



**ADDIS ABABA UNIVERSITY
COLLEGE OF COMMERCE
DEPARTMENT OF LOGISTICS AND SUPPLY CHAIN
MANAGEMENT**

**ANALYSIS OF DETERMINANTS OF THE USE OF ONLINE TRADING
ON THE ETHIOPIAN COMMODITY EXCHANGE PERCEIVED
OPERATIONAL PRACTICE**

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*THESIS SUBMITTED TO SCHOOL OF GRADUATE STUDIES OF ADDIS ABABA
UNIVERSITY SCHOOL OF COMMERCE DEPARTMENT OF LOGISTIC AND
SUPPLY CHAIN MANAGEMENT IN PARTIAL FULFILMENT FOR THE DEGREE
OF MASTERS REQUIREMENTS OF ARTS IN LOGISTICS AND SUPPLY CHAIN*

June 2016

Addis Ababa, Ethiopia

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APPROVED BY BOARD OF EXAMINERS

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Abstract

The objective of this study was to analyse the determinants of the use of the online trading on ECX perceived operational practice. ECX had learnt that the capacity of that the existing central trading floor restricts the direct participation of large number of market actors located at the remote parts of the country and this resulted in- high transaction costs that prohibit to some actors, more volatile prices, and higher risk of market collusion. The existing open outcry trading system at the headquarters also restricts the market expansion potential of the ECX and lack of efficiency and effectiveness of the day to day ECX operation. Having noted the weak side of the existing system, ECX has implemented an integrated online trading system that has been believed to improve the level of overall ECX perceived operational practice. This study used case study method due to its convenience and economic of use. The study was included 112 respondents of which composed of 86 Male and 26 Female. Structured self-administered questionnaires used to collect data from participants and Nominal data and ordinal data were collected and analysed. Descriptive analysis, Correlation and standard multiple regression analysis were used to analyze data and examine the relationship. The correlation analysis illustrated statistically significant Strong Positive relation between E-trading (as measured by the Trust, Attitude, Perceived benefit and perceived risk) and ECX perceived operation practice (as measured by constructs of price discovery scale, market expansion scale, access to market scale, avoidance of collusion scale and ECX Operation scale). A standard multiple regression were carried out to examine the prediction extent of four predictors of the Online trading (Perceived benefit, Perceived ease of use, Trust and Attitude) on ECX operational variables and the result showed that Among the four variables, Perceived Benefit (Beta=.256, $P<.05$), Trust (Beta=.298; $P<.05$) and Attitude (Beta=.252; $P<.05$) are making statistically significant unique contribution to explaining the ECX perceived operational practice, when the variance explained by all other variables in the model is controlled for. The model was a good fit for the data ($F=25.885$, $p<.0005$). In conclusion, the correlation analysis proved Direct strong positive correlation between the online trading constructs and ECX perceived operational practice and the Regression analysis predicted the extent that the adaption of online trading has significant effect on ECX operational practices. This study confirmed empirically that the adaption of online trading has an impact on ECX operational practice and hence, it is recommended to expand the existing platform to regional level by constructing remote training center that are equipped with online trade platform so that all stakeholders can access the platform and as many products as possible to be exchanged via the exchange.

Key words: Ethiopia Commodity Exchange, Market Expansion, Online Trading, Organizational Performance, Price Discovery

Statement of Declaration

I, the undersigned person, declare that the thesis entitled “Analysis of determinants of The use of Online Trading on the Ethiopian Commodity Exchange Perceived Operational Practice is my original and submitted for the award of master of logistics and supply chain management of Addis Ababa University at Addis Ababa and it hasn’t been presented for the award of any other degree. Under this study, fellowship of other similar titles of any other university or institution of all sources of material used for the study has been appropriately acknowledged and notice.

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Certification

This is to certify that Mr. Getachew Araya has properly completed his research work entitled “Analysis of determinants of the use of online trading on the Ethiopian Commodity Exchange Perceived Operational Practice” with my guidance through the time. In my suggestion, his task is appropriate to be submitted as a partial fulfillment requirement for the award of Degree in Masters of Logistics and Supply Chain Management.

Fesseha Afework (Ass. Prof)

Research Advisor

Signature and Date

Abbreviation

DN	Delivery Notice
ECX	Ethiopian Commodity Exchange
ECXA	Ethiopian Commodity Exchange Authority
EMA	Exponential Moving Average
MACD	Moving Average Convergence and Divergence
MCP	Member Client Position
NOR	Net Obligation Report
RBV	Resource –Based View
ROC	Rate of Change
RSI	Relativity Strength Index
SMA	Simple Moving Average
USAID	United State Agency of International Development

Acronyms

E-Trade Electronic Trading

OT Online Trading

Acknowledgement

It is my in-depth gratitude for all the people who helped me in various ways while I was conducted this study. Just to mention some who had direct contribution for the successful accomplishment of this study first my advisor Fesseha Afewerk (Ass. Prof) who shared me his critical view on the paper and makes this paper to be as it is now. Second, EXC staffs who helped me in providing the required support and facilitation trusting that such a study will have positive impact on the EXC future improvement. Third, Daniel Tesegaye who helped me in coding and data recording on the computer. Forth, Julie Pallant the Author of SPSS survival Manual and put it the book on the internet so that a people like me can read and benefit by utilizing the SPSS and Finally I would like to pass my sincere thanks to my family who were there with me in all those learning years.

Table of Contents

Statement of Declaration.....	I
Certification.....	II
Abbreviation	III
Acronyms	IV
Acknowledgement	V
Table of Contents.....	VI
List of Figures	IX
List of Tables	X
Chapter One.....	1
Background of the Study.....	1
1.1 Introduction	1
1.2 Background of the Study.....	1
1.3 Statement of the Problem	2
1.4 Research Questions	3
1.5 Research Objectives.....	4
1.6 Significance of the Study.....	4
1.7 Delimitations of the Study	5
1.8 Organization of the paper.....	5
1.9 Definition of Terms/key concepts.....	5
Chapter Two.....	7
Literature Review.....	7
2.1 Introduction	7
2.2 Supply Chain.....	7
2.3 Commodity Exchange	8
2.4 Supply Chain, Commodity exchange and Ethiopian Experience.....	8
2.5 Supply Chain Management of Agricultural Commodities through Electronic Spot Exchanges.....	9
2.6 Empirical Study on Commodity Exchange	10
2.7 Literature Gap	13
2.8 Theoretical Framework.....	13
2.8.1 Resource-Based View of the Firm	14
2.8.2 Technology Acceptance Model (TAM) and Theory of Planned Behavior (TPB).....	15
2.9 Conceptual Framework.....	16

2.9.1	Online Trading –Independent Variable.....	16
2.9.1.1	Trust:	17
2.9.1.2	Perceived benefit:	17
2.9.1.3	Perceived Risk:	18
2.9.1.4	Perceived ease of use:	18
2.9.2	Dependent Variables.....	18
2.9.2.1	Price Discovery	18
2.9.2.2	Market Expansion	20
2.9.2.3	Access to Market.....	20
2.9.2.4	Avoidance of Collusion: - Price-risk management	21
2.9.2.5	Direct Participation	21
2.9.2.6	ECX Operation	21
Chapter Three		22
Methodology of the Study		22
3.1	Introduction	22
3.2	Research Design.....	22
3.3	Research Method.....	22
3.4	Sample size.....	23
3.5	Instrument	23
3.6	Data Type and Analysis	23
3.7	Validity Test.....	24
3.8	Reliability Test.....	24
3.9	Ethical Consideration	25
Chapter Four		26
Data Analysis, Interpretation and Discussion		26
4.1	Introduction	26
4.2	Respondents' Profile	26
4.3	Analysis of Measurement Model.....	28
4.4	Correlation Analysis	28
A.	Correlation Analysis to Four predictor.....	28
B.	Correlation Analysis to ECX Operational practice.....	29
4.5	Regression Analysis.....	31
4.5.2	Price discovery	33
4.5.3	Market Expansion	35

4.5.4	Direct Participation	36
4.5.5	Access to Market.....	37
4.5.6	Avoidance of Collusion.....	39
4.5.7	ECX Operation	40
4.6	Discussion and Interpretation.....	41
4.6.1	Specific Question:	42
4.6.1.1	What is the effect of perceived ease of use of online trading on ECX perceived operational practice? 42	
4.6.1.2	What is the effect of attitude for online trading on perceived operational practice?	42
4.6.1.3	What is the effect of trust on online trading on ECX perceived operational practice?	43
4.6.1.4	What is the effect of perceived benefit in online trading on ECX perceived operational practice? 43	
4.6.1.5	What the effect of perceived risk on online trading on the organizational performance?.....	43
4.6.1.6	What is the effect of online trading on ECX perceived operational practice?.....	43
	Chapter Five	45
	Summary, Conclusion and Recommendations	45
5.1	Introduction	45
5.2	Summary and Conclusion	45
5.3	Recommendation.....	47
5.4	Limitation and Future Study	48
	REFERENCES	49
	Appendix – Questionnaire	52

List of Figures

Figure 2.3. Conceptualization of this study

16

List of Tables

Table 3.1: Sampling design	23
Table 3.2 Online Trading – Reliability	24
Table 3.3 ECX Performances – Reliability	25
Table 4.1 Respondents’ category – Sex vs. Age & Occupation	26
Table 4.2 Respondents’ category – Education & experience on using ECX service	27
Table 4.3 Frequency of using ECX service by sex	27
Table 4.4 Descriptive Statistics-Continuous Variable	28
Table 4.5A Pearson Product-Moment Correlations between five predictors and constructs of ECX perceived operational practice	29
Table 4.5B Pearson Product-Moment Correlations between five predictors and ECX perceived operational practice	29
Table 4.6 Pearson Product-Moment Correlations between online trade and ECX function	30
Table 4.7 : Regression analysis	32
Table 4.8 multiple regression of four predictor on price discovery	33
Table 4.9 Standard multiple regression of four predictor on market expansion	35
Table 4.10 Standard multiple regression of four predictor on direct participation	36
Table 4.11 Standards multiple regression of four predictor on access to market	37
Table 4.12 Simple regression of four predictor on avoidance of collusion	39
Table 4.13 Standard multiple regression of four predictor on ECX Operation	40

Chapter One

Background of the Study

1.1 Introduction

This chapter presents an overview of the entire study. It includes background of the study, statement of the problem, research questions, and research objectives, significance of the study, delimitation of the study, structure of the paper and definition of key terms /key concepts.

1.2 Background of the Study

Supply Chain Management integrates functions and activities from manufacturing operations, purchasing, transportation, and physical distribution into a unified program. Sotiris Zigiari (2000) indicated successful supply chain management coordinates and integrates all of these activities into a seamless process. It embraces and links all of the partners in the chain. In addition to the departments within the organization, these partners include vendors, carriers, third party companies, and information systems providers. In addition, Sotiris defined the supply chain management as the supply chain encompasses all of those activities associated with moving goods from the raw-materials stage through to the end user. Moreover, Sotiris added advocates for the business process realized that significant productivity increases could only come from managing relationships, information, and material flow across enterprise borders.

Because of globalization, steep competition, change in market demand and the rapid adoption of outsourcing, today's organizations are operating in a "networked" business environment. As far as the business world is concerned the customer, who is perceived as the „king“; is the driver of change in the market place. Their changing attitudes are pushing businesses to rethink their strategies. In general, business environment is characterized by unpredictability and changeability. Therefore, adopting a more integrated approach to supply chain (SC) relationship management has been increasingly viewed as a way of meeting changing customer needs (Eyong, 2009).Ethiopian Commodity Exchange joined the commodity supply chain to integrate all upstream supply chain with downstream supply chain. A commodity exchange is an institutional response, at a basic level, to the fundamental problem of achieving self-coordinating market order in the trade of agricultural products, which by their nature, are risky (Eleniet *al.* (2005).

An active commodity exchange, where multiple buyers and sellers trade commodity-linked contracts, can reduce transactions costs by facilitating price discovery and managing risk. When commodity exchanges function well they can increase the volume of trade and thereby reduce price volatility” Commodity exchanges do not always succeed, and even functioning exchanges

can be unsuccessful for specific commodities. Many commodity exchanges introduced in the 1990s in Asia and Latin America have proven to be sustainable, but in Africa, despite substantial donor support, success has been more elusive. Some binding constraints to successful commodity exchanges include small market size, weak infrastructure, an underdeveloped financial sector, lack of a supportive legal and regulatory framework, and unpredictable government market interventions. The introduction and operation of a commodity exchange is expensive function, with physical investment in operational space, warehousing, and communications needed as well as funding to cover operational costs, including screening, dispute resolution, and clearinghouse services. For an exchange to be sustainable, costs must be spread over a sufficient volume of trade. In the absence of market scale, transaction costs will be prohibitive to some actors, providing a less liquid market in which trading partners are harder to find, prices more volatile, and market collusion is a higher risk. The thinness of the market is, therefore, a primary determinant of whether a commodity exchange is going to function. In Africa, with the exception of South Africa, the participation of a large number of traders has not developed for any of the exchanges (USAID, – EAT, 2012). The Ethiopian commodity exchange is not unique in this feature. Since its establishment, it has received much support from the government and passed many challenge to execute the day to day operation of the trade.

1.3 Statement of the Problem

ECX has always been striving to assure all commodity market actors the security they need in the market by providing a secure and reliable end-to-end system for handling, grading, and storing commodities, matching offers and bids for commodity transactions, and a risk-free payment and goods delivery system to settle transactions, while serving all fairly and efficiently. ECX creates trust and transparency through aggressive market data dissemination to all market actors, through clearly defined rules of trading, warehousing, payments and delivery and business conduct, and through an internal dispute settlement mechanism. ECX provides market integrity at three important levels: the integrity of the product itself, the integrity of the transaction, and the integrity of the market actors (ECX, 2013).

As part of its continuous improvement, ECX was learnt that suppliers and exporters raised their concern over limitation of the membership seat which hinders them from direct market participation. Suppliers often voiced their complaints on the composition of the membership seat which they believe is not representative. Exporters in the same manner complained that the membership seat is so limited that they are forced to pay added commission fees which could have been avoided had they got a membership seat. This is clear indicator of the Ethiopian Commodity

Exchange (ECX) capacity limitation in terms of Membership. This shows that ECX is not scaling up the market. The demand for a member ship seat is high than the supply. The shortage of this seat resulted in the suppliers (non ECX members) directly in getting their proceeds from sale of their Commodity. Suppliers (non ECX members) complained, due to indirect market participation through intermediary members, that they do not get their proceeds from sale of their commodity in time as there is no dependable system in place to ensure timely transfer of funds from the intermediary member's account to that of their account. Therefore, it has been a question of clients both at the supply and export end collectively demand that the Exchange open up a window of opportunity for direct participation.

Another problem, related with ECX market scale is Ensuring transparency on the existing operation. Market information is the most efficient and effective tool in ensuring transparency and averting manipulation. In the absence of complete market information, the arousal of conflict of interest between traders and brokers is inevitable. For example, most registered brokers are also traders, which can lead to self-dealing or front-running¹ by of brokers who act inside knowledge of upcoming trades that could move the market price.²

From experience, even though, the integrity of the brokers on the exchange is core to the integrity of the exchange itself, the broker will not sell the product at the price the seller is expecting to sell. This creates on the sellers mind a perception that their agents fall short of maximizing the best possible value from sale of their commodities

In summary, One can see that the capacity of that the existing central trading floor restricts the direct participation of large number of market actors located at the remote parts of the country and this resulted in- high transaction costs that prohibit to some actors, more volatile prices, and higher risk of market collusion. The existing open outcry trading system at the headquarters also restricts the market expansion potential of the Exchange. It is impractical to accommodate all trade sessions with the two trading floors at ECX headquarters and finally the day to day ECX operation require an improvement to increase effectiveness and efficiency.

Having noted the weak side of the existing system, ECX has implemented an integrated online trading system that has been believed to improve the level of overall ECX perceived operational practice. Accordingly it is the main objective of this study to assess whether the new system can address the problems identified above.

1.4 Research Questions

Specifically this study raised the following question to be answered

1. What is the effect of trust on online trading with ECX operational perceived operational practice?
2. What is the effect of perceived ease of use of online trading on ECX perceived operational practice?
3. What is the effect of attitude for online trading on ECX perceived operational practice?
4. What is the effect of perceived benefit in using online trading on ECX perceived operational practice?
5. What is the effect of perceived risk in online trading on ECX perceived operational practice?
6. What is the effect of online trading on ECX perceived operational practice?

1.5 Research Objectives

The objective of the study was to analyze the effect of the online trading system (as measured by constructs of: - Perceived ease of use, Attitude, Trust, Perceived Benefit, Perceived Risk) - on overall all ECX perceived operational practice (as measured by constructs of : - Price discovery, Direct participation, Access to Market, Market Expansion, Prevention of possible collusion, and ECX Operation). In order to examine the effect, ECX perceived operational practice (dependent variables) was examined against online trading construct variables (independent).

General objective

1. To assess the effect of online trading on ECX perceived operational practice
- Specific objectives was
2. To assess the effect of online trading on ECX perceived operational practice
 3. To analyze the construct of online trading (trust, perceived benefit, risk, perceived ease of use and attitude) on ECX perceived operational practice

1.6 Significance of the Study

Conducting this study on ECX operational practice in relation to the introduction of the online trading is important for several reasons.

First, understanding the relationship among the online trading and ECX operational practice can help ECX to re- evaluate its strategies. The result of this study can tell the future of the ECX in relation to forward trading while targeting Stock exchange. Second, as there is not a formal study conducted on this issue except an internal customer survey conducted by ECX, this study will serve as an initial step of having empirical study for any research and to close the literature gap in this area. Third, this study will serve as reference material for future students or practitioners of Logistics and Supply Chain Managements

1.7 Delimitations of the Study

The research sample did not incorporate all the SC participants particularly the farmers due to time constraint so the sample size for farmers may not represent this population and hence the Convenience and availability sampling in relation to non-participation of the famers/unions will decrease the generalizability of finding. This study did not generalizable to all areas of stakeholders. This survey study confined itself to distrusting questioner for ECX staffs, Agents, and directly controlling government (government officers).

1.8 Organization of the paper

The rest of the paper will be organized as follows: chapter two presents the theoretical and empirical related literature to the study, while chapter three provides research methodology, chapter four outlines data presentation, analysis and interpretation and chapter five includes conclusion and recommendation.

1.9 Definition of Terms/key concepts

- Online trading Platform: a new Electronic trading system introduced by ECX to modernize the current outcry system (ECX, 2013)
- Trading Platform: a system or place where traders can buy and sell(Eleniet *al.* 2005)
- Membership Seat: is a permanent and transferable right to trade on the Exchange Members can be any individual, company, public enterprise, or cooperative that meets the membership requirements(Eleniet *al.* 2005).
- Price discovery: is the emergence of the true market-clearing price for a good at a particular point in time due to the highest possible concentration and competition among buyers and among sellers (Eleniet *al.* 2005)
- Market Expansion: provision of a forum in which multiple buyers and sellers trade commodity-linked contracts (ECX, 2013).
- Access to market : trading executed by market users remotely from the exchange premises (ECX, 2013)
- Avoidance of Collusion:provide price-risk management solutions by offering trade in commodity futures and options contracts(UNCTAD, 2009)
- Direct Participation : refer to the empowerment of the Traders 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 (ECX, 2013)

- ECX Operation : a day to day operation of ECX to provide the service for the exchange actors(ECX, 2013)
- Commodity Exchange:is an exchange where various commodities and derivatives products are traded. Most commodity markets across the world trade in agricultural products and other raw materials (like wheat, barley, sugar, maize, cotton, cocoa, coffee, milk products, pork bellies, oil, metals, etc.) and contracts based on them. These contracts can include spot prices, forwards, futures and options on futures(UNCTAD report,2009)

Chapter Two

Literature Review

2.1 Introduction

The literature part of the study is theoretical and empirical in nature. It included supply chain and commodity exchange concepts and their conceptual interconnection. It also included the concept of supply chain management of agricultural commodities through electronic spot exchanges. The efforts of the researchers on both the online trading and commodity exchange performance dimensions and their implications on trading practices in commodity market and performance models were compiled from journals and reliable internet sites.

2.2 Supply Chain

Sotiris Zigiari (2000) indicated successful supply chain management coordinates and integrates all of these activities into a seamless process. It embraces and links all of the partners in the chain. In addition to the departments within the organization, these partners include vendors, carriers, third party companies, and information systems providers. In addition, Sotiris defined the supply chain management as the supply chain encompasses all of those activities associated with moving goods from the raw-materials stage through to the end user. Moreover, Sotiris added advocates for the business process realized that significant productivity increases could only come from managing relationships, information, and material flow across enterprise borders.

On the same stand, (Pradeep *et al.* 2010) defined supply chain management in various ways as it indicated by various authors in the context of particular activities of the industry. According to the Council of Supply Chain Management Professionals (CSCMP), Supply chain management encompasses the planning and management of all activities involved in sourcing, procurement, conversion and logistics management. It also includes the crucial components of coordination and collaboration with channel partners, which can be suppliers, intermediaries, third-party service providers and customers. In essence, supply chain management integrates supply and demand management within and across companies. They also designated that supply chain management is an important topic related to improving efficiency, vertical coordination, overall performance and competitiveness in food industry. Supply chain management is also crucial from agricultural commodities industry perspective, with substantial opportunity for improved efficiency and performance. The goal of a commodity industry is to find ways to enhance their responsiveness to customers and to enhance their competitiveness. An effective supply chain management can enhance an industry's competitiveness compared to competing regional and international

industries and is especially important today because of the increased globalization of agricultural markets. In industry perspective, supply chain management involves vertical coordination between several levels and different types of firms within the marketing and supply chain. Supply chain management for such complex, varied and vertically linked systems supplement, and to some extent, facilitates the value chain of the individual firms in these industries. The supply chain management needed by the firms, such as food manufactures, processors or shippers, includes both strategies to market their products to their customers and strategies to obtain the needed inputs or raw product supplies.

2.3 Commodity Exchange

Eleniet *al.*, (2005) indicated 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. A commodity exchange is simply a central place where sellers and buyers meet to transact in an organized fashion, with certain clearly specified and transparent “rules of the game.” In its wider sense, a commodity exchange is any organized market place where trade, with or without the physical commodities, is funneled through a single mechanism, allowing for maximum effective competition among buyers and among sellers. The fact of having a single market mechanism to bring together the myriad buyers and sellers at any point in time effectively results in the greatest concentration of trading for a given good. This market mechanism, such as a price bidding system or an auction system, results in what is known as “price discovery,” that is, the emergence of the true market-clearing price for a good at a particular point in time due to the highest possible concentration and competition among buyers and among sellers (Eleniet *al.*, 2005).

2.4 Supply Chain, Commodity exchange and Ethiopian Experience

Eleniet *al.*, (2005) indicated it has been shown that a commodity exchange can address this critical need through a system that itself generates market information, that enhances the transparency of product grades, qualities, and marketed volumes in addition to the market-clearing price, that promotes self-regulation through a structure that enhances the incentives for preserving order and integrity of the system. It has been shown that an exchange is best suited for commodities that are bulky, storable, and relatively undifferentiated, rather than high-value, perishable products that are better suited to tightly integrated supply chains.

Ethiopia's first commodity exchange, ECX, is being rolled out in the context of sharply rising domestic prices. The core objective of a commodity exchange is to create a fair, orderly and efficient system for matching supply and demand in order to enable what is called "price discovery" or the true market price based on the alignment of supply and demand. To achieve this alignment, a commodity exchange can and must regulate market conduct through certain risk management instruments designed to ensure that market conduct follows the principles of a fair, orderly, and efficient marketing system. These instruments involve setting limits on trading positions, adjusting margin and other deposit requirements, and setting price circuit filters to limit price movements, among others (Eleniet *al.*, 2005).

2.5 Supply Chain Management of Agricultural Commodities through Electronic Spot Exchanges

Electronic commodity spot exchange is a transparent, neutral and unbiased market place. Electronic trading platform and screen based system of trade allows the buyer and seller to have market information on real time basis. Since the trade is carried out under enforceable contract system where exchange stands guarantee for quantity, quality, timely delivery and payment, it allows the buyer and seller to carry out transaction in seamless manner (Pradeepet *al.*, 2010). The very concept of the electronic spot market is to reduce the cost of intermediation, to help the buyers to reduce the cost of procurement and offer incentives to the farmers in terms of higher price.

All the major aspects of supply chain management of agri-based commodities are integrated through electronic commodity spot exchange, thus benefiting the enterprises in terms of cost saving, better planning and procurement strategy and availability of credit against the inventory. The supply chain management principles combined with new information (e-business) technologies can help the corporate to reduce costs, increase revenues, boost efficiencies, and expand sourcing opportunities (Pradeepet *al.*, 2010).

Pradeepet *al.*, (2010) found evidence of improvements that have resulted in reduced logistics costs and streamlined procurement processes. They concluded that electronic spot exchanges are a unique model to achieve efficiency in management of supply chain for agricultural commodities. It is also unique in its design, because it is a self-sustainable model, without any load on exchequer. (Ming-Chi Lee., 2009) indicated that Online trading has lot of advantages, such as faster trading speed, better information transparency, and lower operating cost and naturally it is expected that a stock investor will choose to adopt online trading if they perceive that doing so will provide greater benefits than existing methods. However, according to the risk theory of consumer

behavior, Bauer indicated that benefits are often accompanied with risks. The spatial and temporal separation between customers and stock brokerage firms and the unpredictability of the Internet infrastructure generate an implicit uncertainty around online transactions. First, there is the risk of monetary loss due to transaction error or stock account misuse. Second, there is the risk of loss of privacy due to Internet fraud or hacker intrusion.

2.6 Empirical Study on Commodity Exchange

Iyappan *et al.*, (2015) conducted a study by adopting survey method among clients from money manager commodity service, by using a well-structured questionnaire. 115 respondents were used for the study in the convenient sampling method. The study dealt with the importance of the customer preference and to find out the level of preference from the customers. The study provided some findings that were interpreted from the analysis of the collected data. Compared to bullion, Agri-product, metal, energy sectors, the investors are willing to prefer bullion sector (GOLD). They accepted that there was a relationship between the Awareness of trading in commodity market and purpose behind investment in commodity. They concluded that the firm should create awareness over other sectors. They cited (Sen and Paul 2010) as suggested that future trading in agricultural goods and especially in food items has neither resulted in price discovery nor less of volatility in food prices. They observed a steep increase in spot prices for major food items along with a granger causal link from future to spot prices for commodities on which futures are traded. Moreover, they cited Nath and Lingareddy (2007) as they attempted to explore the effect of introducing futures trading on the spot prices of pulses in India. Favoring the destabilization effect of futures contract, their study found that volatilities of gram and wheat prices were high during post-futures period than that in the pre-futures period as well as after the ban of futures contract.

A study conducted by (UNCTAD, 2009) on development impacts of commodity exchanges in emerging markets assessed a framework for analyzing a broad range of potential development impacts that may arise from agricultural commodity exchanges.. This may provide developing countries with a sense of the opportunities, challenges and limitations associated with the establishment of a commodity exchange. The study suggested that a commodity exchange – and specific commodity contracts – can be successfully established under a broad range of market conditions. Exchanges have developed in countries where smallholder production is the predominant mode and in others where there is a duality between smallholder and commercial production. Contracts have been developed for commodities that are grown mainly for consumption in the domestic market, and also for commodities that are mainly exported to

international markets. While many exchanges operate in countries where market infrastructure, institutions and procedures are highly developed and national markets are integrated, the study shows that they have also been successfully established in countries where markets are in need of substantial further development and integration.

Lorez (2014) studied on feasibility studies on future exchange of agricultural commodities in Kosovo. The paper followed qualitative research method, focusing primarily in literature review. Since it is the first time for Kosovo to develop such market, other developing countries that have already developed such market or are in the process of development were studied and then compared with Kosovo possibility to do so. Furthermore, Kosovo's macroeconomic indicators were presented in order to have a better understanding of Kosovo's market conditions to develop futures contracts. Based on the analysis and data collection, it is concluded that Kosovo had potential to develop agricultural futures contracts. In order for the futures exchange to be successful, special focus should be given to the settlement of regulation and organization, and continuous support of Kosovo government and financial institutions. Kosovo needed to start this process in order not to lack behind other countries and to use potential economic benefits that futures contracts bring, such as: increase in exports, liquidity, price discovery, price risk management, and better reputation for Kosovo products in the international market.

The other more important research finding was found by a study on commodity derivative market of selected Non-Agricultural products (Gold, Crude Oil, and Copper) in the Chennai Market, Periasamy et al., (2014). The study was a new endeavor to find out how selective non- agricultural commodities were selected by the players in the market for trading and speculative investment and analyzed the influencing factors with the tools like Simple Moving Average (SMA), Relativity Strength Index (RSI), Moving Average Convergence and Divergence (MACD), Exponential Moving Average (EMA), Rate of Change (ROC) that they could consider before investing their money into nonagricultural commodities like gold, Crude Oil, Copper in India for the past Four years right from 2009 to 2012. They found that in Gold, SMA chart showed many buy and sell signal over the selected period. SMA chart showed that there was a buy signal to the investor for February 2012. ROC chart showed many buy and sell signal over the selected period. In Crude Oil, ROC chart is marked below the zero line in the chart; hence it is the right time to sell the Crude Oil for February 2012. RSI chart showed many buy and sell signal over the selected period.

Commodity futures exchange was the first futures exchange initiated by countries around the world. Later on, it continued its expansion toward financial markets and manufacture goods. Actually, in today's futures market, where their specialization has reached its utmost development, traders, speculators, and hedgers use those markets even for weather and other nature-related

matters (Hull, 2011). Three main countries were chosen to be analyzed and see what Kosovo can learn from them: South Africa, India, and Iran. Given the similar problems of those developing countries, such as low economic output, high trade imbalance, low value of exports, poverty, high unemployment, low macroeconomic development, and environmental problems, the development of futures market in one of these countries can serve as a reference point for another developing country. Also, the agricultural development similarities, such as agricultural economic indicators, agricultural land, and agricultural products, between those developing countries and Kosovo, have presented relevant data and information for the paper. Even though those problems have prevailed in the developing countries, futures market as a mean of economic development has proven to be quite successful for some developing countries.

Asgharet *al.*, (2011) conducted a research to study the impacts of electronic commerce (e-commerce) applications on the organizational performance of the Indian small and medium enterprises (SMEs). They indicated that there were many different types of e-commerce applications that may influence the organizational performances; in their research, they were categorized into five different categories: electronic advertising, electronic payment system, electronic marketing, electronic customer support service and electronic order and delivery. According to their literature review, most common types of organizational performance measures that are used in recent empirical researches were included: Financial or accounting performance, operational performance and market-based performance. For analyzing the data derived from questionnaire structural equation modeling (goodness of fit tests and path analysis) were used and the software used for analyzing the data were LISREL 8.54 and SPSS 18. The survey method was considered to be the most suitable research method for this investigation. On the whole, this paper illuminated significant relationships between applications of electronic commerce and operational and market based performance. The proposed measurement model exhibited a good level of model fit, too.

Wanguku (2013) looked at the impact of e-commerce in financial performance. The overall objective of the study was to investigate the impact of e-commerce on the financial performance of airlines in Kenya, and in this case Kenya Airways. The study analyzed the impact of e-commerce using Return on assets and Net income as the dependent variables while the web passenger numbers and agency commission were the independent variables. Data analysis was done by use of descriptive statistics, regression analysis and correlation tests with results being presented in tables. This analysis included descriptive information and the relationship between the return on assets and net income as the dependent variables and the number of passengers booked via web and the agency fees as the independent variables. Tests were carried out without and with fuel cost

as the control variable. The output from data analysis showed that there was a weak positive impact of the independent variables on the dependent variables and this may be because currently the percentage of online bookings in relation to the total number of passengers is low for it to have a great impact. The study recommended that other measures of e-commerce can be analyzed in further studies. These may be non-financial benefits that also affect performance of the airline and other yardsticks that can be used to measure performance. Also, further studies may be done in global markets like Europe, Far East and Middle East where internet use is wide so that the impact of e-commerce can be analyzed since the markets have a high percentage of online bookings.

2.7 Literature Gap

All literature reviewed particularly the empirical studies have not directly investigated the effect of online trading on commodity exchange operational performance and hence, it is one of the objective of this study to fill this gap.

2.8 Theoretical Framework

Much of the current theoretical/empirical research in SCM focuses on only the upstream or downstream side of the supply chain, or certain aspects/perspectives of SCM

A few recent studies have considered both the upstream and downstream sides of the supply chain simultaneously. (Tan *et al*, 2010) explored the relationships between supplier management practices, customer relations practices and organizational performance; Frohlich and Westbrook investigate the effects of supplier–customer integration on organizational performance, Tan *et al*. study SCM and supplier evaluation practices and relates the constructs to firm performance, Min and Mentzer develop an instrument to measure the supply chain orientation and SCM at conceptual levels.

SCM practices have been defined as a set of activities undertaken in an organization to promote effective management of its supply chain. Donlon(2010) describes the latest evolution of SCM practices, which include supplier partnership, outsourcing, cycle time compression, continuous process flow, and information technology sharing. (Tan *et al.*,2010) use purchasing, quality, and customer relations to represent SCM practices, in their empirical study. Alvarado and Kotzab(2006) include in their list of SCM practices concentration on core competencies, use of inter-organizational systems such as EDI, and elimination of excess inventory levels by postponing customization toward the end of the supply chain. The above researches and others indicate inter-organizational systems such as EDI and information sharing play a significant role on the contribution of better organizational performance.

ECX as part of the supply chain node in the commodity market will play its own part in integration, information sharing, customer service management, and geographical proximity. In line with this, Supply chain Enablers also play a key part in the integration. These enablers do not by themselves make alignment and linkage happen but if they are not in place alignment and linkage will suffer.

Among the supply chain enablers that interested for this study is communication and E-system. Communications and e- system comprise both the technology available for collecting and sharing data and information and the mechanisms in place to facilitate people to people communication in support of decision making. The system help ensure data availability, accuracy and timeliness. Based on this, this study has chosen three theories resource based view of the firm (RBV), technology acceptance model (TAM) and theory of planned behavior (TPB).

2.8.1 Resource-Based View of the Firm

The resource-based view of the firm emphasizes heterogeneous firm resource endowments as a basis for competitive advantage. It is grounded in the seminal work of economists concerned with firm heterogeneity and imperfect competition (Chamberlin, 1933; Robinson, 1933). These early theorists emphasize the importance of firm heterogeneity – as against market structure – in conferring above normal profits and in driving imperfect competition. In her theory of firm growth, Penrose (1959) refines these ideas by conceptualizing the firm as a bundle of resources within an administrative framework. Evolutionary economists combining Schumpeterian competition with tacit processes and routines further extend thinking away from static equilibrium models of classical microeconomics (Nelson and Winter, 1982). A seminal contribution to resource-based theory is provided by Wernerfelt (1984), who proposes the notion of resource position barriers, i.e., barriers to imitation, and links resource. Subsequent research studies examine how resource attributes lead to competitive advantage (Amit and Schoemaker 1993; Dierickx and Cool 1989; Peteraf, (1993) and extend the RBV in various ways, including the analysis of resources in the context of interconnected organizations (Dovev 2002).

In contrast to undifferentiated factor inputs with well-defined property rights, resources are firm-specific, difficult to imitate, and often valuable, i.e., they enable the firm to improve efficiency (Teece *et al.*, 1997). Barney (1991) specifies the conditions required for a resource to confer a competitive advantage. If the valuable resource is also rare, i.e., few firms have access to it, it confers a temporary competitive advantage. If it is also imperfectly imitable – for example, competitors don't know what factors lead to success and therefore what to imitate – and there are no readily available substitutes, the resource confers a sustained competitive advantage. In this

case, the firm is using the resource to implement “a value creating strategy not simultaneously being implemented by any current or potential competitors” and one that its rivals are unable to duplicate (Barney, 1991). In summary, the four conditions necessary for a resource to confer a sustainable competitive advantage are value, rareness, inimitability, and non-substitutability. This study adopts Barney’s formulation as it is readily applicable to analyzing the fundamental questions of IT business value. Researchers have applied RBV to theoretically analyze the competitive advantage implications of information technology (Mata *et al.*, 1995) and to assess empirically the complementarities between IT and other firm resources (Powell and Dent-Micallef 1997). A limitation of the conventional resource-based view is that it assumes that resources are always applied in their best uses, saying little about how this is done. In effect, the RBV provides a set of necessary conditions to the attainment of sustainable competitive advantage via a firm resource, but does not specify the underlying mechanisms by which this is accomplished. We therefore rely on secondary theory bases such as microeconomics as well as accumulated IT business value knowledge to inform understanding of how the IT resource is applied within business processes.

The last decade of the 20th century witnessed profound technological changes among which is the advent of electronic commerce or the exchange of products and payments via the internet. The monetary value of products and services exchanged using electronic ecommerce reached us 7\$ trillion by 2004. Among all electronic commerce applications, online trading is a highly profitable financial services industry and truly one of the best areas to fully understand and implement e commerce (Ming-Chi Lee, 2009). Literature review indicates that there is strong resistance to adapt online trading by customers. In light of this, (Ming-Chi Lee, 2009), discussed that it would be useful for academics and practitioners to have a comprehensive model describing the factors that drive customer to accept online trading as it would to better understand customer online behavior in the emerging online transactions environment.

2.8.2 Technology Acceptance Model (TAM) and Theory of Planned Behavior (TPB)

In order to provide a solid theoretical basis for selecting influential driving factors, this paper integrate two important streams of literature under theory of reasoned action (TRA); (a) Technology acceptance model (TAM) as well as theory of planned behavior (TPB) and (b) the literature on benefit, risk and trust.

Since TAM and TBP have been utilized individually in many online contexts to predict and understand user perception of system use and the probability of adapting and online system, they could be the most appropriate tools for understanding online trading adaption. In addition past

researches has also suggested the need for incorporating additional factors in order to improve their predictive ability and explanatory power (Ming-Chi Lee, 2009).

Therefore, this study employs theories of RBV, TAM and TPB and trust, benefit, and risk perception as an external variable to analyze the customer acceptance of online trading effect on ECX perceived operational Practice.

2.9 Conceptual Framework

Effects are measured via indicators, which show changes in certain conditions arising from specific projects or interventions. They provide evidence of progress in attaining the objectives. They are reestablished signs that are relevant to good performance and to achieving project objectives (UNCTAD, 2009). In this Study, in order to study the effect of online trading, analysis of constructs of online trading was important. Based on this, five factors (perceived ease of uses, Attitude, trust, perceived benefit and perceived risk) were identified from literature review and used in this study as a construct for online trading. In line with this, the dependent variable ECX perceived organizational practice was analyzed based on six 6 indicators.

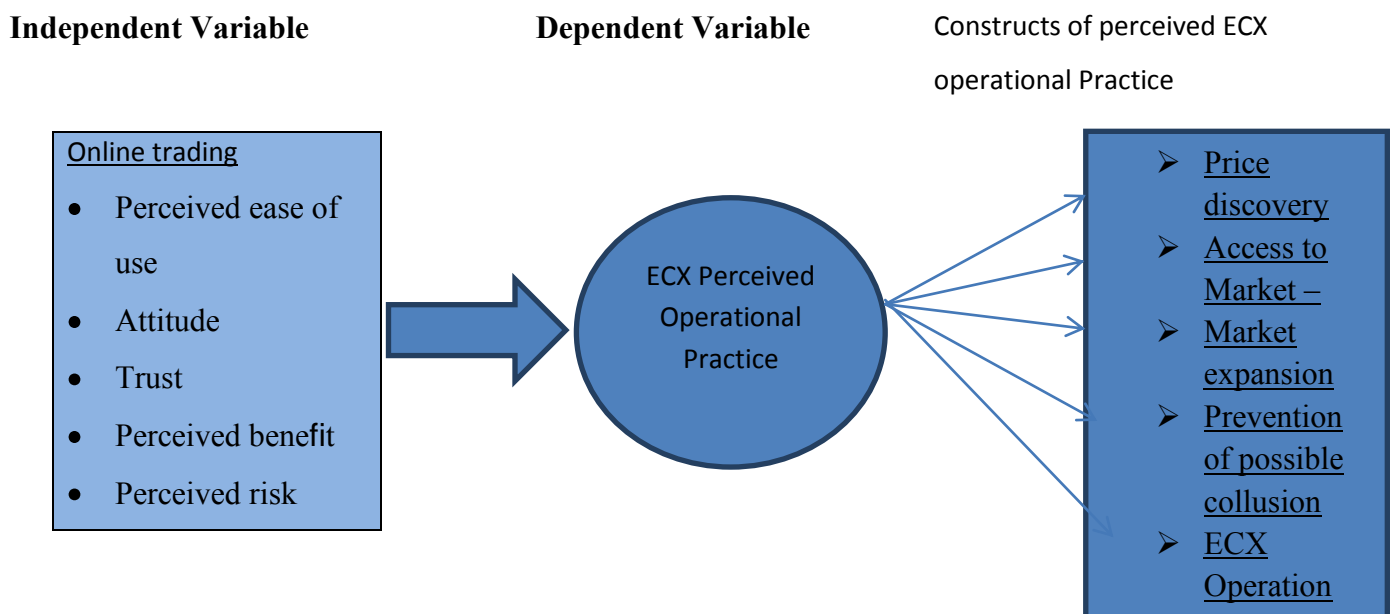


Figure 2.3. Conceptualization of this study (Source: Its own source)

2.9.1 Online Trading –Independent Variable

Electronic trading model has similar processes as the floor-trading model, and it continues to provide the core benefit of the exchange: a designated place where people meet to trade with each other unless they opt to trade from wherever they are. The electronic trading model provides a virtual meeting place, with far less human intervention. As the commodity exchanges began embracing technology, many of the processes in the trade cycle were being automated. The army

of clerks, runners, and other floor personnel are now replaced with computers. Instead of touching many hands, a trade today goes through many computers. In the electronic trading model, orders are entered by traders or clients through trading screens. Trading screens utilize programs that allow traders to view the entire market on the computer screen. Although the concept of buying and selling products still remains the crux of trading, the electronic trading model does differ significantly from the old floor-trading model (ECX, 2013). In line with this, because such trading is new to Ethiopia, Online trading need to be assessed though external factors that has direct impact on using or not using of the technology and related direct/ indirect impact of ECX perceived organizational practice. These External variables are

2.9.1.1 Trust:

Trust is an expectation that one choose to trust will not behave opportunistically. It is one's belief that the other party will behave in a dependable, ethical and socially appropriate manner. Trust deals with the belief that the trusted party will fulfil commitment despite the trusting party's dependency and vulnerability (Ming-Chi Lee, 2009). When a social environment cannot be regulated through rules and customs, people adopt trust as a central social complexity reduction strategy. In particular, in the case of online business which are lacking in effective regulations, consumers have to trust the E-vendor from whom they purchase, assuming in reality that the e-vendors will be ethical and behave in a socially suitable manner or else the overwhelming social complexity will cause them to avoid purchasing all together (Ming-Chi Lee, 2009). Trust in this study indicates that when customer have a trust on the system (online trading), they choose to use the system and when customers uses the system, the system will have more impact on the ECX operational practice.

2.9.1.2 Perceived benefit:

Perceived Benefit Online trading has recently come to be considered as one of the most effective stock transaction method. Based on a certain extent on reasons offered by two types of perceived benefits stood out, which can be categorized as direct advantage and indirect advantages Directadvantages refer to immediate and tangiblebenefit that customers would enjoy by using online trading. For example customer can benefit from lower order handling fees, faster transaction speed and better information transparency. Indirect advantages are those benefits that are less tangible and difficult to measure for example; online trading allows the customer to perform stock transaction anywhere in the world and offers customers a wider range of investment opportunities, as well as other free services such as stock quotation and news (Ming-Chi Lee 2009).

2.9.1.3 Perceived Risk:

Peter and Ryan defined perceived risk as a kind of subjective expected loss. And Featherman and Pavlou also defined perceived risk as the possible loss when pursuing a longed for result. The Distance and impersonal nature of the online environment and the implicit uncertainty of using global open infrastructure for transactions can be about two specific types of risk namely, security risk / privacy and financial risk. Security/ privacy risk refers to a potential loss due to the internet fraud or hacker intrusion. Financial risk refers to the potential for monetary loss due to transaction error or stock account misuse (Ming-Chi Lee, 2009).

Attitude on online trading: Attitude on the trading has its own effect on the application and usage of the system which in turn has an effect on perceived ECX operational practices. Positive attitude will have positive impact and negative attitude will create negative impression on the system and result in negative consequences

2.9.1.4 Perceived ease of use:

This represents the perception of the customers/user of online trading about the system. Noting online trading is the technology based activity; users need to have a perception of ease of use. When the system is not perceived to be easy, it prevents customer not to try to use it and this has its own negative implication on the ECX perceived operational practice.

2.9.2 Dependent Variables

Perceived ECX operational practice: This refers to ECX practice that should be carried out to achieve the main objective for establishment of the ECX organization. Among the many practices this study took six (6) of them as a construct of the dependent variable. These are

2.9.2.1 Price Discovery

Price discovery refers to the mechanism through which prices come to reflect known information about the market. The price level established on the open market can therefore represent an accurate depiction of the prevailing supply/demand situation in the underlying commodity markets, whether in the spot market for current deliveries or in the forwards/futures markets for deliveries at specified future occasions. The benefits of price discovery can be categorized as those arising from a more efficient price formation process, and those arising from the wider supply of more – and more accurate – market information. The former refers to those benefits arising from the proper alignment of supply and demand, ensuring that the market pricing signal triggers efficient production, purchasing and investment decisions by participants in the sector. The latter refers to those benefits arising from the publication and dissemination of market information, with

the resulting price transparency providing a readily available, authoritative and neutral price reference to sector participants (UNCTAD, 2009).

Special attention may be drawn to three particular categories of impact:

Price dissemination reduced information asymmetries and improved farmer returns: Readily available price references can benefit farmers who are otherwise disconnected from the market and are vulnerable to receiving sub-optimal prices and conditions from better-informed intermediaries. Information disseminated by the exchange can therefore reduce the information asymmetries that privilege intermediaries, and can empower participants in the commodity sector to take better decisions in light of a more accurate understanding of market conditions (UNCTAD, 2009).

Improved farmer returns and reduced cash market volatility: There are two phenomena at work. Both are to do with market price information increasing the sensitivity of producers to anticipated price levels, enabling them to adjust their behavior accordingly (UNCTAD, 2009).

Reduced intra-seasonal volatility: At a micro level, the availability of market price information shows producers how the price is developing – and is expected to develop – during the season. This enables them to decide when the optimal time is to deliver goods to market. At a macro level, this can translate into reduced intra-seasonal price volatility. The arrival of goods to market becomes more staggered, instead of having commodities arrive in large, infrequently delivered consignments which can cause prices to spurt and dip as the season develops. However, it is important to note that a farmer is dependent on access not only to information, but also to storage and finance, in order to have an effective choice about when to deliver goods to market (UNCTAD, 2009).

Reduced inter-seasonal volatility: At a micro level, the availability of futures prices for the coming season provides producers with an effective guide to deciding which crops to plant – and in what quantities – in order to maximize expected returns at the time of the next harvest. Use of spot prices as a guideline – the way that many farmers currently work – can lead to an exacerbation of inter-seasonal volatility; known as the “cobweb effect” of inter-seasonal price fluctuations.¹² The futures price typically provides a more accurate indicator of the future spot price at the time of harvest. Therefore, at a macro level, if the market anticipates shortages for a given commodity next season, futures prices will rise and farmers will have a better incentive to plant that commodity, thereby mitigating the expected shortage (and vice versa). However, it is important to note that a farmer is also dependent on the availability of inputs and expertise, and a natural environment that allows for crop rotation or intercropping (UNCTAD, 2009).

More efficient price formation and effective signaling for production, purchasing and investment decisions: Efficient price formation for agricultural commodities can lead to an increase in the

allocative efficiency of the agricultural sector. Prices typically act as a signal that informs the commodity-production, purchasing and investment decisions of sector participants. Therefore, as pricing becomes more reflective of the underlying supply/demand fundamentals in the sector, so these decisions lead to more efficient outcomes that can increase the net welfare gains to sector participant.

By providing an efficient, open and transparent platform for trading on a daily and ongoing basis, commodity futures exchanges can be an effective platform for fulfilling this purpose. A high level of participation from major producer, processor and purchaser interests – either domestic or international – strengthens the price-discovery mechanism. Conversely, a lack of participation from industry interests weakens it. Moreover, in circumstances where price formation in the domestic industry differs significantly from price formation in world markets, having a local platform reflecting domestic fundamentals can provide better signaling for the domestic industry (UNCTAD, 2009).

2.9.2.2 Market Expansion

A commodity exchange can create markets, by providing a forum in which multiple buyers and sellers trade commodity-linked contracts. This reduces the costs associated with finding a buyer or seller with whom to transact. This logic is perhaps even stronger in the context of international trade facilitation, whether it is regional or global in nature. The transaction costs of conducting international trade tend to be greater than those for domestic trade. This is driven by factors including distance, more pronounced information asymmetries, barriers to trade, divergent business practices, and cultural and linguistic differences (UNCTAD,2009). Online trading provides for market expansion. It will be impractical to accommodate all trade sessions with the two trading floors at ECX headquarters as more commodities or new type of markets 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 ongoing telecom and power expansion coupled with affordable rates will further enable and effect broad acceptance of electronic trading as demonstrated by the experience in India.

2.9.2.3 Access to Market

The last decade has seen the progressive transition from “open outcry” trading, based on the physical presence of market users on an exchange trading floor, to electronic trading executed by market users remotely from the exchange premises. Adoption and upgrade of financial and trading technologies is now a top priority for commodity exchanges around the world. ICT has the potential to increase the speed and efficiency of market performance, and to reduce the costs of

volume expansion and new product development. Furthermore, ICT offers possibilities for integrating previously disparate services into packaged service bundles. Importantly, ICT can enable exchanges to overcome the market-access barriers faced by small-scale farmers that are caused by geographical distance and deficient physical infrastructure. Moreover, by extending ICT-enabled market access to previously marginalized entities, exchanges can also open the way for provision of other electronically delivered services. These might include banking, insurance, crop and weather advisory services, and e-commerce models for the supply of inputs and equipment (UNCTAD, 2009).

2.9.2.4 Avoidance of Collusion: - Price-risk management

A commodity exchange can provide price-risk management solutions by offering trade in commodity futures and options contracts. These instruments address the fact that as Governments have withdrawn from the sector, commodity sector participants have become increasingly exposed to the notorious price volatility that has long afflicted global commodity markets (UNCTAD, 2009). Exchange-traded price-risk management instruments may be used by a farmer or other commodity sector participant directly either through direct membership of an exchange, or more likely through an exchange-accredited broker. However, farmers' direct participation in futures markets faces a number of well-documented barriers (UNCTAD, 2009).

2.9.2.5 Direct Participation

This refers to the empowerment of the traders 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.

2.9.2.6 ECX Operation

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. Significant to this is the streamlining and mostly elimination of this paper based process will transform the current business process resulting in measurable service and process efficiency

Chapter Three

Methodology of the Study

3.1 Introduction

This chapter provides a detailed discussion about the research design employed, the type of information used, the methods used to collect them, population, the sampling method, sample size and sampling procedure, methods of data analysis, the validity and reliability of the study.

3.2 Research Design

This study used descriptive and explanatory research design as best method due to efficiency and economy of the method. For data collection and analysis survey design was used. This design provides a quantitative or numeric description of attitudes or opinions of a population by studying a sample of that population. The purpose of this study is to examine the effect of online trading on over all ECX perceived operational practice. Cross-sectional survey with questionnaires for data collection method was selected as a best method of design for this study due to economy of the design.

3.3 Research Method

Data were collected using self-administered questionnaires form. Because of the nature of the population, the researcher stratified the sample population based on their impact on the Exchange operation and interaction they have with the ECX. Accordingly the population has been stratified as

- **Member of ECX:** This is the traders who have a seat in the ECX. ECX call them as an agent between the buyer, seller and ECX itself. Traders are given the privilege to represent the buyer or the seller on the ECX platform while making sure compliance of the rules and regulation of the ECX. Under this study, the total population of the members are those traders who are currently using both online and outcry/ old system/. Therefore, the sample size was taken from this population. Hence, the sample size for this stratum was 67.
- **ECX Officers:** These are ECX staffs who have direct impact on the day to day operation of ECX. For this study the total population of ECX includes only those staffs that have direct connection with the operation and the sample size is taken from this staffs. Hence, the sample size for this stratum was 37.
- **Government officials/Regulatory body:** These are policy maker and Board of directors and Government staffs who have direct and indirect impact on the operation of ECX. Hence, the sample size for this stratum was 8.

3.4 Sample size

Sampling design is the selection of a part of population or a material to represent the whole population. The objective of sampling is to make correct inference about the aggregate and is only justified if the selected part-the sample population –is a trueRepresentative of the main population. Noting the above fact, this study employed stratified random sampling and simple random sampling techniques to gather data from respondents. The sample size with confidence level of 99% and confidence interval of +/-10 is indicated as below.

Table 3.1: Sampling design

No.	Description sampling Unit	Number of population	Sample size
1	Member of ECX	80	67
2	ECX officers	60	37
3	Government officials	10	8
Total			112

Source: its own source, 2016

3.5 Instrument

The instrument was designed to include two type of questioner as presented in Appendix A. The first part include the nominal scales and the reminder include a five point likert scale ranging from strongly disagree to (1) to strongly agree (5). Accordingly the first part was basic information. This part of the questioner was used to collect information about respondent’s characteristics including gender, age, and occupation, education and experience in using ECX service. The second part was developed based on the construct of ECX Performance as measured by: - Price Discovery, Market expansion Potential, Direct participation, Access to Market, Prevention of collusion and ECX operational performance. Online Trading was measured using 9 item measures adapted from Ming –Chi Lee. [2009].the data analysis method involved descriptive statistics, correlation analysis and Simple regression analysis.

3.6 Data Type and Analysis

Once data collected on the both types (nominal and interval data), the data file has been checked for accuracy and manipulated into the form that be used to conduct analyses and test hypothesis. Based on this, items scores were added up to make up for total score of scales, Categories were collapsed (occupation collapsed into 3 categories from 6), and negatively items were reversed.

3.7 Validity Test

Study instrument was validated by exposing it to 5 experts, supervisors and members for review. Respondents were asked to comment on Face validity and content validity of the instrument. Adjustment was made following observations of these people. Based on the feedback obtained, items were improved, formats were changed and the final instrument was prepared. This study was conducted using SPSS 20.0 analysis tools

3.8 Reliability Test

According various researches conducted on various topics, the Cronbach alpha coefficient of a scale should be above .7. This study Cronbach alpha coefficient is .757 and .813 as indicated on Tables 3.2 and 3.3.

Table 3.2 Online Trading – Reliability

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.757	.807	4

Source: its own source, 2016

That the reliability analysis of each items result showed that each item have a correlation value of greater than .3 while the scale cronbach alpha coefficient was .757.

	Mean	1	2	3	4	Reliability
Attitude	7.56	1				.640
Trust	7.35	0.518	1			.568
Perceived benefit	3.28	0.496	0.532	1		.617
Perceived ease of use	7.15	0.568	0.482	0.473	1	.482

Source: its own source, 2016

Table 3.3 ECX Performances – Reliability

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.813	.821	6

Source: its own source, 2016

That the reliability analysis of each Dependent variables showed that each item have a correlation value of greater than .3 while the scale cronbach alpha coefficient was .813.

	Mean	1	2	3	4	5	6	Reliability
Price discovery	14.054	----						.589
Market Expansion	13.688	.569	-----					.665
Direct Participation	10.196	.214	.400	-----				.445
Access to Market	9.134	.484	.475	.455	----			.661
Avoidance of Collusion	6.848	.446	.476	.285	.510	1.000		.560
ECX Operation	9.366	.481	.487	.361	.504	.356	1.000	.599

Source: its own source, 2016

3.9 Ethical Consideration

Ethical issues are very important in research these days. Ethical emerged from value conflicts. In research, these conflicts are expressed in many ways: individual's rights to privacy versus the undesirability of manipulation, openness and replication versus confidentiality, future welfare versus immediate relief, and others. Each decision made in research involves a potential compromise of one value for another. Researchers must try to minimize risks to participants, colleagues and society while attempting to maximize the quality of information they produce (David F. Gillespie, 1989). In favour of this study the researcher were familiar with the ethical issues of research. Thus, the researcher will observe the principles of ethical issues like confidentiality and dignity of the participants, integrity, on no account plagiarism, and never fabricating and destroying data.

Chapter Four

Data Analysis, Interpretation and Discussion

4.1 Introduction

This chapter provides a detailed discussion and analysis on the respondent's profile, measurement Model Correlation Analysis and regression analysis and discusses the research question against the findings and finally interpretation of the result.

4.2 Respondents' Profile

The chart indicated below shows sex composition, age structure, educational level, Occupation and frequency of using ECX service of participants. The total number of participants in the study was 120, of which composed of 86 Male and 26 Female.

Table 4.1 Respondents' category – Sex vs. Age & Occupation

Gender	AGE				Occupation		
	20 - 30 years	30 - 40 years	40 -50 years	More than 50 years	Intermediate and trading Members	ECX Staff	Gov't staff
Male	29	27	22	8	55	26	5
Female	16	7	3	0	13	11	2
Total	45	34	25	8	68	37	7

Source: Own Survey, 2016

From the output shown above we can see that there are 86 males (76.8 percent) and 26 females (23.2 percent) in the sample, giving a total of 112 respondents. When we look at the age structure, Forty five (40percent) respondents fall under the age ranges of 20-30, Thirty four (30percent) respondent fall within in the range of 30-40, twenty five (22percent) two respondents in the range of 40-50 and finally 8 (7percent) respondents fall on the age of fifty years and more

Table 4.2 Respondents' Occupation

Occupation is one of the nominal data collected from the respondents and the finding shows that 60.7percent of the respondents are Intermediate and Trading members of the ECX while EXC staffs represent 33percentof the respondents and finally the remaining 6.3percent of the

respondents in this study represent the Government staff who are directly controlling the day to day operation of ECX

Table 4.2 Respondents' category – Education & experience on using ECX service

Gender	Academic background			Experience on Using ECX Service			
	Below Diploma	Degree	MA & above	less than 6 month	1 up to 3 years	3 up to 5 years	Above 5 years
Male	35	35	16	9	24	15	38
Female	11	13	2	5	13	4	4
Total	46	48	18	14	37	19	42

Source: Own Survey, 2016

In terms of Education of the respondent, only 1.8percent of the respondent is at junior school. All the rest respondents are above Secondary school up to master's level. This shows that most respondents are literate enough to utilize the new technology.

Table 4.4 shows that 12.5percent of the respondents used the ECX service less than 6 month, 33percent 1-3 years, and 17percent 3-5 years and finally 37percent of the respondents have experience of trading in the exchange more than 5 years.

Table 4.3 Frequency of using ECX service by sex

Count		Frequency of sell or buy					Total
		0	Everyday	Every week	Every 2 -3 weeks	Every month	
Sex	Male	32	45	4	3	2	86
	Female	14	11	1	0	0	26
Total		46	56	5	3	2	112

The Frequency of Buy or sell via ECX service indicates that 52percent of the respondent trade through ECX every day while 39percent are ECX staffs and Government staffs that facilitate and control the day to day operation of the Exchange. The rest will trade via exchange from every week to every month.

4.3 Analysis of Measurement Model

Table 4.4 Descriptive Statistics-Continuous Variable

	N	Mean	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Online Trading	112	31.73	-.550	.228	-.311	.453
Price discovery	112	14.05	-.772	.228	.151	.453
Market Expansion	112	13.69	-.512	.228	-.451	.453
Direct Participation	112	10.20	-.878	.228	.440	.453
Access to Market	112	9.13	-.705	.228	-.072	.453
Avoidance of Collusion	112	6.85	-.836	.228	.073	.453
ECX Operation	112	9.366	-.669	.228	1.184	.453

Source: Own Survey, 2016

Table 4.4 indicates that we have 112 respondents for all the variables (Independent and dependent variables). The skewness measure indicates that clustering of scores at the right –hand side of a graph while the positive \kurtosis value indicates the distribution is rather clustered in the center. Due to various discussion on various articles in favor and against of transforming skewness data, the researcher opt not to transform the skewed data.

4.4 Correlation Analysis

A. Correlation Analysis to Four predictor

The relationship between adapting of online trading (as measured by the constructs of Trust, Attitude, Perceived Benefit, Risk and Ease of use) and ECX perceived operational practice (as measured by the constructs of Price discovery scale, Market Expansion scale, Access to market scale , Avoidance of Collusion scale and ECX Operation scale) were investigated using Pearson product-moment correlation coefficient. Preliminary analyses were performed to ensure no violation of the assumptions of normality and linearity

Table 4.5A Pearson Product-Moment Correlations between five predictors and constructs of ECXperceived operational practice

Correlations						
	Price discovery	Market Expansion	Direct Participation	Access to Market	Avoidance of Collusion	ECX Operation
Attitude	.467**	.509**	.315**	.393**	.406**	.373**
Perceived ease of use	.296**	.309**	.224	.281**	.336**	.305**
Trust	.522**	.497**	.233	.440**	.468**	.398**
Perceived benefit	.551**	.523**	.208	.421**	.291**	.447**
E Trade	.602**	.530**	.314**	.525**	.515**	.506**
**. Correlation is significant at the 0.01 level (2-tailed).						
*. Correlation is significant at the 0.05 level (2-tailed).						

N=112 and P<.001

Sources: Its own survey, 2016

Table 4.5B Pearson Product-Moment Correlations between five predictors and ECX perceived operational practice

Correlations					
	Online trade	Attitude	Perceived ease of use	Total trust	Total Perceived benefit
Pearson Correlation	.683**	.570**	.397**	.586**	.569**
Sig. (2-tailed)	.000	.000	.000	.000	.000
N	112	112	112	112	112

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

Cohen (1988) suggests the value of Pearson correlation with a value between $r=.5$ to 1 or $r=-.5$ to -1 to be considered as having strong correlation. Accordingly, in this study, strong Positive correlation were found between Attitude and Market expansion ($R= .509$; $p<.001$), Trust and Price discovery ($R=.522$; $P<.01$), Perceived benefit and Price discovery ($R=.551$; $P<.01$), and Perceived benefit and Market Expansion ($R=.523$; $P<.01$). While As indicated on Table 4.5B above there were moderate positive correlation between the construct of ECX perceived operational practice AndPerceived ease of use.

B. Correlation Analysis to ECX Operational practice

The above four predictor discussed above were transformed to represent one independent variable –online trading and accordingly, correlation analysis were carried out.

The correlation analysis for online trading showed strong positive correlation with the six constructs of the dependent variables: online trade and price discovery ($r = .602$; $p < .001$), online trade and market expansion ($r = .530$; $p < .0001$), online trade and access to market ($r = .525$; $p < .001$), online trade and avoidance of collusions ($r = .515$; $p < .001$), online trade and ECX operation ($r = .506$; $p < .001$) and one medium correlation between online trade and direct participation ($r = .314$; $p < .0001$).

Table 4.6 Pearson Product-Moment Correlations between online trade and ECX function

		Correlations					
		Total price discovery	Total Market Expansion	Total Direct Participation	Total Access to Market	Total Possible Avoidance of Collusions	Total ECX Operation
Total E Trade	Pearson Correlation	.602**	.530**	.314**	.525**	.515**	.506**

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

N=112 and $P < .001$

		Correlations with Coefficient of Determination							
		1	2	3	4	5	6	7	Coefficient of Determination
Online Trading	Pearson Correlation	---							
Price discovery	Pearson Correlation	.602**	---						36%
Market Expansion	Pearson Correlation	.530**	.569**	---					28%
Direct Participation	Pearson Correlation	.314**	.214*	.400**	---				10%
Access to Market	Pearson Correlation	.525**	.484**	.475**	.455**	---			28%
Possible Avoidance of Collusion	Pearson Correlation	.515**	.446**	.476**	.285**	.510**	---		27%
ECX Operation	Pearson Correlation	.506**	.481**	.487**	.361**	.504**	.356**	---	26%
** Correlation is significant at the 0.01 level (2-tailed).									
* Correlation is significant at the 0.05 level (2-tailed).									

N=112. *** $p < .001$

Source: Own Survey, 2016

4.5 Regression Analysis

Regression analysis refers to a set of techniques for predicting an outcome variable using one or more explanatory variables. It is essentially about creating a model for estimating one variable based on the values of others.

Assumption,

The statistical regression model of the study was based on the theoretical regression model as indicated follows

$$Y = a + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4$$

Where:

- Y= ECX perceived operational practice
- a= the y intercept.
- x_1 =Attitude.
- b_1 = the regression coefficient of Attitude.
- x_2 = Perceived ease of use
- b_2 = The regression coefficient of Perceived ease of use
- x_3 = Trust.
- b_3 = the regression coefficient of Trust.
- x_4 = Perceived benefit
- b_4 = the regression coefficient of Perceived benefit

The correlation analysis conducted in this study indicated the there is strong positive correlation among the independent and dependent variable and satisfy the Multicollinearity assumption. Tabachnick and Fidell (2001) suggest „think carefully before including two variables with a bivariate correlation of, say, .7 or more in the same analyses. In this analysis the larger correlation is .570, which is less than .7, therefore all variables was retained. The absence of Multicollinearity was also confirmed by the result of Tolerance and VIF ($T > .10$; $VIF < 10$).

Table 4.7 : Regression analysis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.701 ^a	.492	.473	10.894

a. Predictors: (Constant), Sub Total perceived benefit, Sub Total perceived ease of use, Sub Total trust, Sub Total Attitude

b. Dependent Variable: Total Ecx Practice

-
-

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12287.207	4	3071.802	25.885	.000 ^b
	Residual	12697.650	107	118.670		
	Total	24984.857	111			

a. Dependent Variable: Total ECX Practice

b. Predictors: (Constant), Sub Total perceived benefit, Sub Total perceived ease of use, Sub Total trust, Sub Total Attitude

Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations	Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Part	Tolerance	VIF
(Constant)	16.008	5.242		3.054	.003	5.616	26.400			
Attitude	1.944	.708	.252	2.747	.007	.541	3.347	.189	.565	1.770
Perceived ease of use	.634	.744	.070	.852	.396	-.841	2.109	.059	.695	1.439
Total trust	1.993	.580	.298	3.435	.001	.843	3.144	.237	.630	1.588
Perceived benefit	2.014	.689	.256	2.922	.004	.648	3.380	.201	.619	1.614
a. Dependent Variable: Total Ecx Practice										

-

A Standard multiple regressions were carried out to ascertain the extent to which four Predictors (Attitude, Perceived ease of Use, Trust and Perceived benefit) can predict the ECX perceived operational practice. The adjusted R square indicated that 47.3% of the variance in ECX operation practice was explained by the model. The model was a good fit for the data ($F=25.885$, $p<.0005$). Among the four variables, Perceived Benefit ($Beta=.256$, $P<.05$), Trust ($Beta=.298$; $P<.05$) and Attitude ($Beta=.252$; $P<.05$) are making statistically significant unique contribution to explaining the ECX perceived operational practice, when the variance explained by all other variables in the model is controlled for...This analysis also showed that perceived ease of usedid not have statically significant unique contribution on the ECX perceived operational practice.

Result

The Above analysis indicated that increasing/decreasing Perceived benefit with one standard deviation unit will have an effect of increasing/ decreasing of ECX perceived operational practice by .25 standard deviation unit. In the same manner, the increase/decrease of trust with one standard deviation will have an effect of increase/ decrease of ECX perceived operational practice by .29 standard deviation unit and finally increasing/decreasing Attitude with one standard deviation unit will have an effect of increasing/ decreasing of ECX perceived operational practice by .25 standard deviation units.

4.5.2 Price discovery

In addition to the prediction analyzing the four predictors on the ECX perceived organizational practice, multiple regressions were carried out to analyze the prediction capacity of the model on the six ECX organizational constructs.

Table 4.8multipleregression of four predictor on pricediscovery

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.629 ^a	.396	.373	3.148

a. Predictors: (Constant), Perceived benefit, Perceived ease of use, Trust, Attitude

b. Dependent Variable: Price Discovery

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	695.038	4	173.760	17.529	.000 ^b
	Residual	1060.640	107	9.913		
	Total	1755.679	111			

a. Dependent Variable: Discovery

b. Predictors: (Constant), Perceived benefit, Perceived ease of use, Trust, Attitude

Source: Own Survey, 2016

Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
(Constant)	3.562	1.515		2.351	.021	.559	6.566					
Attitude	.354	.205	.173	1.732	.086	-.051	.760	.467	.165	.130	.565	1.770
Perceived ease of use	-.022	.215	-.009	-.101	.919	-.448	.405	.296	-.010	-.008	.695	1.439
Trust	.457	.168	.258	2.724	.008	.124	.789	.522	.255	.205	.630	1.588
Perceived Benefit	.693	.199	.332	3.481	.001	.298	1.088	.551	.319	.262	.619	1.614

a. Dependent Variable: Price discovery

Source: Own Survey, 2016

A Standard multiple regressions were carried out to ascertain the extent to which four Predictors (Attitude, Perceived ease of Use, Trust and Perceived benefit) can predict the price discovery performance variable. The adjusted R square indicated that 37.6% of the variance in price discovery was explained by the model. The model was a good fit for the data ($F=17.529$, $p<.0005$). Among the four variables, Perceived Benefit (Beta=.332; $P<.05$) and Trust (Beta=.258; $P<.05$) are making statistically significant unique contribution to explaining the Price discovery variable, when the variance explained by all other variables in the model is controlled for. In other words, increasing/decreasing Perceived benefit with one standard deviation unit will have an effect of increasing/ decreasing of Price Discovery variable by .33 standard deviation unit. In the same manner, the increase/decrease of trust with one standard deviation will have an effect of increase/ decrease of Price discovery by .25 standard deviation unit. It was also found that 5% of the variance on price discovery is explained by unique contribution of Perceived benefit while 4% of the variance on Price discovery is explained by unique contribution of Trust. This analysis also showed that attitude and perceived ease of use did not have statically significant unique contribution on the price discover performance.

4.5.3 Market Expansion

Table 4.9 Standard multiple regression of four predictor on market expansion

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.620 ^a	.385	.362 Justify	3.305

a. Predictors: (Constant), Perceived benefit, Perceived ease of use, Trust, Attitude

b. Dependent Variable: Market Expansion

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	731.485	4	182.871	16.744	.000 ^b
	Residual	1168.578	107	10.921		
	Total	1900.063	111			

a. Dependent Variable: Market Expansion

b. Predictors: (Constant), Perceived benefit, Perceived ease of use, Trust, Attitude

Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations Part	Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound		Tolerance	VIF
(Constant)	2.65	1.59		1.666	0.099	-0.503	5.802			
Attitude	0.56	0.215	0.264	2.615	0.01	0.136	0.987	0.198	0.565	1.77
Perceived ease of use	-0.02	0.226	-0.01	0.107	0.915	-0.472	0.423	-0.01	0.695	1.439
Trust	0.39	0.176	0.212	2.223	0.028	0.042	0.74	0.169	0.63	1.588
Perceived benefit	0.62	0.209	0.283	2.941	0.004	0.2	1.029	0.223	0.619	1.614

a. Dependent Variable: Market Expansion

Source: Own Survey, 2016

Correlation and multiple regression analyses were conducted to examine the relationship between Market Expansion and four potential predictors. Table 4.8 summarizes the regression analysis results. The adjusted R square indicated that 38% of the variance in Market Expansion was explained by the model which includes the variables (Attitude, Perceived ease of use, Trust and Perceived benefit). The model was a good fit with the data ($F=16.744$, $p<.0005$). As can be seen in Table, perceived benefit ($Beta=.283$; $P<.05$), Trust ($beta=.212$; $P<.05$) and Attitude ($B=.264$; $P<.05$) scales had significant positive regression weights, indicating the higher the benefit, trust and good attitude on the online trading, the higher the Market expansion effect, after controlling for the other variables in the model. Perceived ease of use did not contribute to the multiple regression models of Market expansion.

4.5.4 Direct Participation

Table 4.10 Standard multiple regression of four predictor on direct participation

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.333 ^a	.111	.078	3.634

a. Predictors: (Constant), Perceived benefit, Perceived ease of use, Trust, Attitude

b. Dependent Variable: Direct Participation

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	176.287	4	44.072	3.336	.013 ^b
	Residual	1413.392	107	13.209		
	Total	1589.679	111			

a. Dependent Variable: Total Direct Participation

b. Predictors: (Constant), Perceived benefit, Perceived ease of use, Trust, Attitude

Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
(Constant)	4.386	1.749		2.508	0.014	0.919	7.853					
Attitude	0.434	0.236	0.223	1.837	0.069	-0.03	0.902	0.315	0.175	0.167	0.565	1.77
Perceived ease of use	0.169	0.248	0.074	0.679	0.499	-0.32	0.661	0.224	0.066	0.062	0.695	1.439
Trust	0.14	0.194	0.083	0.725	0.47	-0.24	0.524	0.233	0.07	0.066	0.63	1.588
Perceived benefit	0.044	0.23	0.022	0.192	0.848	-0.41	0.5	0.208	0.019	0.018	0.619	1.614

a. Dependent Variable: Direct Participation

Source: Own Survey, 2016

Multiple regressions analysis carried out to ascertain the four predictor extent of prediction on Direct Participation variable. The adjusted R square indicated that 7.8% of the variance in Direct Participation was explained by the model which includes variables of (Attitude, Perceived ease of use, Trust and Perceived benefit) the model was a good fit for the data ($F=3.336$, $p<.0005$). The analysis showed that all the four variables that constructs the Online trading, Perceived Benefit (Beta=...022; $P>.05$), Trust (Beta=.083; $P>.05$), Perceived ease of use (Beta=.074; $P>.05$); and Attitude (Beta=.223; $P>.05$) are not making statistically significant unique contribution to explain the direct participation performance variable. In other words, increasing/decreasing these variables donot have any significant effect on increasing/ decreasing of Direct Participation.

4.5.5 Access to Market

Table 4.11 Standards multiple regression of four predictor on access to market

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.512 ^a	.262	.234 Justification	2.893

a. Predictors: (Constant), Perceived benefit, Perceived ease of use, Trust, Attitude

b. Dependent Variable: Access to Market

ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	317.553	4	79.388	9.486	.000 ^b
Residual	895.438	107	8.369		
Total	1212.991	111			

a. Dependent Variable: Total Access to Market

b. Predictors: (Constant), Perceived benefit, Perceived ease of use, Trust, Attitude

Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations	Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound		Part	Tolerance
(Constant)	1.638	1.392		1.177	0.242	-1.12	4.398			
Attitude	0.238	0.188	0.14	1.269	0.207	-0.13	0.611	0.105	0.565	1.77
Perceived ease of use	0.103	0.198	0.052	0.52	0.604	-0.29	0.495	0.043	0.695	1.439
Trust	0.364	0.154	0.247	2.361	0.02	0.058	0.669	0.196	0.63	1.588
Perceived benefit	0.343	0.183	0.198	1.876	0.063	-0.02	0.706	0.156	0.619	1.614

A Dependent Variable: Access to Market

Source: Own Survey, 2016

The Model Summary for the four predictors and Access to market shows strong positive correlation ($r=.512$) and with prediction capacity of 23% (adjusted square of the variance). The model was a good fit for the data at ($F=9.486$, $p<.0005$). As can be seen in Table 4.10, Trust ($Beta=.247$; $P<.05$), scales had significant positive regression weights. This analysis indicated, the higher the trust on Online trading the higher the effect on Access to Market, after controlling for the other variables in the model. Perceived ease of use ($B=.052$, $P>.604$), perceived benefit and attitude ($B=.14$, $P>.005$) did not contribute to the multiple regression models of Access to market variable.

4.5.6 Avoidance of Collusion

Table 4.12 Simple regression of four predictor on avoidance of collusion

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.525 ^a	.276	.249 Justification	2.251

a. Predictors: (Constant), Perceived benefit, Perceived ease of use, Trust, Attitude

b. Dependent Variable: Avoidance of Collusion

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	206.341	4	51.585	10.182	.000 ^b
	Residual	542.078	107	5.066		
	Total	748.420	111			

a. Dependent Variable: Avoidance of Collusion

b. Predictors: (Constant), Perceived benefit, Perceived ease of use, Trust, Attitude

Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
(Constant)	0.758	1.083		0.7	0.485	-1.389	2.905					
Attitude	0.206	0.146	0.154	1.408	0.162	-0.084	0.496	0.406	0.135	0.116	0.565	1.77
Perceived ease of use	0.264	0.154	0.169	1.716	0.089	-0.041	0.569	0.336	0.164	0.141	0.695	1.439
Trust	0.422	0.12	0.365	3.518	0.001	0.184	0.659	0.468	0.322	0.289	0.63	1.588
Perceived benefit	-0.068	0.142	-0.05	-0.478	0.634	-0.35	0.214	0.291	-0.046	-0.039	0.619	1.614

a. Dependent Variable: Total Possible Avoidance of Collusion

Source: Own Survey, 2016

The regressions analysis conducted showed that adjusted R square (24.9%) of the variance on Avoidance of Collusion was explained by the model. The model was a good fit for the data (F=10.182, p<.0005). The analysis showed that all three variables that constructs the Online trading, Perceived Benefit (Beta=-.05; P>.05), Perceived ease of use (Beta=.0169; P >.05); and

Attitude (Beta=.154; P>.05) are not making statistically significant unique contribution to explain the Avoidance of Collusion variable. Only Trust (Beta=.365; P<.05), scale had significant positive regression weights. This analysis indicated, the higher the trust on online trading the higher the effect on Avoidance of Collusion, after controlling for the other variables in the model

4.5.7 ECX Operation

Table 4.13 Standard multiple regression of four predictor on ECX Operation

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.505 ^a	.255	.227 Justification	2.445

a. Predictors: (Constant), Perceived benefit, Perceived ease of use, Trust, Attitude

b. Dependent Variable: ECX Operation

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	218.501	4	54.625	9.140	.000 ^b
	Residual	639.490	107	5.977		
	Total	857.991	111			

a. Dependent Variable: Total ECX Operation

c. Predictors: (Constant), Perceived benefit, Perceived ease of use, Trust, Attitude

Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.	95.0% Confidence Interval for B		Correlations Part	Collinearity Statistics	
	B	Std. Error				Lower Bound	Upper Bound		Tolerance	VIF
(Constant)	3.014	1.176		2.562	0.012	0.682	5.346			
Attitude	0.151	0.159	0.105	0.949	0.345	-0.164	0.465	0.079	0.565	1.77
Perceived ease of use	0.145	0.167	0.087	0.866	0.389	-0.186	0.476	0.072	0.695	1.439
Trust	0.219	0.13	0.177	1.682	0.096	-0.039	0.477	0.14	0.63	1.588
Perceived benefit	0.386	0.155	0.265	2.498	0.014	0.08	0.693	0.208	0.619	1.614

a. Dependent Variable: ECX Operation

Source: Own Survey, 2016

According to the regression analysis result, the adjusted R square value of is 22.7% and the model is fit at ($F=9.14$, $p<.0005$). The analysis showed that perceived benefit ($Beta=.265$; $P<.05$), scales had significant positive regression weights, indicating the higher the benefit , from the online trading were obtained the have higher the effect on ECX Operation Variable, after controlling for the other variables in the model. The other three variables that constructs the Online trading, Trust ($Beta=.177$; $P>.05$), Perceived ease of use ($Beta=.087$; $P >.05$); and Attitude ($Beta=.105$; $P>.05$) are not making statistically significant unique contribution to explain the ECX Operation performance variable. In other words, increasing/decreasing these variables do not have any significant effect on increasing/ decreasing of ECX Operation performance.

4.6 Discussion and Interpretation

The relationship between ECX E-Trading (as measured by the constructs of Trust, Attitude, Perceived Benefit, Risk and Ease of use) and ECX perceived operational practices (as measured by the constructs of price discovery, market Expansion, access to market, avoidance of illegal collusion and ECX operation) was investigated using Pearson product-moment correlation coefficient. Five strong Positive correlation were found among the variables under this study: online trade and price discovery ($R= .602$; $P<.001$), Online trade and Market expansion ($R=.530$; $P<.0001$), Online trade and Access to market ($R=.525$; $P<.001$), Online trade and avoidance of Collusions ($R=.515$; $P<.001$), Online trade and ECX operation ($R=.506$; $P<.001$) and finally one medium correlation is found between Online trade and direct participation ($R=.314$; $P<.0001$)

A standard multiple regression were carried out to examine the extent of the four predictors of the Online trading (perceived benefit, perceived ease of use, trust and attitude) on ECX operational practice variable and the result showed that The model was a good fit for the data ($F=25.885$, $p<.0005$). Among the four variables, Perceived Benefit ($Beta=.256$, $P<.05$), Trust ($Beta=.298$; $P<.05$) and Attitude ($Beta=.252$; $P<.05$) are making statistically significant unique contribution to explaining the ECX perceived operational practice. In line with this, the multiple regressions carried out for the ECX operational practice constructs showed that for price discovery the model was a good fit for the data ($F=17.529$, $p<.0005$) with adjusted R square indicated that 37.6%; for Market Expansion the model was a good fit with the data ($F=16.744$, $p<.0005$) with adjusted R square 38% of the variance; for Direct Participation the model was a good fit for the data ($F=3.336$, $p<.0005$) with adjusted R square indicated that 7.8% of the variance; for Access to market The model was a good fit for the data at ($F=9.486$, $p<.0005$) with adjusted square of 23%; for Avoidance of Collusion The model was a good fit for the data ($F=10.182$, $p<.0005$) with

adjusted R square 24.9%; for ECX operation the model was a good fit for the data ($F=9.14$, $p<.0005$) with the adjusted R square value of is 22.7%. The above result indicates that all models are good fit for the regression analysis and independent variables can explain minimum 47.3% of the variance on the ECX perceived operational practice.

In summary, the correlation analysis proved Direct strong positive correlation between the online trading constructs and the ECX operational practice except that perceived ease of use has moderate correlation and the Regression analysis showed that the extent to which the four independent variables (Perceived benefit, Perceived ease of use, Trust, Attitude) predicts to be 47% of the variance which was statistically significant.

4.6.1 Specific Question:

4.6.1.1 What is the effect of perceived ease of use of online trading on ECX perceived operational practice?

The correlation analysis showed that perceived ease of use has medium correlation with ECX operational practice. This also was proved by the analysis done on ECX operational practices constructs (Price Discovery $R=.296$, Market Expansion $R=.309$, Direct Participation $R=.224$, Access to market $R=.281$, Avoidance of collusion $R=.336$ and ECX operation $R=.305$). The multiple regression model with all four predictors produced that there are significant positive regression weight between the Perceived ease of Use and ECX operational practice as measure by the adjusted R square value $R=47\%$

4.6.1.2 What is the effect of attitude for online trading on perceived operational practice?

Correlation and multiple regression analyses were conducted to examine the relationship between Attitude on online trading and its effect on ECX organizational practice. In the Finding, Attitude has strong positive and significant correlation with ECX operational practice. ($r=.570$). This is also proved by the correlation analysis conducted on ECX operational practice constructs with Market expansion performance ($R=.509$) and moderately correlated with the other variables (Price discovery $R=.467$, Direct Participation $R=.315$, Access to market $R=.393$, Avoidance of collusion $R=.406$ and ECX operation $R=.373$). This indicates that the more the ECX community attitude increase on the online trading, the more the ECX organization performance increases. The multiple regression model with all four predictors produced that there are significant positive regression weight between the Perceived ease of Use and ECX operational practice as measure by the adjusted R square value $R=47\%$

4.6.1.3 What is the effect of trust on online trading on ECX perceived operational practice?

The correlation analysis conducted between trust and ECX operational practice showed ($r=.58$) strong positive correlation and The multiple regression model with all four predictors produced that there are significant positive regression weight between Trust and *ECX perceived operational practice* as measure by the adjusted R square value of 47%. In the regression analysis, it has been proved that Trust with ($\beta=.212; P<.05$) had significant positive regression weights for Market expansion, indicating the higher the trust on the online trading, the higher the Market expansion effect, while Access to market with ($\beta=.247; P<.05$) which means the higher the trust on Online trading the higher the effect on Access to market and for Avoidance of Collusion with ($\beta=.365; P<.05$) that indicate the higher the trust on online trading the higher the effect on Avoidance of Collusion, after controlling for the other variables in the model

4.6.1.4 What is the effect of perceived benefit in online trading on ECX perceived operational practice?

The result of the correlation analysis proved that the Perceived benefit has significant positive relation with correlation model ($r=.569$) and with ECX perceived operational practice. This was also proved with correlation analysis of the constructs of ECX operational practice for with Price discovery positive correlation ($R=.551$) and Market expansion ($R=.523$) while it has moderate Positive relation with the rest of ECX perceived operational practice (Direct participation $R=.208$, Accesses to market $R=.421$, Avoidance of collusion ($R=.291$) and ECX operation ($R=.447$). In the same manner the multiple regression models with all four predictors produced that there are significant positive regression weight between Perceived benefit and ECX perceived operational practice.

4.6.1.5 What the effect of perceived risk on online trading on the organizational performance?

In this study, the reliability test for Perceived risk was below the recommended Cronbach's Alpha ($<.07$) and for this reason this variable has been dropped out at data reliability check stage.

What is the effect of online trading on ECX perceived operational practice?

4.6.1.6 What is the effect of online trading on ECX perceived operational practice?

The correlation analysis of online trading with constructs used to measure ECX operational practice showed strong Positive correlation ($r=.602$) in general and against each construct variables: Online trade and Market expansion ($R=.530; p<.0001$), Online trade and Access to market ($R=.525, p<.001$), Online trade and avoidance of Collusions ($R=.515, p<.001$), Online trade

and ECX operation ($R=.506$, $p<.001$) and one medium correlation between Online trade and direct participation ($R=.314$; $p<.0001$). This was also proved by the analysis of four predictor of ECXperceived operational practice. Except ease of use, all the three online constructs (trust, perceived benefit and attitude) have significant regression weight. Ease of use does not have contribution for regression model.

Chapter Five

Summary, Conclusion and Recommendations

5.1 Introduction

In the chapter four we have analyzed the data and responded the research question. This chapter summarizes and concludes the overall the finding of the study and puts its recommendation.

5.2 Summary and Conclusion

The objective of this survey was to analyze the effect of adapting the online trading system (as measured by constructs of trust, attitude, perceived benefit and perceived risk) on ECX perceived operational practice (Dependent variable). In order to do this, ECX operational practice has been measured as a construct of Six practice (price discovery, market expansion, access to market, direct participation, prevention of collusion and ECX operations). Data were analyzed to determine whether online trading may improve the current status of these variables which directly or indirectly have effect on the ECX perceived operational practice.

This study used five scale questionnaires for data collection method. The total number of participants in the study was 112, of which composed of 86 Male and 26 Female. A case study methodology was selected as a best method because of its economy of the design. In this research there were two types of data Nominal data and ordinal data. Descriptive analysis (Frequency, Mean,) was used to illustrate/ describe the respondents. Pearson product-moment correlation analysis was used as inferential statistics to determine whether there are relationships between two or more sets of variables. To strengthen the finding, Standard Multiple regression analysis conducted to check the casual effect of the relationship obtained in the correlation analysis.

In the Correlation analysis strong Positive correlation were found among the variables under this study except one medium correlation between online trade and direct participation. A standard multiple regression were carried out to examine the extent of the four predictors of the Online trading (Perceived benefit, Perceived ease of use, Trust and Attitude) on ECX organizational performance variables and the result showed that that all models are fit for the regression analysis and independent variables can explain minimum 47% variance of the dependent variables.

In summary, the finding proved that there is direct strong positive correlation between the online trading and ECX perceived operational practice.

In conclusion, this study confirmed both from the theory base and from the study result that the adaption of online trading has significant effect on ECX perceived operational practice. In general,

by introduction of online trading, ECX can attain the benefits indicated by the feasibility conducted by EXC and summarized below:

- Improve the liquidity potential of ECX through lower trading costs (commissions paid by clients),
- increase the amount of publicly available information by transparently displaying and efficiently archiving quotes, depths, orders, and transactions,
- 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
- Make remote access possible and increase the number of traders and liquidity. ECX will no more be a physical exchange located in Addis Ababa only. Online traders can trade from locations where remote trading centers are established and eventually from wherever they are.
- Improve the price discovery process as orders can be entered faster into the system and the execution of an order is immediate. Also, the price discovery process will be improved by the new features that the electronic platform will bring (new types of orders, online charts, price alerts, etc.). Further, it is easier to disseminate market information, thereby increasing the transparency of the market and the information available to the traders. Greater pre-trade transparency will allow traders to more accurately estimate the price impact of a trade. Finally, the anonymity of electronic trading systems will make it easier for informed traders to exploit their informational advantage. From long-term perspective, the electronic platform will allow the implementation of an efficient Market-Making system which will further improve the price discovery and market liquidity.
- Make transactions get processed easier and faster to complete, monitor, clear, and settle. Such automation is particularly useful here because, if done manually, these processes are very time-consuming and error-prone. From an operational standpoint, electronic systems can considerably reduce the probability of errors in recording and reporting trades.
- allows ECX to process the potentially growing trading volume with the speed and degree of accuracy that can be challenging with floor-trading
- Deliver reliable and fast service to the various market actors in the ecosystem.
- Help ECX to launch new products in the near future. It will be far 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. The increase in product choices will help ECX grow its overall volume tremendously in the years to come.

- Bolster the capability of ECX to provide accurate, current, relevant, and sufficient information to the various market actors and data vendors which will expand the actual data dissemination network and can be a new source of revenues. This will help traders to 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. With more information about the market and other events at hand, traders can make better decisions. The basic information that the Exchange will display include, but not limited to, the following:
 - Depth of the market: List of all pending bid and ask orders at different prices
 - Last traded price: Price at which the last trade occurred
 - Last traded quantity: The trade size of the last transaction
 - Total volume traded: Volume for the day for the contract
 - Total volume traded in the market: Total volume for the exchange
 - Volume at price: Total volume traded for the day at a specific price

More importantly, members and other stakeholders will be able to access these data in real time, allowing them to adjust their trading strategies or positions instantaneously.

- Compliance and risk teams' task of monitoring and risk controls will be further enhanced as they can obtain accurate and timely information on real time basis.
- Can track all electronic trading activities to analyse 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.
- 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

5.3 Recommendation

This study confirmed empirically that the adaption of online trading has an impact on ECX operational practice and hence, it is recommended to expand the existing platform to regional level by constructing remote trading center that are equipped with online trade platform so that all stakeholders can access the platform and as many products as possible to be exchanged via the exchange. However, in this study, it was also noted that direct participation of all stakeholders was

not practicable by the existing platform as the remote trade centres are not constructed and this has direct negative impact on long term regional integration.

5.4 Limitation and Future Study

This study has not fully answered the effect of extraneous variable on the Electronic trading due to the reliability issue and hence this should be one of the points to be considered by future study. In addition to this, by the time this study conducted, only coffee was traded through the online system. Besides, the remote trading centers that were planned to be constructed in the region for the purpose of adapting the online trading system were not completed. Therefore, future researched adding these factors will support to evaluate the development and additional effect on the online trading is recommended.

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Appendix – Questionnaire

Addis Ababa University School of Commerce

Title: Effect of Online Trading on ECX Organizational Performance

Dear respondents THE PURPOSE OF THIS QUESTIONNAIRE IS TO CONDUCT A RESEARCH ON THE EFFECT OF ONLINE TRADING ON ECX ORGANIZATIONAL PERFORMANCE. YOUR INPUT TO THE SUCCESS OF THIS RESEARCH IS A LOT, SO CONTRIBUTE YOUR IDEA OF THE REAL SITUATION FREELY. THE INFORMATION YOU PROVIDE IS USED FOR THIS PURPOSE AND IT WILL BE KEPT CONFIDENTIAL.

THANK YOU.

INSTRUCTION: GIVE YOUR APPROPRIATE RESPONSE BY CIRCLING ON THE CHOICE PROVIDED

Part I. Personal Information

Gender: Male Female

Sex: <20 (Less than 20) 20 -30 30 -40 40 -50 >50 (Above 50)

You're Occupation/Membership TYPE: Buyer Seller

Agent/Member

ECX Officer Government officer

Education Level: Illiterate Primary school

High School Certificate Diploma BA MA PHD

How long have you traded using ECX service?

Less than 6 month 1 year to less than 3 years

3years to less than 5 years 5 years or more

How frequently do you buy/ sell via ECX

Every day Every week Every 2-3 weeks Every month

Every 2-3 months Every 4-6 MONTHS Once or twice a year

Part II. Question related to online trading System and its effect

PLEASE INDICATE YOUR LEVEL OF AGREEMENT OR DISAGREEMENT WITH EACH OF THE FOLLOWING ITEMS (CIRCLE THE APPROPRIATE NUMBER).

6-NOT APPLICABLE (NA); 5- STRONGLY AGREE (SA); 4-AGREE (A); 3- NEUTRAL (N);

2- DISAGREE (DA); 1- STRONGLY DISAGREE (SDA)

Electronic trading	SDA	DA	N	A	SA	NA
THE MARKET IS READY FOR ONLINE TRADING	1	2	3	4	5	6
ONLINE TRADING SCREEN PROVIDES A ONE STOP SHOP FOR MARKET INFORMATION TO HELP MAKE CLIENT INFORMED BUY/SELL DECISIONS	1	2	3	4	5	6
THE ONLINE TRADING SYSTEM TYPICALLY REQUIRES LESS LABOUR	1	2	3	4	5	6
THE ONLINE TRADING SYSTEM TYPICALLY REQUIRES LESS SKILL	1	2	3	4	5	6
THE ONLINE TRADING SYSTEM TYPICALLY REQUIRES LESS TIME	1	2	3	4	5	6
THE ONLINE TRADING SYSTEM KEEPS US FULLY INFORMED ABOUT ISSUES THAT AFFECT OUR BUSINESS.	1	2	3	4	5	6
INFORMATION PROVIDED BY ONLINE TRADING IS RELIABLE	1	2	3	4	5	6

Price Discovery						
IN ONLINE TRADING SYSTEM ORDERS CAN BE ENTERED INTO THE SYSTEM FASTER THAN THE FLOOR BASED SYSTEM	1	2	3	4	5	6
IN ONLINE TRADING SYSTEM THE EXECUTION OF AN ORDER IS IMMEDIATE	1	2	3	4	5	6
THE NEW FEATURES THAT THE ONLINE TRADING PLATFORM BRINGS (ONLINE CHARTS, PRICE ALERTS, ETC.) WILL IMPROVE THE PRICE DISCOVERY PROCESS	1	2	3	4	5	6
I LIKE THE PRE TRADE MARKET INFORMATION PROVIDED BY THE ONLINE TRADING SYSTEM.	1	2	3	4	5	6
Market expansion Potential						
THE ONLINE TRADING SYSTEM WILL ENHANCE ECX'S CAPACITY TO INTRODUCE NEW PRODUCTS TO TRADING FLOOR	1	2	3	4	5	6
THE NEW ONLINE TRADING SYSTEM WILL MAKE REMOTE ACCESS POSSIBLE	1	2	3	4	5	6
THE NEW ONLINE TRADING SYSTEM WILL INCREASE THE NUMBER OF TRADERS AND LIQUIDITY	1	2	3	4	5	6
THE NEW ONLINE TRADING SYSTEM WILL INCREASE THE LIQUIDITY						
Direct participation						
ONLINE TRADING PROVIDES ONLINE ACCESS TO THE	1	2	3	4	5	6

MEMBERS AND THEIR RESPECTIVE CLIENTS						
BECAUSE OF THE NEW PLATFORM NOW MEMBERS AND THEIR RESPECTIVE CLIENTS CAN SUBMIT ORDERS AND/OR VIEW STATUS OF THEIR ORDERS	1	2	3	4	5	6
ONLINE TRADING PROVIDE VISIBILITY TO TRADE STATUS AND EXECUTION FOR BOTH THE CLIENT AND THE MEMBER	1	2	3	4	5	6
Access to Market						
ONLINE TRADING IS MORE EFFICIENT AS I DON'T HAVE TO TRAVEL TO ECX HEADQUARTERS TO TRADE	1	2	3	4	5	6
ONLINE TRADING IS MORE EFFECTIVE AS I DON'T HAVE TO TRAVEL TO ECX HEADQUARTERS TO TRADE						
I LIKE THE IDEA THAT IT IS NOT A NECESSARY FOR ME PHYSICALLY TO ATTEND A TRADE SESSION.	1	2	3	4	5	6
Prevention of collusion						
I BELIEVE THAT ONLINE TRADING WILL RESOLVE THE ISSUES ASSOCIATED WITH COLLUSION.	1	2	3	4	5	6
I DON'T THINK COLLUSION WILL BE PREVENTED BY ONLINE TRADING SYSTEM	1	2	3	4	5	6
THERE IS BETTER CONDITION TO AVOID COLLUSION IN ONLINE TRADING SYSTEM THAN FLOOR TRADING SYSTEM	1	2	3	4	5	6
ECX Operation:						
WITH THE INTRODUCTION OF ONLINE TRADING SYSTEM, ECX OPERATIONS HAS BEEN MUCH MORE	1	2	3	4	5	6

EFFICIENT IN TERMS OF COST						
AFTER THE INTRODUCTION OF ONLINE TRADING SYSTEM, ECX OPERATIONS HAS BEEN MUCH MORE EFFICIENT IN TERMS SERVICE DELIVERY						
THE ONLINE TRADING SYSTEM HELPED ECX TO LOWER DIRECT TRANSACTIONS COSTS	1	2	3	4	5	6
Things that challenge online trading						
Information provided by online trading is not complete	1	2	3	4	5	6
I HAVE NOT SEEN SIGNIFICANT CHANGE ON ECX OPERATION THAT COMES AS A RESULT OF ONLINE TRADING	1	2	3	4	5	6
NOTING THE CURRENT INFRASTRUCTURE, ELECTRIC POWER OUTAGES, AND MANY OTHER REASON, I DO NOT BELIEVE THAT THE REMOTE ACCESS WILL BE SUCCESSFUL	1	2	3	4	5	6

Thank you for taking the time to complete this questionnaire

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