to consideration the software calculated 374 as the appropriate sample size with a 95% confidence level and confidence interval of 5.

As an alternative in calculating the sample size, formula developed by Taro Yamane (1967) was also used. Yamane (1967) provided a simplified formula to calculate sample sizes. This formula was also used to calculate the sample size.

$$n = \frac{N}{1 + N\,(e)^2}$$

Where n= the sample size

N= the size of the population

And e=the error of 5 percentage points

A sample of one hundred members from the Exchange headquarters and 275 clients from regions were taken as representative sample and given questionnaires to fill out in order to get their perspectives on the current floor based trading system and online trading system. This resulted in a total of 375 questionnaires that were distributed to the selected sample group from the target population.

With regards to sampling techniques, random sampling was used to select the sample from the population of all members and clients who are trading mandated commodities: coffee, sesame and pea beans. According to Saunders *et al*. (2009) random sampling is suitable for geographically dispersed area and allows the researcher to select the sample without bias. Moreover, the rationale for this sampling technique was that, all members and clients

were expected to have a relatively similar level of understanding of the floor based system and online trading system and were randomly selected for the purpose of the study.

3.5. Data Collection Tools

The researcher collected data from different sources using various data collection tools. Both qualitative and quantitative data have been used so that the data combination would result in a relatively consistent and cross checked results. Questionnaires were distributed to randomly selected active members and clients of the Exchange. The questionnaires were distributed to the members at the Exchange trading floor and questionnaires to clients were distributed to clients in selected regional towns. In addition, in-depth interview was conducted using semi-structured interview with experts working at ECX, National Exchange Actors Association (NEAA) and Ethiopia Commodity Exchange Authority (ECXA). Secondary data was also collected through desk research to clarify most of the issues. Books, journals and research papers were also used to carry out the study.

3.6. Procedures of Data Collection

To collect relevant data for the study, the researcher followed the following procedure: Before distributing questionnaires to respondents, the researcher sought the consent of respondents. Accordingly, the researcher clarified the purpose of the research, why the information was needed and gave assurance that information collected would be kept confidential and would only be used solely for the research.

The questionnaire was arranged in standardized Likert scale, and in order to strengthen the quality of the data interview was used for purposefully selected professionals of ECX, ECXA, and NEAA.

Step 1: Questions that were believed to address the issues under consideration were incorporated. The questions were commented by experts working at ECX for the validity of the questions.

Step 2: The questionnaire was reviewed by the advisor, and as per his comments revision was done.

Step 3: In consideration of the respondents' profile, the questionnaire was translated in to Amharic language.

Step 4: As a next step, a pilot test was conducted with 50 questionnaires during the development stage to ensure the internal consistency of the instrument.

Step 5: The researcher used a chain of branch heads, Member Client supervisors, and traders in regional towns for the distribution and collection of data.

Table 4: *Distributed questionnaire and useable questionnaire amount*

Ser. No	Planned Sample Size	Collected Questionnaire Size	Usable Questionnaire Size	Distribution Site
1	100	100	93	Addis Ababa
2	55	50	46	Jimma
3	55	43	30	Adama
4	55	42	38	Hawassa
5	55	45	30	Hummera
6	55	48	42	Gonder
Total	**375**	**328**	**279**	
Response Rate		**87%**	**74%**	

Source: Own competition (2014)

Questionnaires were pre-tested on small number of respondents before distributing to all respondents. The questionnaires were distributed to respondents at the Exchange's trading floor and selected regional warehouses. The distribution of questionnaires to regional towns was equally shared for the reason that, clients in these towns are presumed to have relatively similar level of knowledge about the floor based trading as they do not have direct market access to the trading floor and online trading. The number of questionnaires distributed at the Exchange trading floor was managed to be 100 as the respondents have

direct market access with better knowledge about both trading systems. In order to achieve the needed result close follow-up was done for timely response.

With regards to usage of semi structured interview, purposive sampling was used as it basis consideration of ample knowledge in the area. Thus, the Chief Information Officer (CIO), Market data manager, market oversight head, and member of the executive committee of the NEAA were contacted. The researcher clarified the questions thoroughly to get valid response from respondents.

3.7. Reliability and Validity

In order to ensure validity and reliability, the questionnaire was composed of carefully constructed questions classified in to clusters to avoid ambiguity and in order to answer all the research questions. The questionnaire and interviews designed for the study were reviewed and commented by experts working at ECX alongside with the suggestion of thesis advisor. These processes helped to ensure the content validity of the instrument.

The result indicated that the internal consistency is rated as 0.734 as measured by Crombach's alpha coefficient which shows that the instrument is well enough consistent (Pallant, 2005). From the sample selected only respondents from the trading floor at the headquarters were used for pilot test. After confirming the validity of the instrument, the same instrument is used for the rest of respondents here at the headquarters and regional respondents as the instrument passed the required consistency.

3.8. Methods of Data Analysis

After collecting and sorting the relevant data using data collection tools, quantitative responses have been sorted, coded, computed, and analyzed using SPSS version 20 software. The appropriate statistical analysis is used according to respective objectives and descriptions. The analyzed data is presented using tables which is the output of the software. The qualitative data collected from experts is also analyzed using content

analysis.A Likert scale of 5 has been used where 5 is used as a lowest value and is assigned to strongly disagree or poor; whereas 1 is the highest value, assigned to strongly agree or excellent.

3.9. Ethical Considerations

According to Saunders et al.,(2009), research ethics refers to the appropriate behavior of the researcher concerning to the rights of those who become the subjects of the work or affected by the work. Thus the researcher sought the respondents' informed consent, respecting the confidentiality and anonymity of respondents; and ensured that all the participants participated in the study voluntarily.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1. Introduction

The previous chapter discussed the methods used to conduct the study. In this chapter, the result of questionnaire distributed to members and clients of ECX and interview response obtained from experts is presented. The study attempted to examine the current floor based trading system employed by ECX and explored the potential challenges and prospects of introducing online trading as an alternative trading platform at the Exchange.

The chapter has five sections. The first section of the chapter deals with the general profile of respondents. The second section presents the major findings on the dimensions of floor based trading. The third section of the chapter presents major findings related the capabilities and perceptions of respondents regarding online trading. The fourth section of this chapter analyses the major findings of the interview on the potential benefits and challenges of introducing online trading.

4.2. General Profile of Respondents

The first part of the questionnaire includes 6 item questions that are relevant for the research topic. These includes: the respondents role at ECX, products they trade at the Exchange floor, their trade type, educational qualification and number of years traded at ECX. Respondents were asked these questions to find out the trading experience they have at the Exchange and their educational status and see the basis for electronic trading. ECX requires traders to have experience and knowledge in trading and some level of education for its floor based trading platform.

As can be seen in Table 5, the study tried to incorporate the three statuses at ECX which have different trading and market access rights in the current floor based trading, with the aim of getting a valid response from each group. Of the total respondents 172 (61.6%) of the respondents are clients, 89 (31.9%) are intermediary members and the rest 18 (6.5%)

are trading members. As the online trading platform is expected to benefit mainly the clients, traders who do not have direct market access to the trading floor, the share of clients among respondents is managed to be high. With regard to the experience of trading in commodity exchanges, 73% of the respondents have more than 3 years of experience in trading at the Exchange trading floor. As experience of trading in exchanges can be helpful in introducing a different trading platform with similar trading rules and regulations having 73% of the respondents with more than three years of experience is good for the Exchange to use their experience and built on it.

Table 5: *General profile of respondents*

Role at ECX	Frequency	Percent
Intermediary Member	89	31.90%
Trading Member	18	6.50%
Client	172	61.60%
Total	**279**	**100%**
Educational Status	**Frequency**	**Percent**
Primary School	72	25.80%
High School Dropout	60	21.50%
High School Complete	70	25.10%
Diploma	50	17.90%
BA and Above	27	9.70%
Total	**279**	**100%**
Years of Trading at ECX	**Frequency**	**Percent**
1-2 Years	35	12.50%
2-3 Years	41	14.70%
3-4 Years	116	41.60%
4-5 Years	43	15.60%
Above 5 Years	44	15.80%
Total	**279**	**100%**

Source: Own Survey (2014)

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From the analysis on educational background of respondents, it was found that 72 respondents (25.8%) have primary school level, 60 respondents (21.5%) are high school dropouts, 70 respondents (25.1%) are high school graduates, 50 respondents (17.9%) are diploma holders and the rest 27(9.7%) have first degree or above. This profile shows that majority of the traders have not even completed high school. The educational background of respondents could be enough for the floor based trading as it is relatively easy, with full of information on the status of the market dynamics as every buyer and seller is trading together in the same trading pit. However, having more than 72% of traders with high school complete and below qualification, could be a serious challenge to the proposed online trading system. This shows that the Exchange must work hard to build the capacity of its traders and make them certified electronic traders if it does not have any alternative traders.

The market at ECX represents mainly traders who are trading the three mandated commodities. The commodities traded by respondents are, 133(47.67%) are coffee traders, 104 (37.28%) are sesame traders, 30 are pea beans traders (10.75%) and the rest 12 are members trading who are trading in all the commodities. The market in these three commodities is mainly owned by clients market. As can be seen from table 6, the market share of clients is growing from time to time. In 2002 EFY the market share of clients in ECX market was 78.14%, in 2006 EFY this share has reached 94.15%. This shows that clients who represent cooperatives, private limited companies, collectors and individual farmers are the future market actors of the Exchange. These actual owners of the commodities do not have direct market access in the current trading system; however they are believed to have market access in the online trading system.

As can be seen from table 6 below, ECX is a market that is creating a better market platform to the suppliers. As one of the ECX experts noted, trades executed at the Exchange trading floor can be self- trade or client trade. Self-trade is a trade from/for members account. Whereas client trade is a trade from/for a client's account. From sell side more than 94% of trades at the Exchange are client trades, which mean trades of

clients, which represent unions, private limited companies, collectors, and individual farmers. From buy side the reverse is true, close to 90% of trades are self-trades as major exporters of these commodities in the country are members.

Table 6: *Data showing the self and client trade volume in tones and share of Clients*

EFY[2]	Client Trade	Self-Trade	Grand Total	% age of Client Trade
2002	174,068	48,705	222,773	78.14%
2003	416,287	78,066	494,353	84.21%
2004	541,789	48,616	590,404	91.77%
2005	503,064	32,309	535,373	93.97%
2006	551,913	34,268	586,181	94.15%
	2,187,120	**241,963**	**2,429,084**	**90.04%**

Source: ECX internal database (2014)

From the business type perspective, as listed on table 7 below, 76.34% of the respondents are suppliers of the listed commodities. While from the total respondents 46 (16.5%) are exporters of coffee, sesame and pea beans. The rest 20 (7.17%) respondents are wholesalers who purchase coffee at the Exchange trading floor for local markets. The size of suppliers was managed to be high as it reflects what is going on at the Exchange trading floor. The suppliers are the ones who represent the millions of farmers who are producing the products under consideration. Taking the concerns of these respondents has huge impact on the outcome and significance of the study as they are the current owners of the commodities traded at the Exchange trading floor and future market actors of the online trading system to be deployed by the Exchange.

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[2] EFY implies Ethiopian Fiscal Year

Table 7: *General profile on respondent's business type*

Business Type	Frequency	Percent
Exporter	46	16.49%
Supplier	213	76.34%
Wholesaler	20	7.17%
Total	**279**	**100%**

Source: Own Survey (2014)

4.3. Floor Based Market Functional Dimension

The study measured opinion of members and clients towards the efficiency of the floor based trading by taking five major aspects of the Exchange's floor based market. These are regulation and enforcement, facilitating trade, market price discovery, and accuracy and reliability of market information. A total of 21 item questions: 7 for regulation and enforcement, 6 for facilitating trade, 4 market price discovery, and 4 accuracy and reliability of market information dimensions were used for the study.

4.3.1. Regulation and Enforcement

One of the functional dimensions used to measure the ECX floor based trading is regulation and enforcement. This dimension measures the knowledge of members and clients towards ECX trading rules, the effectiveness of the surveillance system employed by the exchange, and the effectiveness of compliance system to monitor trading rule violation. Accordingly, there are encouraging signs for ECX that the regulation and enforcement functions are good with a mean score of 2.79. The regulation and enforcement dimension is fundamental as it is one of the determinants of the floor based market. As can be seen in Table 8 below, respondent's knowledge on the contracts traded at the Exchange trading floor, knowledge on trading rules and regulations, knowledge on the order types availed at the Exchange trading floor and execution rules is relatively good. These are the very basic regulations that should be understood and followed at the Exchange trading

floor. The study revealed that respondents are well aware of the contracts that are traded at the Exchange trading floor, with 84.6% of respondents having good and above. 71.3% of respondents responded that they have good and above knowledge on order types and execution rules and on trading rules and regulations that the Exchange applies in running the floor based trading. The result gives a good sign that members who have direct market access to the trading floor and clients who are expected to have this privilege when the online trading platform is availed having a good knowledge of the stated determinants can easily integrate themselves in the online trading platform.

One of the interviewees', who is closely working in the trading operations, explained the major contribution of the ECX Floor based market is its restructuring and organizing of the traditional marketing system and bringing the trading system into modern institutional arrangement that facilitates trading in an orderly and regulated manner. The ECX trading model established the foundation rule for trading contracts in the country. Traders learned to trade based on rules and standards using an open outcry trading system. Before ECX came to the scene, traders have to have commodities physically to transact.

Table 8: *Regulation and enforcement variables*

Regulation and Enforcement	N	Mean	% of Good and Above
Indicate your knowledge regarding the products traded at ECX.	279	2.50	84.6%
Indicate your knowledge regarding the ECX rules and regulations.	279	2.93	71.3%
Indicate your knowledge regarding the type of orders and order execution rules set by ECX.	279	2.87	71.3%

Source: Own Computation (2014)

The other issues under the regulation and enforcement dimension were related to rule violation, market manipulation and the systems employed by the Exchange to deter and prevent rule violators from manipulating the floor based trading system. From the study performed, as it is described on table 10, only 27.2% of respondents believe that floor traders deliberately submit trade tickets different of what they have agreed on the trading floor. Moreover, only 24.4% of respondents believe that floor traders submit tickets for transactions not shouted out on the trading floor. This shows that members and clients believe there is less market manipulation related to submission of agreed tickets different from what has been agreed. As majority of the respondents are clients, who doesn't have direct market access to the Exchange trading floor, they may not be aware of such situations. But from the interview made with ECX experts, and data obtained from the Exchange, market manipulation related to submission of tickets different from what has been agreed is a critical problem at the Exchange trading floor. As can be seen in table 9 below, the number of rejected trades due to market related issues[3] may seem to be insignificant compared to the accepted trades but is critical when compared to what the Exchange stands for. The Exchange promotes itself as a market with zero defaults.

Moreover, the same reason can be given for respondents 24.4% result on item traders submit tickets for transactions not shouted out on the trading floor. As noted from the interview conducted, experts explained that there is a physical surveillance mechanism to control such manipulations supported by surveillance cameras, but this is a challenge to the Exchange as there is an attendance of more than 600 people on daily bases and the camera is an obsolete one. This brings challenges to market operators and market surveillance which has to put extra effort to monitor the market.

Failing to monitor and avoid the trade related manipulations could have very dire consequences to the Exchange. This challenge in the market has greater implications for the traders and the Exchange at large as it could result in failing its mission which states connecting sellers and buyers in an efficient, reliable and transparent market.

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[3] Market related issues encompasses market manipulation, buying without sufficient balance, submitting tickets different than what has been agreed and submitting tickets without any agreement.

Table 9: *Number of rejected trades due to rule violations*

SN	Year	Number of Trades Rejected
1	2005	934
2	2006	808

Source: ECX internal database (2014)

Among the respondents 57.8%, believe that the surveillance system employed by ECX helps to monitor market manipulation by traders, and 61% of the respondents agreed that the compliance system employed by the exchange helps to monitor rule's violation. This shows that from 39%-42.2% of respondents believe the surveillance and compliance systems deployed are not enough to control the market and deter market manipulators from engaging in such behaviors, and punish the rule violators accordingly. From the interview conducted it is also noted that there is a limitation from the Exchange side in controlling the trading floor.

The limitations stated by experts are lack of staff with good skills in market surveillance in the job market, inability to use state of the art surveillance cameras and surveillance applications. Moreover, the experts at the ECX and ECXA believe that even though there are highly standardized rules and regulations. The actions taken on rule violators by the Business Conduct Committee (BCC) are not good enough to make the needed behavioral change.

Table 10: *Regulation and enforcement variables*

Variables	N	Mean	% of 'Agreed' and Above
Traders deliberately submit trade tickets different than that of what is agreed on the trading floor	279	3.06	27.2%
Traders submit tickets for transactions not shouted out on the trading floor	279	3.11	24.4%
Surveillance system employed by ECX helps to monitor market manipulation by traders	277	2.47	57.8%
Compliance System employed by the Exchange helps to monitor rules violation	277	2.42	61.0%

Source: Own Computation (2014)

4.3.2. Facilitating Trade

ECX facilitates trade at its trading floor, through open outcry trading system by designing trading sessions, allocating trading time and ticket writing time based on commodities and origins of these commodities. ECX administers a single trading floor that limits the capacity of the Exchange in trading different commodities at a time. As a result ECX has to limit the trading time of each session. The outcome of the study presented in Table 12 indicates that respondents agreed towards the trading hours and schedules set by the Exchange to a higher extent by scoring 2.28 mean score. The lowest result is recorded in the time assigned for each session and ticket writing time allocated by the exchange with mean score of 3.01 and 3.11 respectively. This shows that the traders do not agree with the allocated time per session as it limits the trading time they need to hear what has been shouted at the trading floor, analyze it and decide on the components of the contract like grade, quantity and price. It also shows that the limited ticket writing time is barring traders from fulfilling their contracts that were executed during the trading time, which could lead to market manipulation and prearranged trades.

There is only one trading floor which accommodates more than 25 trading sessions on daily bases. The trading sessions allowed time depends on the number of traders on any session, according to an expert at ECX. The minimum time allowed for trading is 5 minutes and the maximum time allowed for trading is 15 minutes depending on the number of traders and liquidity of the session. As the expert noted, limiting the trading time and ticket writing time is in the interest of the Exchange in order to accommodate all trading sessions. But this issue has been a contentious issue for the last four years as one expert noted. As more commodities are allowed to be traded at the Exchange trading floor it would be impossible to accommodate all in a single trading floor. The Exchange had started to build additional trading pit but construction was aborted, as the management thought it would not be a lasting solution and planned to introduce online trading system.

In facilitating trade, the expert stressed that ECX provides market actors a secured platform for trading big volumes of commodities from one place. In doing so, the Exchange not only contributes to commodity trade but also provides other services which other exchanges normally do not render. Apart from trading spot contracts, the ECX provides such functions as; warehousing commodities, quality grading, payment service and delivery of commodity.

Table 11: *Facilitating floor trade variables*

Variables	N	Mean
The size of the Exchange trading floor is enough.	279	2.90
The ticket writing time set by the Exchange is enough.	279	3.11
The trading time set by the Exchange for each trading session is enough.	279	3.01
The trading hours and schedules and set by the Exchange are good for trading.	279	2.28
The overall condition of the trading floor is convenient for trading	279	2.65

Source: *Own Computation (2014)*

4.3.3. Accuracy and Reliability of Market Information

The accuracy and reliability of market information displayed at the Exchange trading floor price tickers is fundamental to the efficient and effective running of the trading floor. ECX displays at its trading floor, contracts traded and their last prices; international reference prices like New York Board of Trade (NYBOT) Arabica 'C' prices; Chicago Mercantile Exchange (CME) prices for wheat and maize; and Nigeria, India and Sudan reference prices for sesame. On top of all these, the price tickers show the existing session's contracts with last closing prices, price ranges, executed prices, change from last closing prices and volume of traded contracts.

From the study on market information's accuracy and reliability responding replied overwhelmingly in a positive manner with the highest mean score of 2.15 on the questionnaire item '*the information displayed at the Exchange trading floor is reliable*' and the least mean score on item '*I know the status of my transaction instantly*' with a mean score of 2.23. The respondent's reaction in this regard shows that ECX is in a good path in recording and disseminating market information that is crucial for the floor based trading.

The interview conducted with the market data manager reinforces the results obtained in this regard, explaining that the reliability of the market information displayed on the trading floor is very critical to the smooth running of the trading floor in particular and the Exchange in general. The information that ECX at its trading floor while trade is going on and throughout the country in major cities enabled market actors to have balanced power of negotiation. The negotiating power of market actors facilitates price discovery. The dissemination of market data is closely linked to primary markets as it disseminates price information across major primary markets using price display board and other media of communication. One of the interviewees explained that, this contributes to the improved functioning of primary markets by providing information that allows market actors to make better and informed decision, and this ultimately results in fair distribution of income in the value chain.

Table 12: *Accuracy and reliability of market information variables*

Variables	N	Mean
I know the status of my orders or transactions instantly.	279	2.23
The market information displayed at the Exchange trading floor is timely.	278	2.19
The market information displayed at the Exchange trading floor is reliable.	279	2.15
The recording of executed trades at the Exchange trading floor is accurate.	278	2.20

Source: Own Computation (2014)

4.3.4. Price Discovery

ECX aims to provide price discovery function in its floor based trading. Price discovery as a function of competitive bid and offers for price discovery, having sufficient buyers and sellers, market information dissemination contribution for price discovery and having a transparent price discovery mechanism are analyzed in the study. The findings of the study revealed that respondents believe that *the market information disseminated facilitates price discovery* with a maximum mean score of 2.34 and a minimum mean score is scored with the item *the exchange has a transparent price discovery mechanism* which scored a mean of 3.15.The result showed that the price discovery mechanism that is employed by ECX at its trading floor is not an efficient one. As it was also noted from the interview, the behavior of traders in trading by pre-arranging trades that is fixing prices ahead of trading time, and lack of preventive mechanism by ECX, and collaboration of traders in covering such issues has affected the price discovery process that is deployed by ECX at its trading floor.

Under the price discovery function, respondents believe that there are sufficient buyers and sellers in the trading floor to facilitate true price discovery, and there is competitive bid and

offer for price discovery at the exchange trading floor with a mean score of 2.85 and 2.98 respectively.

The respondents mean score of 3.15 on price discovery is supported by the interview conducted. True price discovery, as described by an expert is highly dependent on the behavior of each and every trader who has access to the trading floor. Lack of true price discovery is one of the limitations of floor based trading system at ECX as price is manipulated by market actors. Traders, both sellers and buyers, are tempted to manipulate price through negotiating and fixing price outside of the market before they get into the trading pit- which makes price discovery difficult and thus is challenging the integrity of the market.

Table 13: *Price discovery variables*

Variables	N	Mean
The Exchange has a transparent price discovery mechanism.	279	3.15
There are sufficient buyers and sellers at ECX floor based market	276	2.85
There is competitive bid and offer for price discovery.	279	2.98
ECX market information dissemination facilitates price discovery.	279	2.34

Source: Own Computation (2014)

4.3.5. Overall Satisfaction with the Floor Based Trading

With regard to the overall level of satisfaction with the floor based trading, significant portion of respondents disagree with a mean score of 3.07. This could be the result of what the study has revealed with regard to regulation and enforcement and price discovery. Respondents in the two major dimensions were not happy with the rules enforcement, market manipulation practices, and decisions that are taken by the BCC on rule violators being not enough. In addition to this, the satisfaction with price discovery was also low. As one expert noted one limitation that ECX floor based trading model has is lack of price hedging tools as ECX only trades spot contracts. Moreover, the dissatisfaction could be the result of the absence of speculators, risk takers and hedgers on the ECX market which prohibits members and clients from managing their price risk. In addition to this, a trader from NEAA noted the floor trading model which requires 100% presence of only members and their representatives to trade contracts by themselves could be a source of dissatisfaction. The trader noted that the floor based trading is resulting in increasing transaction costs, inefficient market price discovery, and speculative behavior of traders which affects the liquidity and integrity of the market.

Figure 3: *The percentage on level of satisfaction with floor based trading*
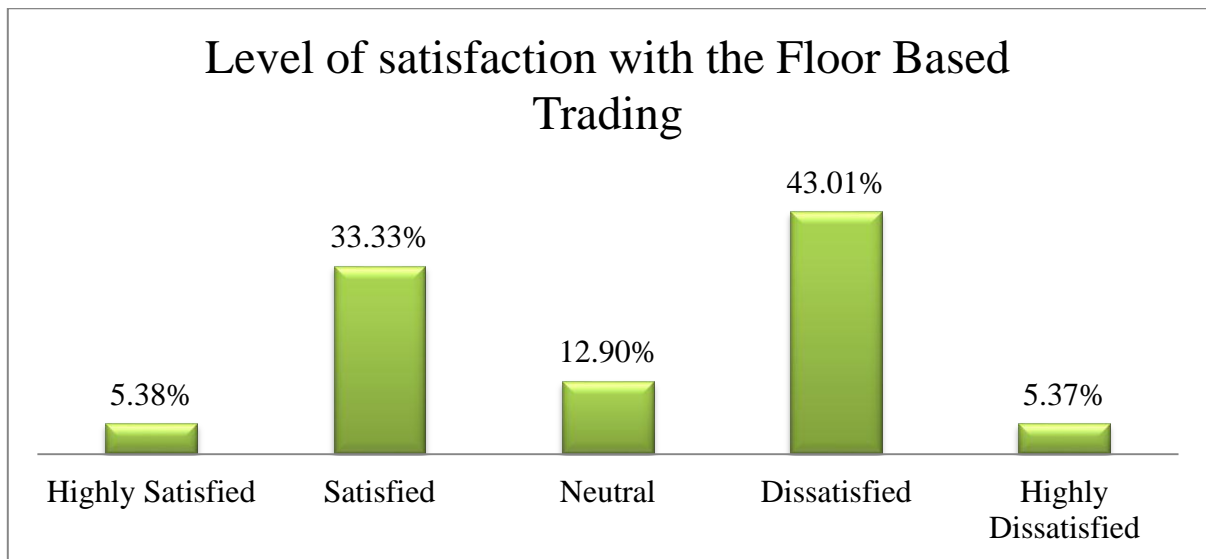
Source: Own Computation (2014)

4.3.6. Correlation Analysis on Floor Based Trading System Dimensions

In order to test the relationships between various dimensions used in the study, correlation analysis was carried out. In this regard, Croft (1983) stated that undertaking of a correlation analysis is an essential step in the development and testing of a model.

Cohen (1988) suggests the following guidelines in interpreting correlation results:

r=.10 to .29 or r=−.10 to −.29 small

r=.30 to .49 or r=−.30 to −.49 medium

r=.50 to 1.0 or r=−.50 to −1.0 large

Table 14: *Correlation coefficient of floor based trading dimensions*

Dimension	Overall Satisfaction with the floor based trading system	Facilitating Physical Trade	Price Discovery	Regulation and Enforcement
Facilitating Physical Trade	0.22			
Price Discovery	0.21	0.33		
Regulation and Enforcement	0.18	0.24	0.27	
Reliability and Accuracy of Market Information	0.26	0.46	0.60	0.33

**Correlation is significant at the 0.01 level (2-tailed).

Source: Own Computation (2014)

While all the floor based trading related dimensions (facilitating trade, price discovery, regulation and enforcement and reliability and accuracy of market information) are found to be significantly (p<0.01) associated with each other, significant positive associations are also obtained between the dimensions of overall satisfaction with the floor based trading system and facilitating trade(r=0.22), price discovery (r=0.21), regulation and enforcement (r=0.18) and reliability and accuracy of market information (0.26).

As can be seen from Table 15, with respect to the stated dimensions, the strongest relationship is found between the dimensions of reliability and accuracy of market information and price discovery (0.60) and medium relationship with facilitating trade (0.46). Moreover, relatively weak, though significant, relationship is observed between the dimensions of regulation and enforcement and facilitating trade (0.24).

4.4. Online Trading Related Dimensions

4.4.1. General skills

Before introducing the online trading knowing the status of ECX members' and clients' general skills would be wise. Knowing the general skills would help the Exchange to know what the status is in this regard, what are the gaps that need to be addressed and decide on the level of its training programs so that it can be a tailored one that meets the needs from the market actors' side.

The study revealed that the general skill of respondents is way below average with a mean score of 3.61. This result is the outcome of different skill related inputs. 45.2% of respondents never used a computer, which is the fundamental means of trading in online trading platforms. Respondent's computer usage, electronic communications, internet browsing skills and English language proficiency were considered under the general skills and all recorded below average mean scores of 3.66, 3.56, 3.48 and 3.94 respectively. As can be seen from the score calculated, there is a capacity gap in this regard which is a very critical and one that should be addressed first hand before going to online trading. As failure to train the traders could have serious repercussions.

With the entire skills gap shown above traders need to become certified online traders is very high with a mean score of 1.18 with 82.1% saying yes to the question '*do you want to be a certified electronic trader?*' This means that there is a strong need to get relieved from the floor based trading and join the online trading by becoming certified electronic traders.

This issue was addressed by of the interviewees as a challenge to the exchange, as the Exchange cannot avoid the traders who are currently trading, and it remains a challenge until some solution is proposed.

4.4.2. Online Trading Skills and Competency

Online trading skills and competency cluster was one dimension that was used to measure respndents capacity and define capacity building needs. Under this cluster fundamental and technical market analysis skills and proficiency in using online trading applications were considered. The mean score for the overall cluster is 3.44 which is below average. Respondents reply with regard to their skills in using online trading as a trading application scored 4.18 mean score. In this regard 55.9% of respondents proved to have poor skills.

Trading using an online trading platform requires sitting infront of a computer analyzing fundamental and technical data. As can be seen in table 5, the educational background of respondents show that morethan 73% of them are high school complete and below. The result mean score in the fundamental and technical skills is 3.72 and 3.73 respectively could be the reflection of the educational background of respondents.

Table 15: *Online trading skill and competency cluster mean score*

Variables	N	Mean
Indicate your knowledge and skill in using Price charts	279	3.03
Indicate your knowledge and skill in using Price patterns	279	3.11
Indicate your knowledge and skill in using Price trend lines	279	3.13
Indicate your knowledge and skill in using Price/Volume relationships	279	3.14
Indicate your skills in fundamental market analysis.	279	3.72
Indicate your skills in technical market analysis	279	3.73
Indicate your skills in using online trading applications	278	4.18
Online Trading Skills and Competency	**278**	**3.44**

Source: Own Computation (2014)

53

The overall result showed the capacity gap in the respondents potential in trading using online trading applications.This result is supported by all experts at the Exchange and the regulatory body. All interviewees agreed stressing on the need for mandatory training on fundamental and technical skills. As the online trading platform gives access to clients, narrowing the capacity gap has enormous benefits. Failing to do so would expose traders to risks if not mitigated could result in financial risks or opportunity cost. As one expert from ECX noted, the risks could include wrong data entry, trading without understanding market prices, lack of understanding the market, and unintended trade order outcome.

4.4.3. Perceived Ease Use

The study also tried to see on the perspectives of traders towards online trading. The perspectives of traders affect their usage behavior and help the Exchange in knowing the expectations of traders and prepare itself for the future.

The study revealed that respondents perceive if deployed the online trading platform would be easy to use with a mean scale of 2.54. Under this perspective, the perception that the online trading system would not be difficult to use scored a mean score of 2.49. Among respondents 27.2% are unsure on the usefulness with 19.4% totally disagreeing. This factor is critical and taking the neutral and disagreeing respondents which are 46.6% in to consideration, it could have a significant impact in using the online trading system. One expert who was asked for comments in this regard replied that this could be a result of the traders experience in the floor based trading. The other items under this perspective, the perception that the system will be easy to get the system to do what you want to do, and the perception that learning to operate or master the online trading will have no difficulty scored relatively similar mean score of 2.59 and 2.53.

Table 16: *Perceived ease of use variables*

Variables	N	Mean
The online trading system will not be cumbersome to use.	278	2.49
It will be easy to get the system to do what you want to do.	279	2.59
Learning to operate or master the system will have no difficulty to me.	279	2.53
Perceived ease of use	**278**	**2.54**

Source: Own Computation (2014)

4.4.4. Perceived Usefulness

Perceived usefulness was also part of the study. This perspective measures the perception that online trading system could improve their performance in trading, scored a mean score of 2.23 with 71.7% respondents replying with agree and strongly agree. This shows that especially those respondents who do not have direct market access to the Exchange trading floor, could be beneficiaries and improve their performance. As one expert said during the interview, online trading systems can improve the liquidity potential of ECX through lower trading costs for clients. The online trading system will help ECX to attract new sources of liquidity by providing affordable remote access to traders.

The perception that online trading will improve my profitability also scored a good mean score of 2.32 with 65.2% of respondents agreeing on the profitability that could be attained by using the online trading system. This result is supported by the interview, as one expert stated one of the benefits of using online trading is lowering transaction cost which is also substantiated by the literature. Online trading systems would be less costly to operate and may, therefore, offer lower bid–ask spreads. The online trading system will help to lower operating costs which include the direct transactions costs or commissions and the indirect costs like lost revenues due to illiquidity or a lack of market depth. And this trading system

is also good to the Exchange as it requires less labor and time. The expert compared the open outcry system to the online trading system, and said that the open-outcry systems entail greater fixed costs due to the need to employ a greater number of personnel which could have a direct impact on the profitability of the Exchange and indirectly on traders.

The overall mean score for perceived usefulness is 2.53 which are affected by respondents' uncertainty on the safety of trading using the online trading application which resulted in a mean score of 2.59. Only 50.2% of respondents believe that trading using the online trading is safe. 31.9% of respondents which is a significant number replied as neutral which reflects their uncertainty. This uncertainty can be supported by the uncertainty in the availability of infrastructure, and technology bugs that can hinder the smooth running of the online trading system as noted from the interview.

Table 17: *Perceived usefulness variables*

Variables	N	Mean
Using the online trading system will improve my performance in trading.	279	2.23
Using the online trading system will increase the profitability of my company.	279	2.32
Using the online trading system will enhance my effectiveness in trade.	279	2.23
Doing trade (business) online is safe.	279	2.59
Perceived Usefulness	**279**	**2.53**

Source: Own Computation (2014)

4.4.5. Compatibility

Compatibility is the degree to which an innovation is perceived as being consistent with the existing values, needs and past experience (Rogers, 2003). In this regard, two items were part of the questionnaire. The overall mean score for compatibility is 2.44 which is a good result. The perception that the experience respondents have in trading using floor based trading will help to use the online trading system is good with a mean score of 2.36. More than 67.4% of respondents replied with agree and strongly agree. This result means that the experience in trading contracts, knowledge of rules and regulations, knowledge of using market information for decision making will clearly help them when they trade in the online trading platform.

As one of the experts at ECX revealed saying "we are only changing the trading platform, and giving better access to the clients. There is no new rules and regulations that is capable of creating any confusion in the market" This supports the respondents belief, however 18.6% of respondents are neutral on this, as they are not well aware of what is to come with online trading.

The other perception under the compatibility perspective is the perception that placing orders with the online trading system will be better than the current system. The perception scored 2.51 mean score, with 41.9% respondents replied 'agree' and 14.7% of them with strongly agree. Another significant portion of respondents, 26.9% remain neutral on this.

Placing orders in the current trading system is done through registering their orders with the member trading at the exchange trading floor. As noted by an expert the decision to sell or buy, what to trade, when to trade and with whom to trade, all these decision are made by the members and their floor representatives only. However, this could be changed with the introduction of online trading which empowers market actors especially clients to put their instructions and orders directly in to the system.

4.4.6. Relative Advantage

Relative advantage according to Rogers (2003) in the degree to which an innovation is perceived as better than the idea it supersedes. This perspective was also part of the study by measuring the respondents' perceptions. Three perception items were prepared and the perception that online trading is good for clients to put their orders compared to the current practice was also one of the questionnaire items availed. The mean score for this perception item is 2.33 with 66.3% of respondents agreeing to it. 20.4% of respondents remain neutral, only 13.2% disagreed. This perception is also shared by the Exchange. Changing the order placing in the online trading system could lead to a better price discovery and market efficiency.

As the market data expert noted, online trading system would enable actual owners of commodities to decide on the offer price. This helps the Exchange to improve the price discovery process as orders can be entered faster into the system by actual owners of the commodities and the execution of an order is immediate. Further, it is easier to disseminate market information, thereby increasing the transparency of the market and the information available to the traders.

The perception that the online trading system would create better market access to market actors scored better with a mean score of 2.29. 71.3% of respondents said 'agree' and 'strongly agree'. As mentioned above the lack of direct market access is a big concern the current model of trading and the respondents need is clearly manifested in this result. The actual owners of the commodity or cash would be the ones who make the decision on the price and timing of their trades. As can be seen here and the previous results of other dimensions, there is significant portion of respondents replying as neutral. This means that the Exchange should work on creating awareness. The outcome with significant portion of respondents agreeing to this perception is clearly substantiated by interview conducted and literatures that stated the online trading platform would empower the actual owners of the commodities not brokers.

4.4.7. Usage Behavior

The study conducted on the perspective usage behavior reveals that the mean value for the category on average is 2.30. This shows that the overall average response for usage behavior is very good. Among the variables under usage behavior, the perception that the online trading system would allow the trader to react to changes more quickly and the perception that the respondent will be part of the online trading system in the future, have got relatively high mean scores with 2.40 and 2.20 respectively. These scores were supported by the interviewee's responses in strong terms. Experts at ECX noted that the online trading will make remote access to the trading platform possible, and increase number of traders and liquidity. Moreover, the online trading system will boost the capability of ECX in providing accurate, current, relevant, and sufficient market information to all market actors. This will help traders to base their decisions on numerous criteria, such as the traded volume, price of traded contract, and the last price at which a product was traded.

Figure 4: *Percentage of respondents for the perception that they would be part of the online trading in the future*
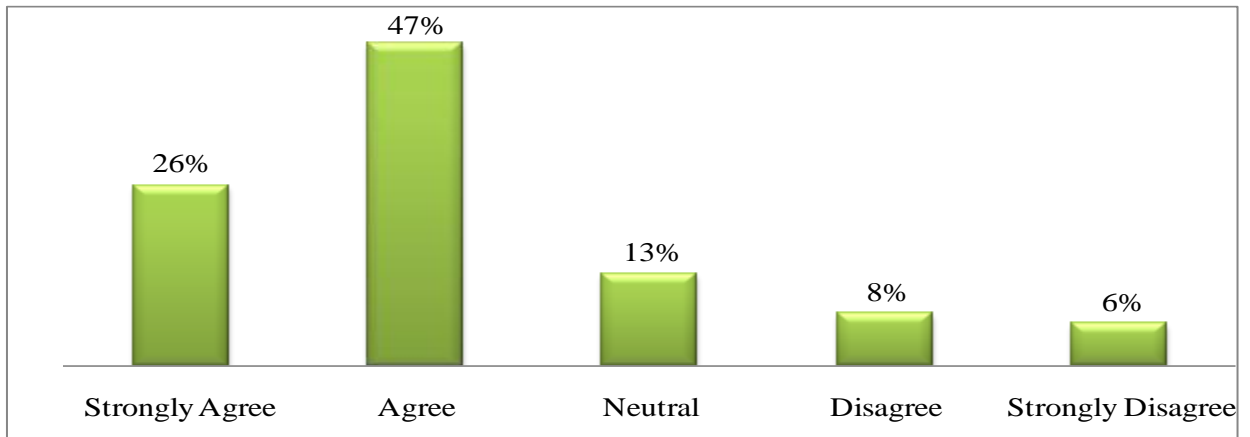
Source: *Own Computation (2014)*

4.4.8. Infrastructure

Commodity exchanges must understand technology and the trading architecture to ensure that they build an online trading infrastructure that is fast, reliable, and stable. Infrastructure is one of the basics for introducing online trading system. Respondents were asked if they believe that there is a good infrastructure to enable trading using the online trading system. The result revealed that only 34.4% of respondents believe there is good infrastructure for trading using online trading system which resulted in a mean score of 3.17 that is below average. This concern was shared by experts at both the Exchange and the regulatory body ECXA. Interviewees started with infrastructural problems across the proposed areas of electronic trading centers. Starting with telecom and power infrastructure the experts noted that it is a fact that the country has come a long way to achieving respectable success in expanding and stabilizing power and telecom services throughout the country. From the days of scheduled and unscheduled power outages, the country is now getting reasonably consistent power in the capital city and most major cities and rural areas. As the transmission lines get upgraded and extended, the reliability of power across the country will undoubtedly improve. Ethio-Telecom does not provide or enter into a Service Level Agreement with enterprises, let alone individuals. Other Exchanges like Bucharest Stock Exchange (BVB) require at least 2 telecom service providers (BVB, 2014). While one can use a generator in case of power outages, one has no alternate means to connect if access to internet or phone service is discontinued. If members and their clients are told to trade from their offices and homes even trading centers using their own computers then the reliability of power and telecom is an issue to be addressed. In particular and unlike many businesses, time matters for an ECX trader since market changes unexpectedly and without notice. As such, the traders' failure to react to the market condition could result in major losses or opportunity cost.

4.4.9. Correlation Analysis on Floor Based Trading System Dimensions

A correlation analysis was also conducted to determine the relationship between the perception of traders towards online trading and usage behavior. Table 19 shows the results of the analysis done.

Table 18: *Pearson Correlation Coefficient among online trading perceptions*

Correlations

Perceptions	Usage Behavior	Perceived Ease of Use	Perceived Usefulness	Relative Advantage
Perceived Ease of Use	0.57			
Perceived Usefulness	0.72	0.79		
Relative Advantage	0.73	0.59	0.67	
Compatibility	0.73	0.66	0.77	0.68

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Own Computation (2014)

A close examination of the correlation coefficient indicates that usage behavior has significant relationship (p<0.01) with perceived ease of use (0.57), perceived usefulness (0.72), relative advantage (0.73) and compatibility (0.73). As can be seen from table 19 above, there is a significant and strong relationship among the perceptions, with the highest score of (r=0.77) between compatibility and perceived usefulness.

4.5. Potential Benefits and Challenges of Online Trading to the Exchange

Interviewees were asked what would be the prospects of introducing online trading to the overall market. All interviewees suggested that, introducing an online market in Ethiopia is inevitable. They noted that the industry trends indicate that online trading will be the de facto means of trading at all exchanges in the future. Staying with the industry trends does have benefits particularly as Ethiopia aspires to be a world class and well recognized exchange in the world where ECX can be used as reference market for some of the commodities traded such as sesame. The online trading platform also facilitates for regional and global integration with other electronic exchanges in the future.

According to the experts at the Exchange, the major benefits sought can be classified in to two: Short term and long term prospects. Most of these benefits and challenges are

analyzed with regard to the market actors, the specific short term and long term benefits that ECX can capitalize from introducing online trading are discussed below.

Transparency: The electronic trading system would increase the amount of publicly available information by transparently displaying and efficiently archiving quoted prices, market depths, instructions, orders, and transactions. Market information would be disseminated to market actors in real time. With electronic trading, the system will simply queue the orders and match them using a matching algorithm where the prices discovered would be published on the computer screens used for trading.

New Commodities: The electronic trading model would help ECX to launch new products in the future. It would be much easier for ECX to introduce new contracts than it is in the floor-trading system. The Exchange no longer has to worry about the physical space and the added time schedule needed for the new product. Technology will allow ECX to experiment with innovative products and see what works without adding significant cost.

Greater Oversight of Trading Activity: ECX compliance officers, market surveillance managers and market operators task of monitoring and risk controls will be further enhanced as they can obtain accurate and timely information on real time basis. In the electronic trading model, there is an audit trail of virtually every mouse or keyboard click a trader makes.

Market Integrity: As a self-regulator, ECX can track all electronic trading activities to analyze trading patterns and discover any violations of rules. Market surveillance for floor-trading is hard to monitor and capture trading violations, especially in real time. To capture a larger trade violation, one has to actively monitor trading activity for days, weeks, and sometimes months to uncover violations. In electronic trading, every trade, along with the details, is captured and stored.

The long term benefits of introducing online trading as identified by ECX experts would include:

Expansion Potential: Electronic trading will provide ECX ample opportunities to scale up its operations by way of enhancing its capacity to introduce new instruments, to launch new contracts, and to adapt to new models.

Regional Integration: As the Exchange transforms from the floor-trading model to the electronic trading model, it will begin its journey toward regional integration. The increase in volume provides the Exchange with increased revenue, which in turn will allow it to further strengthen its product offerings by forming partnerships with more exchanges.

Moreover, ECX operations will be much more efficient in terms of cost and service delivery. The amount of paper (in thousands during peak season) that get produced including Member Client Position (MCP) report, Floor Representative reports, Delivery Notice (DN), and Net Obligation Report (NOR) on a daily basis will be eliminated including all associated labor costs to distribute and handle these documents, and the space requirements.

In addition to the already discussed challenges one of the challenges identified by interviewees was the legal frame work. They stated that the current rules of the Exchange in general and article 5 (Trading on the Exchange) in particular were designed for floor based trading only. Revising the rules of the Exchange falls under the compliance unit with approvals from the regulatory body. Reviewing each article of the rules of the Exchange across all operational and legal perspectives would be a big challenge. One of the major changes in the rules would be allowing clients to have direct access to the electronic trading platform.

The other challenge noted by the experts of the Exchange was related to the IT infrastructure within the Exchange. The reliance on technology will significantly increase. This requires strengthening and building multi-layered redundancy and robust processes to ensure business continuity at all critical levels of the operation. With lack of qualified professionals in the market and technology glitches, and infrastructural problems, past

record of 100% up time of ECX trading platform may not be achievable with the online trading system.

Interviewees also noted other operational challenges that would be encountered if the Exchange is going to have an electronic trading platform. From the interview the following challenges were also noted by the experts; the challenge with which commodities to start; coffee, sesame, pea beans or all. How to manage the sessions, is it going to be side by side with the floor based contracts , or one after the other that is online then floor or floor then online, and the third alternative which is selecting specific contracts to be traded exclusively through online platform. The calculation of last closing prices of contracts traded is expected to be another challenge as it is going to be based on prices obtained from the trading floor and online trading platforms.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1. Summary of Major Findings

The main objective of the study focused on analyzing the trading system employed by ECX and assesses the economic significance and limitation of the system, and explores the prospects and challenges of online trading system. With this broad objective, the study also tried to answer the feasibility of implementing online trading in ECX.

From the findings of the study it is witnessed that 72.4% of respondents have academic qualification of high school and below, with 25.8% of them having an elementary school qualification. The study also revealed that 72.8% of respondents have the experience of working with the Exchange for more than 3 years. Findings discovered that 45.2% of respondents never used a computer, which is fundamental means of trading in online trading platforms. On the contrary, from the findings it can also be noted that the clients and members are in desperate need to become certified electronic traders with the best mean score 1.18 which contradicts to the skills gap they have.

Analysis on the dimensions related to floor based trading system indicated that the main function of the Exchange, facilitating trading scored a mean score of 2.79 with less scores on the variables 'trading session time' and 'ticket writing time' set by the Exchange. Knowledge of respondents on ECX traded contracts, rules and regulations of the Exchange, order types and execution rules set by the Exchange was also found good with more than 71% of respondents scoring good and above knowledge status. On the other hand it was also found that respondents' knowledge on trade related market manipulations is low; with 27.2% of respondents believe that traders deliberately manipulate the market. But the Exchange experts admitted to having manipulations and limitations in controlling the trading floor from market rule violators.

Price discovery as a function of competitive bid and offers for price discovery, having sufficient buyers and sellers, and other variables scored a mean score of 2.83 which is above average. The dimension accuracy and reliability of market information has a mean score of 2.19. In fact, it scored the highest result among floor related dimensions, which is a reflection of the Exchange's performance towards capturing, recording and disseminating market data. On the other hand, the overall satisfaction of respondents with the floor based trading system resulted in 48.38% of respondents dissatisfied, 38.71% satisfied and the rest 12.9% remain neutral. The correlation analysis also revealed that there is significant relationship among floor based trading system related dimensions with r=0.60 among reliability and accuracy of market information and price discovery dimensions.

With regard to the online trading related dimensions, respondents general skills in using computers and computer applications was analyzed and the result showed a mean score of 3.61. With online trading related skills and competency like the basic fundamental and technical skills, respondents result showed a mean score of 3.44 which is below average. Their experience in using fundamental market analysis tools like interest rates, inflation rates, volume of production and others was found to be very low. This is believed to be the result of respondents' lower educational background and status.

With regard to respondents perceptions about online trading system, ease of use, usefulness, compatibility, and relative advantage it showed a mean score of 2.54, 2.53, 2.44 and 2.33 respectively. This shows that respondents have a positive attitude towards online trading system. The correlation analysis also revealed that there is significant relationship among online trading system related perceptions with r=0.77 among between compatibility and perceived usefulness.

As per qualitative information obtained from interview, the existing floor based trading system has its own significances and limitations. The major contribution is structuring and organizing the traditional marketing system to modern institutional arrangement, with balanced power of negotiations whereas its major limitation is lack of direct market access to the actual owners of the commodity or cash, limited trading platform that can

accommodate only members. With regard to the prospects and challenges of introducing online trading it is found out that the Exchange expects transparency, greater market oversight, market integrity and more commodities by deploying online trading system. Moreover, the challenges awaiting the Exchange are also predicted mainly infrastructural problems, and capacity of traders in using the online trading system.

5.2. Conclusion

From the general profile of respondents, it can be concluded that ECX as an Exchange that is expected to follow suit of its international predecessors, has serious capacity related problems with its traders. This result can be taken as one of the reasons that the Exchange trading floor based trading is inefficient. Moreover, it can also be concluded that there is absence of qualified traders for the online trading system that is expected to be the de facto means of trading in the future.

Under the regulation and enforcement, the overall result showed relatively good mean score. Here it can be inferred that members and clients have very good knowledge of contracts traded, rules, regulations, order types and order execution rules. In addition to these, the regulation and enforcement dimension measured different aspects of the floor based market integrity, surveillance and compliance mechanisms deployed by the Exchange. From the analysis it can be concluded that there is market manipulation by traders who have good knowledge of all the trading rules and regulations of the Exchange. This behavior is aggravated by the absence of professional market surveillance staff and lack of state of the art high definition cameras.

The second dimension is the facilitating trade dimension which was studied from different perspectives. From the results obtained it can be concluded that the Exchange has well thought trading hours and schedules that are designed to facilitate trade in relation to the international markets. However, it is also concluded that the Exchange's trading floor is not good enough for some sessions with big number of traders. It is also concluded that the trading time assigned to each session and ticket writing time given after each session is not enough.

The third dimension under study was the market information accuracy and reliability. This dimension is the one dimension with the highest mean scores. From the analysis performed, it can be implied that ECX is displaying reliable market information that is accurately recorded by its staff on time during each session. It can also be concluded that the traders reliance on the market information recorded, displayed, and disseminated is high.

The fourth dimension is the price discovery dimension. In this regard, most respondents do not agree with the notion that the Exchange has a transparent price discovery mechanism. Significant number of respondents has concerns with having enough number of buyers and sellers in the market. Similar number of respondents also showed their concerns on the floor based market's lack of competitive bid and offer for price discovery. From the results obtained it is concluded that the Exchange's price discovery mechanism is very poor which could be affected by lack of enough buyers and sellers in the market who can provide competitive bid and offer.

With regards to the overall satisfaction of the floor based trading it can be concluded that members and clients are dissatisfied with the overall floor based market. This dissatisfaction can be an extension of the concerns stated above with facilitating trades, regulation and enforcement, and transparency in price discovery.

The general skills that are related to online trading were also analyzed in the study. From the study findings it can be concluded that there is a huge capacity gap in using computers and computer related functions that are the basics for trading using online trading system.

The online trading skills and competency of members and clients was also analyzed. Findings revealed that respondents experience in using online related electronic trading, electronic payment applications and functions has the least mean score with poor results. On top of this, respondents' level of knowledge in the fundamental and technical skills is very low. These skills are critical in trading using the online trading system. As capacity

gap is critical here, it can be said that the overall online related skills and competency is not good enough for the implementation of online trading. There is also a skill gap among traders which can create an imbalance in the fairness of the online trading platform.

The other issues which were part of the study were the perceptions of members and clients to words a different means of trading which is online trading. From the findings it can be concluded that the traders perceive the online trading system will be easy to learn and operate, easy to use and do whatever they wanted to do in trading. From the perceived usefulness perspective it is concluded that traders are expecting benefits with improved performance, effectiveness and increase their profitability with using the online trading system.

The perception of compatibility of traders experience in trading with the online trading system was also studied. From the findings, it can be concluded that traders perceive that their experience in trading on the trading floor will help them in trading using the online trading platform. Their knowledge in contracts, rules and regulations would be a plus in using the new platform. Moreover, from the perception they had in placing orders using the online trading system it can be concluded that they are underprivileged with the current system's order placing mechanism. From the findings on the relative advantage perception, it is concluded that traders perceive that they will have better market access, with changed order placing mechanisms. This perception is also useful to the Exchange as it helps in getting true price discovery and market efficiency.

From the finding in usage behavior perceptions, it can be concluded that members and clients have a strong belief that they will be part of the online trading platform in the future. And as the Exchange will be able to provide accurate, current, relevant and sufficient data in the trading screens, traders can easily react to changes more quickly. The research also studied the infrastructure capability for trading using online trading systems. Only a third of the respondents believe that there will be good infrastructure for trading. From this and findings of the interview, it can be concluded that infrastructure problem especially with telecom services is a big concern for the traders and the Exchange.

It is also concluded that if the online trading system is implemented the Exchange will benefit with better transparency in the market, new commodities can easily be added in to the system, the Exchange will have better market oversight as every move or click is registered, which could result in better market integrity.

5.3. Recommendations

5.3.1. For Floor Based Trading System

Based on the analysis, subsequent findings from the study and conclusion, the following recommendations are forwarded which the Ethiopia Commodity Exchange would consider in its attempt for improved utilization of its floor based trading system to the benefit of all market actors and stakeholders in the value chain. These recommendations are believed to provide feasible solutions for the program.

➢ In order to minimize the trade related violations the exchange should deploy an integrated market surveillance mechanism that is supported by high definition cameras that can trace trader's activities. The exchange should also train its staff with market surveillance concepts techniques that could help them identify market manipulation behaviors beforehand and build the tersest of market in the surveillance system in particular and in the overall market in general.

➢ The Exchange market operators should work hard to enforce the rules of the Exchange that require open outcry system for the competitive bid and offer and transparency. The BCC should penalize rule violators in a manner that could make them learn from their mistakes and deter further violations.

➢ Trading session is a specified period of trading during which a single contract or group of contracts will be traded. In this regard, the Exchange should come up with a fairly distributed time that allows each session to accommodate all trades. And

the ticket writing time should be reconsidered at least to accommodate the execution of all agreed trades.

➢ With regard to market information accuracy and reliability, the Exchange is well accepted by all its stakeholders. But the Exchange should also think of better market information disseminating tools like short message service (SMS) and Interactive Voice Response (IVR) to all stakeholders to help traders make informed decisions and balance their power of negotiation.

➢ In order to improve the price discovery mechanism, the Exchange should aware the traders and enforce the rule regarding the open outcry system that should be respected by all, and introduce mechanisms that could create better competitiveness while trading in the trading floor.

➢ In order to boost the satisfaction level of members and clients the Exchange should work closely with the NEAA in creating awareness on ECX rules, regulations and compliance mechanisms. Long lasting solutions that can minimize the transaction cost, enhance market integrity and improve the price discovery mechanisms should also be considered by the Exchange.

5.3.2. For Online Trading System

Based on the analysis, subsequent finding from the study and conclusion, the following recommendations are given which the Ethiopia Commodity Exchange could consider in its effort to introduce the online trading system.

➢ In order to empower members and clients of the exchange, in-depth training and capacity building programs should be designed and implemented to all stakeholders. The Exchange as market operator should take the leading role in developing its staff and equips them with the necessary input. Exchange staffs in the market surveillance and trading operation units need to be well aware of the

fundamental and technical tools in addition to the rules and regulations. The regulatory body also needs to upgrade its staff with the necessary knowledge as things would significantly change from pits to bits. With online trading, it is with deep analysis that the Exchange and ECXA the regulatory body that can identify any market manipulations or fraudulent behaviors of market actors. In order to do so both parties should focus on need tailored capacity building programs that could help them run and monitor the market efficiently.

➢ Furthermore, as seen in the findings the capacity problems of members is undeniable and needs due attention and highest priority. Intensive class room based awareness programs and online trader certification programs should be designed before allowing market actors to access the online trading platforms. Trainings on the fundamental and technical skills should also be given to all market actors in order to create a relatively balanced state of knowledge.

➢ Regarding the infrastructural problems faced, the Exchange with the help of donors should build its online trading centers with multiple layers of redundancy to avoid downtime related to power outages and to significantly reduce the downtime associated with telecom outage by installing redundant connectivity options including fixed line broadband and wireless connections. The same approach should be employed to avoid failures at local area network (LAN), local IT asset level and the central data center locations. And in order to guarantee power the use of uninterrupted power supply (UPS) and generators is highly recommended.

➢ To address the legal issues identified from the findings, the Exchange should incorporate a team of experts from the information technology, compliance and operations divisions to craft the legal framework. The Exchange as a self-regulatory entity is ruled by the rules of the Exchange. The rules should be revised and additional rules concerning online trade should be incorporated as deemed necessary, standard trading terms in contracts should also be modified with all their risk management tools.

➢ The operational issues are very critical issues that are expected to be faced by the Exchange once the online trading is implemented. It is recommended that the Exchange should consider its capacity to handle all commodities at a time. Very critical analysis needs to be done to identify the potential pros and cons of deciding on any alternative. Learning from the experience of other exchanges in session management and in calculating last closing price (LCP) is also suggested.

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APPENDIX I: QUESTIONNAIRE

St. Mary's University
School of Graduate Studies
Department of Business Administration

Dear Respondent,

The objective of this questionnaire is to gather and analyze relevant, accurate, and timely information that will provide insights about the significance and limitations of the current floor based trading system and the prospects and challenges of online trading system in the Ethiopia Commodity Exchange. This study is undertaken as a partial requirement for the completion of Masters in Business Administration.

This questionnaire consists of five sections: **Section I** deals with the general profile of the respondent, **Section II** covers general knowledge respondents have about ECX, **Section III** covers questions that are related to the current floor based trading and **Section IV** covers questions that are related to the proposed online trading system. The information you provide in this survey will be used purely for academic purposes and it will be held confidential. I appreciate your voluntary and valuable participation in this survey. I thank you in advance for sharing your valuable experience and time with in completing the questionnaire.

Please do not write your name on the questionnaire.

Section I-General Profile

1. Please indicate your role at ECX.

   □ Intermediary member   □Trading Member   □ Client

2. Please indicate the commodities you trade at ECX. (*You can tick more than one commodity*)

   □ Coffee   □ Sesame   □ Pea beans   □ others

3. Please indicate your trade type at ECX.

□ Exporter   □ Supplier   □Wholesaler

4.   Please indicate your academic qualification

□Primary Education □High School dropout □High School complete □Diploma   □BA or above

5. How long have you been working with ECX?

□ Between 1-2 years   □ Between 2-3 years   □ Between 3-4 years

□ Between 4-5 years   □ Above 5 years

6. Please indicate the region in which your business license is registered

_____

Section II- General Knowledge about ECX

1.   Please indicate your knowledge regarding the products traded at ECX.

□ Excellent   □ Very good   □ Good   □ Satisfactory   □ Poor

2. Please indicate your knowledge regarding the ECX rules and regulations.

□ Excellent   □ Very good   □ Good   □ Satisfactory   □ Poor

3. Please indicate your knowledge regarding the type of orders and order execution rules set by ECX.

□ Excellent   □ Very good   □ Good   □ Satisfactory   □ Poor

4. Please indicate your knowledge regarding the risk management on ECX market (daily price limits, volume limits, trade guarantee system, etc)

□ Excellent   □ Very good   □ Good   □ Satisfactory   □ Poor

5.   Do you make trading decisions according to a trading plan?

□ Always   □ Sometimes   □ Never

Section III- Floor Based Trading Related Questions

Facilitating Trade Variables	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1. The trading hours, schedules and durations set by the Exchange are fair.					
2. I have direct market access to the Exchange trading floor.					
3. I know the status of my orders or transactions instantly.					
4. The size of the Exchange trading floor is enough.					
5. I feel physical strain while trading at the Exchange trading floor.					
Regulation and Enforcement Variables	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
6. Traders deliberately submit trade tickets different than that of what is agreed on the trading floor.					
7. Traders submit tickets for transactions not shouted out on the trading floor.					
8. Surveillance system employed by ECX helps to monitor market manipulation by traders.					
9. Compliance System employed by the Exchange helps to monitor rules violation.					
Price Discovery Variables	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
10. There are sufficient buyers and sellers at ECX floor based market.					
11. The Exchange has a transparent price discovery mechanism.					
12. There is competitive bid and offer for price discovery.					
13. ECX market information dissemination facilitates price discovery.					

Reliability and Accuracy of Market Information Variables	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
14. I know the status of my orders or transactions instantly					
15. I know the status of my orders or transactions instantly					
16. The market information displayed at the Exchange trading floor is timely.					
17. The recording of executed trades at the Exchange trading floor is accurate.					
18. The recording of executed trades at the Exchange trading floor is accurate.					
19. I am satisfied with the floor based trading system provided by the Exchange.					

Section IV- Online Trading Related Questions

General skills

1. Please indicate how often do you use the computer

   □ Daily   □ Weekly   □ Occasionally   □ Never

2. Please indicate your computer skills

   □ Excellent   □ Very good   □ Good   □ Satisfactory   □ Poor

3. Do you have any certification in Computer / Microsoft Office skills?

   □Yes   □ No

4. Please indicate the Microsoft Office applications that are you familiar with (*You can select more than one option)*

   □ Word   □ Excel   □ Power Point   □ Access   □ None of them

5. Please indicate your Internet browsing skills

   □ Excellent   □ Very good   □ Good   □ Satisfactory □ Poor

6. Please indicate your electronic communication skills (e-mail or other messaging systems)

  □ Excellent   □ Very good   □ Good   □ Satisfactory □ Poor

7. Are you interested to become a certified electronic trader?

  □ Yes   □ No

8. Please indicate your English language fluency

  □ Excellent   □ Very good   □ Good   □ Satisfactory   □ Poor

Online Trading Skill and Competency Clusters

9. What kind of online applications did you use so far? (*You can select more than one option)*

  □ Online Trading Application   □Online payment Applications   □Others   □None

10. Please indicate your skills in using online trading applications.
  □ Excellent   □ Very good   □ Good   □ Satisfactory   □ Poor

11. Please indicate your skills in fundamental market analysis.

  □ Excellent   □ Very good   □ Good   □ Satisfactory   □ Poor

12. Please indicate your skills in technical market analysis

  □ Excellent   □ Very good   □ Good   □ Satisfactory   □ Poor

13. Please indicate your knowledge and skill in using the following technical analysis tools

Tool	Excellent	Very Good	Good	Satisfactory	Poor
Price charts					
Price/Volume relationships					
Price patterns					
Price trend lines					

Perceived Ease of Use Variables	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
14. I believe that the online trading system will not be cumbersome to use.					
15. I believe that it will be easy to get the system to do what you want to do.					
16. I think learning to operate or master the system will have no difficulty to me.					
Perceived Usefulness Variables	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
17. I believe that using the online trading system will improve my performance in trading.					
18. I believe that using the online trading system will enhance my effectiveness in trade.					
19. I believe that using the online trading system will increase the profitability of my company.					
20. I believe that doing trade (business) online is safe.					
Compatibility Variables	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
21. I think with online trading system order placing will be better than the current system.					
22. I believe my experience in trading using floor based trading will help me to use the online trading system.					
23. I believe that there will be good infrastructure for doing online trading.					
Relative Advantage Variables	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
24. I believe putting order for buying or selling through the online trading system will give me more advantage than the existing floor trading.					
25. I believe it will be good to change the existing method of placing orders by clients with online order placing system.					

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
26. I believe the online trading system will create a better access to market actors.					
Usage Behavior Variables	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
27. I believe the online trading system will allow me to react to market changes more quickly.					
28. I believe that I will be part of the future if the online trading system is developed.					

APPENDIX II: INTERVIEW QUESTIONS

St. Mary University
School Graduate Studies
Masters of Business Administration

Check List for in-depth Interview Questions for ECX, ECXA and NEAA Experts.

Dear Respondent,

The objective of this interview is to gather and analyze relevant and in-depth information that will provide insights about the significance and limitations of the current floor based trading system and the prospects and challenges of online trading system in the Ethiopia Commodity Exchange. This study is undertaken as a partial requirement for the completion of Masters in Business Administration.

1) What are the challenges of running a floor based trading system?
2) What are the prospects of having a floor based trading system?
3) What factors do you think would affect the implementation?
4) What commodities/contracts are going to be traded online?
5) Have you evaluated the capacity of traders?
6) What are the potential benefits of online trading to the exchange?
7) What do you think will be the big challenges in implementing online trading system?
8) Is it feasible for the Ethiopia Commodity Exchange to implement online trading system?
9) How are you planning to manage the sessions?

APPENDIX III: DAILY ATTENDANCE AT ECX TRADING FLOOR

Ethiopia Commodity Exchange

Daily Attendance Summary

Month	Buyers	Sellers	Total
Jul-13	147	159	306
Aug-13	123	133	256
Sep-13	125	126	251
Oct-13	126	118	244
Nov-13	204	171	375
Dec-13	317	316	633
Jan-14	305	354	659
Feb-14	315	366	681
Mar-14	318	374	692
Apr-14	259	326	585
May-14	223	330	553
Jun-14	210	258	468

Source: ECX Internal Database

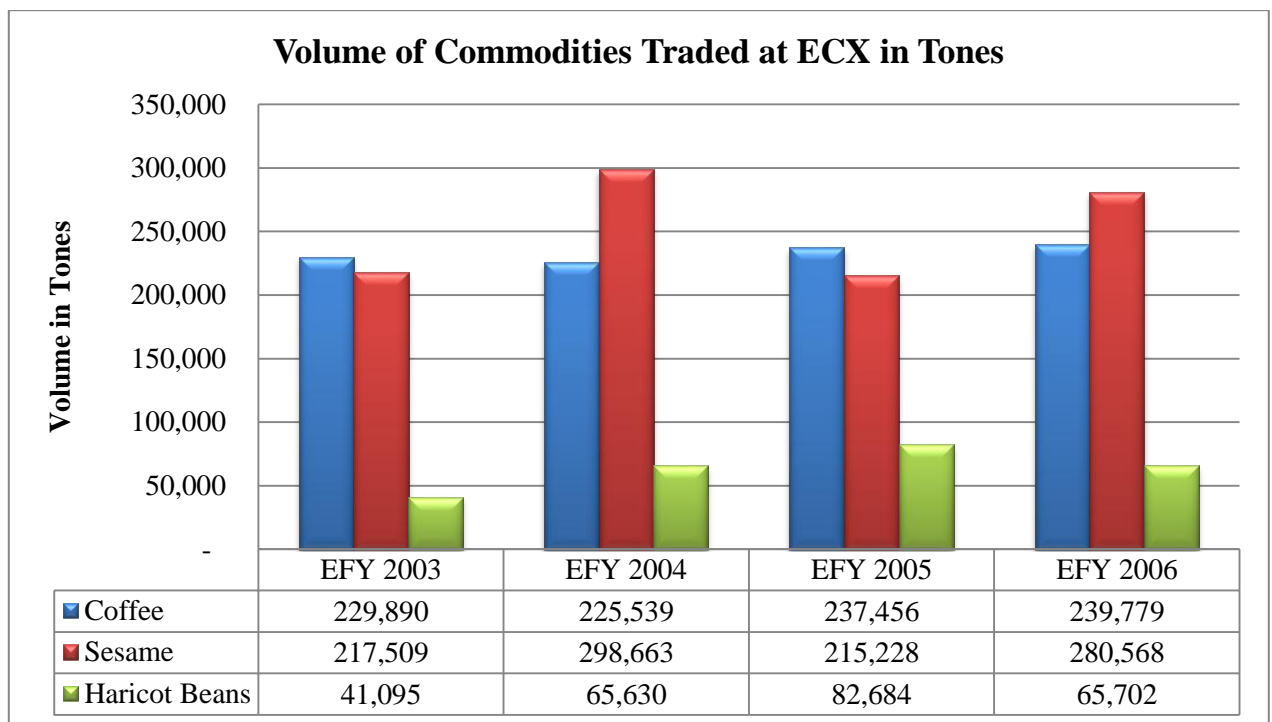**Daily Average Attendance**
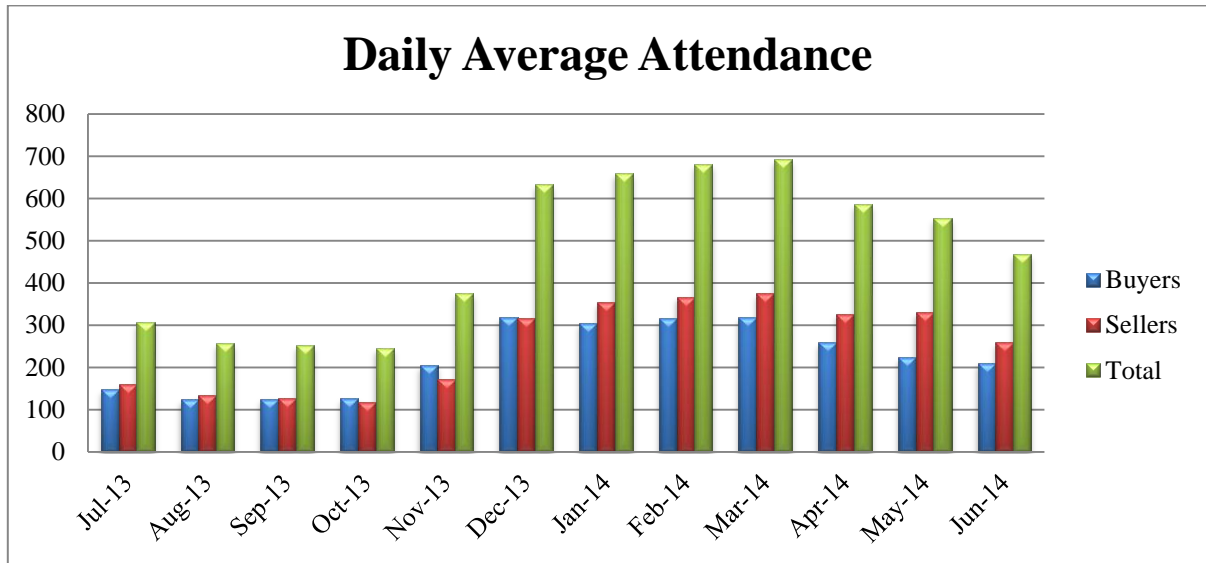
Source: ECX Internal Database

APPENDIX IV: VOLUME OF TRADE AT ECX TRADING FLOOR

Ethiopia Commodity Exchange

Volume of Trade in Tones

	Volume of Trade in Tones			
Commodities	EFY 2003	EFY 2004	EFY 2005	EFY 2006
Coffee	229,890	225,539	237,456	239,779
Sesame	217,509	298,663	215,228	280,568
Haricot Beans	41,095	65,630	82,684	65,702
Grand Total	494,353	590,404	535,373	586,181

Source: ECX Internal Database

Volume of Commodities Traded at ECX in Tones

|	EFY 2003	EFY 2004	EFY 2005	EFY 2006
Coffee	229,890	225,539	237,456	239,779
Sesame	217,509	298,663	215,228	280,568
Haricot Beans	41,095	65,630	82,684	65,702

Source: ECX Internal Database

APPENDIX V: VALUE OF TRADE AT ECX TRADING FLOOR
Ethiopia Commodity Exchange

Value of Trade in Billions of Birr

Commodities	Value of Trade			
	EFY 2003	**EFY 2004**	**EFY 2005**	**EFY 2006**
Coffee	13.20	14.90	11.20	13.80
Sesame	4.27	5.80	6.10	11.30
Haricot Beans	0.33	0.54	0.72	1.20
Grand Total	**17.80**	**21.24**	**18.02**	**26.30**

Source: ECX Internal Database

Value of Commodities Traded at ECX in Billions of Birr

|	EFY 2003	EFY 2004	EFY 2005	EFY 2006
Coffee	13.20	14.90	11.20	13.80
Sesame	4.27	5.80	6.10	11.30
Haricot Beans	0.33	0.54	0.72	1.20
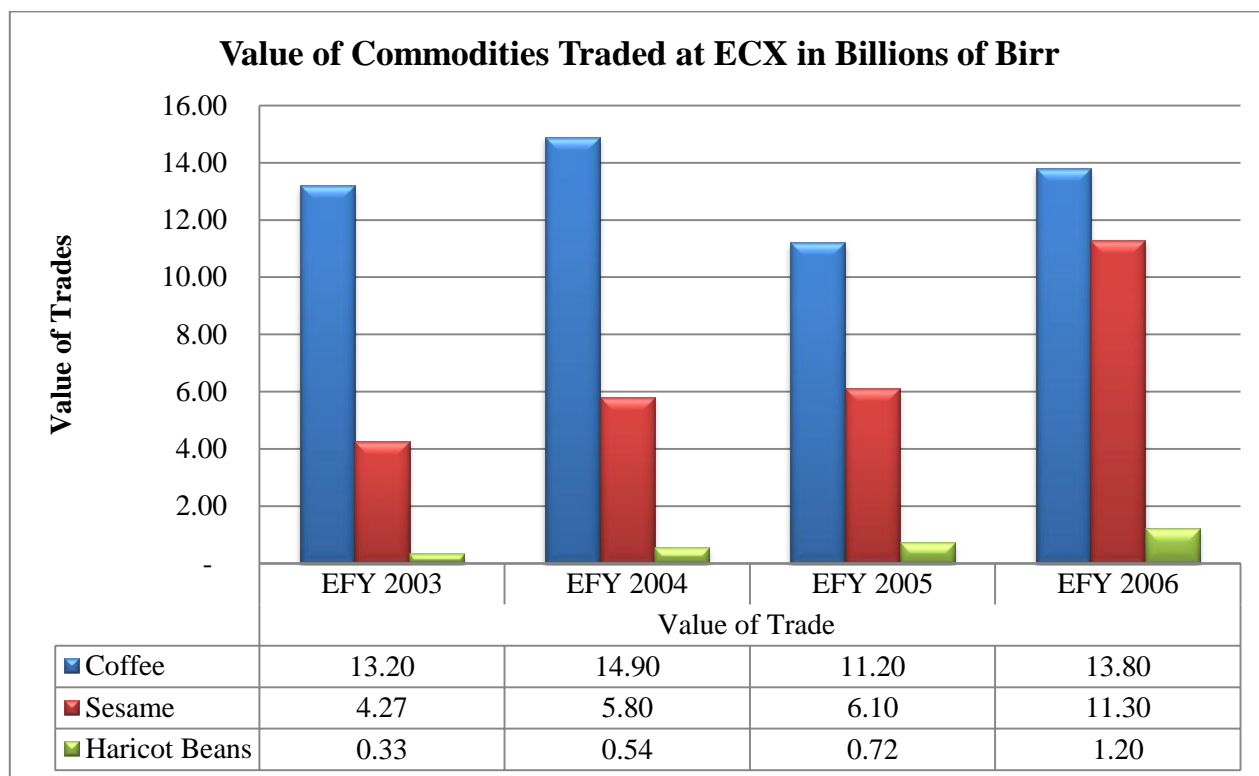
Source: ECX Internal Database

APPENDIX VI: VOLUME AND VALUE OF REJECTED TRADES

Ethiopia Commodity Exchange

Rejected Trade Volume and Value
For the Year Ended 2006 (Source: ECX Internal Databse)

Commodities	Trade Volume in Tons	Trade Value in ETB
Coffee	2,472	139,298,273
Pea Beans	899	16,061,742
Sesame	3,306	131,089,973
Grand Total	6,677	286,449,988
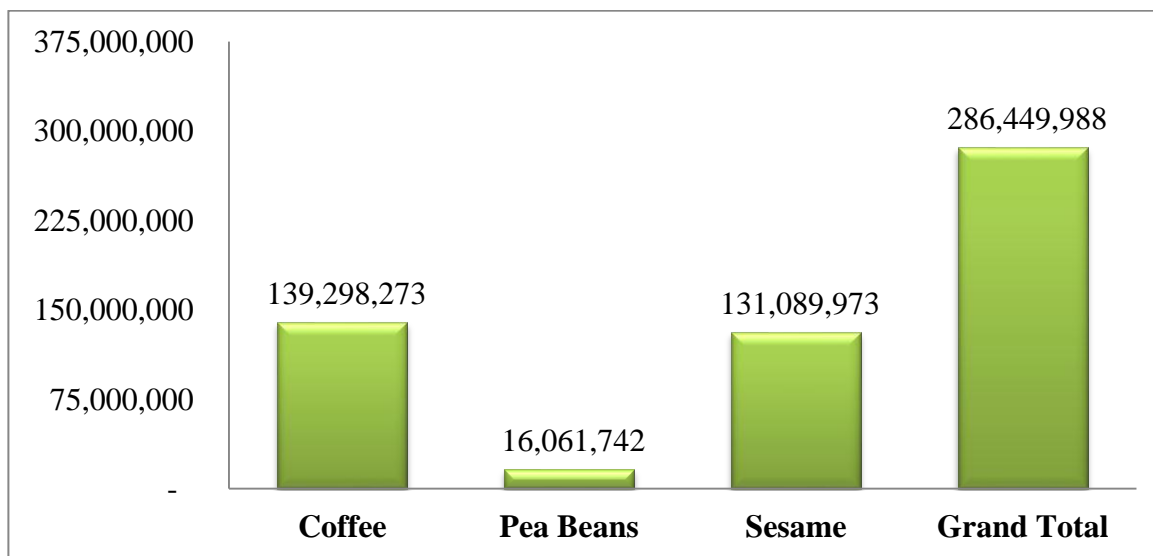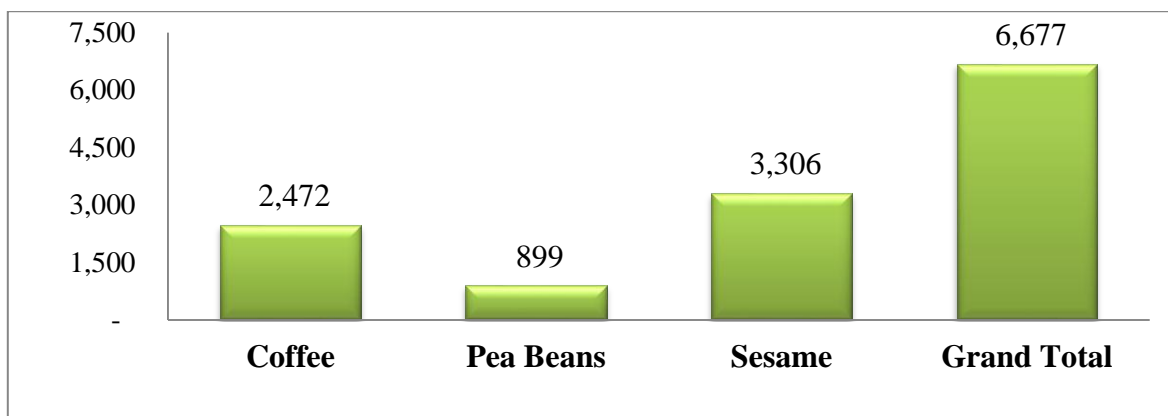
APPENDIX VII: TRADING SESSIONS SCHEDULE
Ethiopia Commodity Exchange
Trading Session Schedule

Session No. End	Pulses and Oil Seed	Start	
S1	Kombolcha WH-Flat White Pea Beans.	9:00 AM	9:10 AM
S2	Adama WH-Flat White Pea Beans.	9:10 AM	9:20 AM
S3	Addis Ababa WH-Flat White Pea Beans.	9:20 AM	9:30 AM
S4	Kombolcha WH-Round White Pea Beans.	9:30 AM	9:40 AM
S5	Adama WH-Round White Pea Beans.	9:40 AM	9:50 AM
S6	Addis Ababa WH-Round White Pea Beans.	9:50 AM	10:00 AM
S7	Bure&Assosa WH Wollega Sesame Seed.	10:00 AM	10:15 AM
S8	Nekempti& A/A WH Wollega Sesame Seed.	10:15 AM	10:30 AM
S9	Gonder WH Hum/Gon Sesame Seed	10:30 AM	10:45 AM
S10	Metema WH Hum/Gon Sesame Seed	10:45 AM	11:00 AM
S11	Metema; Humera; WH Hum/Gon Sesame Seed	11:00 AM	11:15 AM
Local coffee			
S12	Local washed	11:30 AM	11:35 AM
S13	Local Unwashed By-Product	11:40 AM	11:45 AM
S14	Local Unwashed Non-By-Product	11:50 AM	12:00 PM
Washed Coffee			
S15	Washed Yirgachefe Specialty	2:00 PM	2:05 PM
S16	Washed Yirgachefe Commercial	2:10 PM	2:15 PM
S17	Washed Limmu Specialty	2:20 PM	2:25 PM
S18	Washed Limmu Commercial	2:30 PM	2:35 PM
S19	Washed Mixed Specialty	2:40 PM	2:45 PM
S20	Washed Mixed Commercial	2:50 PM	2:55 PM
S21	Washed Sidama Specialty	3:00 PM	3:05 PM
S22	Washed Sidama Commercial	3:10 PM	3:15 PM
Unwashed Coffee			
S23	Unwashed Yirgachefe Commercial	3:20PM	3:25PM
S24	Unwashed Yirgachefe Specialty	3:30PM	3:35PM
S25	Unwashed Forest Commercial	3:40PM	3:45PM
S26	Unwashed Forest Specialty	3:50PM	3:55PM
S27	Unwashed Lekempti Commercial	4:00PM	4:05PM
S28	Unwashed Lekempti Specialty	4:10PM	4:15PM
S29	Unwashed Harar Commercial	4:20PM	4:25PM
S30	Unwashed Harar Specialty	4:30PM	4:35PM
S31	Unwashed Jimma Commercial	4:40PM	4:45PM
S32	Unwashed JimmaSpecilaty	4:50PM	4:55PM
S33	Unwashed Sidama Commercial	5:00PM	5:05PM
S34	Unwashed Sidama Specialty	5:10PM	5:15PM
S35	Unwashed Bale Commercial	5:20PM	5:25PM
S36	Unwashed Bale Specialty	5:30PM	5:35PM

Source: ECX Internal Database