DETERMINANTS OF MARKET EFFICENCY OF COMMODITY EXCHANGE: THE CASE OF ETHIOPIAN COMMODITY EXCHANGE

Addis Ababa University College of Business and Economics School of Commerce

Department of Marketing Management Graduate Program Unit

BY

Tewodros Alemayehu

ADVISOR: Mulugeta G/ Medhin **(Ph.D.)**

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Abstract:

The objective this study is to examine the determinants of market efficiency of Ethiopian Commodity Exchange (ECX) that the market institution (ECX) promised and work toward achieving market efficiency. Of course, it is after eleven years of establishment that this research was conducted to analyze the operation of ECX and find out the fulfillment of the promised 'making an efficient market work for everybody'. The variable that used to examine were Trading Platform, Trade Contracts, Counterparty Risk Management, Brokers Market Participation, Product Integrity, Viable Regulation and Enforcement that the data was analyzed through descriptive analysis and binary regression model using SPSS version 20.

The research methodology is descriptive and explanatory designs and used multiple linear regression analysis to examine the relationship between dependent and independent variables. Correlation analysis is useful to measure linear association relationship between variables with the intention their coefficient indicates the strength of linear association between two variables.

The finding indicates that these six independent variables are found to have a positive correlation with market efficiency that revealed from the Pearson's Correlation Coefficient. The coefficients of the variables indicated that these variables have different magnitudes of correlation with each other too. As the finding reveals, product integrity and viable regulatory and enforcement have the highest and strong positive relation where as trading platform relatively recorded moderate.

Key words: *Trading Platform, Trade Contracts, Counterparty Risk Management, Brokers Market Participation, Product Integrity, Viable Regulation and Enforcement ECX, ECX members*

List of Acronyms

ANOVA	Analysis of Variance
SPSS	Statistical Packages for Social Science
ECX	Ethiopian Commodity Exchange
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Program
USAID	United States Agency for International Development
WRS	Warehouse Receipt System

College Of Business and Economics

School of Commerce

Marketing Management Graduate Program Unit

This is to certify that the thesis is prepared by Tewodros Alemayehu, entitled; Determinants of Market Efficiency of Commodity exchange: The case of Ethiopian Commodity Exchange, in partial fulfillment of the requirements for the award of the Degree of Master of Arts in Marketing Management with the regulation of the University and the accepted standards with respect to originality.

Approved by Board of Examiners

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Thesis Advisor	Signature	Date
_____	_____	_____
Internal Examiner	Signature	Date
_____	_____	_____
External Examiner	Signature	Date

DECLARATION

I, Tewodros Alemayehu, hereby declare that this research paper entitled "**Determinants of Market Efficiency of commodity exchange; the case of Ethiopian Commodity Exchange**" is my original work and has not been used by others for any other requirements in any other university and all sources of information in the study have been appropriately acknowledged.

Advisors name: Mulugeta G/ Medhin (PhD) **Researcher:** Tewodros Alemayehu

Signature ---------- Signature ----------

Date ---------- Date ----------

LETTER OF CERTIFICATION

This is to certify that this study on the topic entitled "**Determinants of Market Efficiency of Commodity exchange: The case of Ethiopian Commodity Exchange**" is a bona fide work of Tewodros Alemayehu who carried out under my guidance/supervision and this work is original in nature and is suitable for submission for the award of masters of Marketing Management.

Advisors Name: Mulugta G/Medhin (PhD)

Signature…….

Date**……**

G/ Medhin

Chapter One - Introduction

1.1 Background

It is well known that many markets in developing countries are characterized by small trading volumes, incomplete competition and a high volatility in prices (i.e., by being 'thin'). Low trading volumes implies that the quantity and quality of information disseminated from trade is limited and therefore that the price discovery process (i.e., the process through which buyers and sellers arrive at a transaction price) is hampered (Mattos and Garcia, 2004).

In the Ethiopian context, the presence of prohibitively high transaction costs, evidenced by the lack of sufficient market coordination between buyers and sellers, the lack of market information, the lack of trust among market actors, the lack of contract enforcement, and the lack of grades and standards, implies that buyers and sellers operate within narrow market channels, that is, only those channels for which they can obtain information and in which they have a few trusted trading partners. Amidst of these circumstance, many of smallholders live in very remote places with little or no access to infrastructure, communication or information, so the potential for middle men to exploit this was rife. (Gabre-Madhin, 2005)

The persistence of these market constraints in Ethiopia points to the fact that market reforms alone, defined as the removal of policy distortions, are necessary but not sufficient to enhancing market performance. In addition to policy incentives, key interventions are required to develop appropriate market institutions and build needed infrastructure. In recognition of this, the Government of Ethiopia restructured the Ministry of Agriculture and Rural Development and established a state ministry on agricultural input and output markets in 2004 and later Ethiopian Commodity Exchange (ECX) was established in April 2008 with the aim to make an efficient market work for everybody'. An institution that serves and engages all market participants- farmers, farmer groups, processors, traders, exporters, aid agencies, input suppliers, industrial buyers, and consumers. (Addis Fortune, Dec. 2006).

According to Addis Fortune, Dec. 2006 report that ECX has sailed to realize its long voyage of 'make an efficient market works for everybody' by stressing & underlining the six core elements that required for a successful exchange (A trading platform, brokers, contracts, counterparty risk management, as well as product integrity & viable regulation and enforcement).

It is, thus, crucial to assess thoroughly the ECX six core elements that required for a successful exchange, 'make an efficient market work for everybody' after 11 years of its establishment.

1.2 Problem Statement

These days, mixed criticisms (positive and negative) from different angles mushroom on ECX's 'make an efficient market work for everybody'. The criticisms are sprout & overflow from critical research findings. The findings of these researches conducted by various scholars with varies objective but one goal: to indicate ECX's marketing inefficiency. Like, Hussein (2010) who indicated that ECX is weak-form inefficient but those traders can earn excess profit using the predictability in price series. Similarly, Coulter and Onumah (2002) note that the warehouse system faces challenges in regards to scale economies, the policy environments, legal limitations, banker confidence, lack of regulatory system and insufficient smallholder involvement.

Moreover, Jennie (2010) reported that the Ethiopian Commodity Exchange cannot meet the demands of all end markets, especially the high value markets such as the second most important market, the Japanese. Neither does it respond to the requirements of the growing niche markets, nor the demand for sustainably and safely produced mainstream products by major Western retailers. It does meet the demands of the major importer, China, and other countries that pay rather low prices. On the other hand, Rashid (2010) reported internet and telecommunications in the ECX are still quite deficient (sometimes non-existent) to disseminate information to the participants.

Similarly in 2015 Rashid call for important area for future research that while these are all positive developments, it is unclear whether such results depend on direct government interventions such as legally requiring export crops to be traded through the ECX, restricting farmers to sell only in the designated market places and only to government certified buyers, and requiring suppliers to obtain certification from local governments for transporting coffee. If government intervention is needed to produce positive results, such intervention needs to be weighed against possible distortionary effects in order to determine the social good to be derived from commodity exchanges.

Having all these evidences Including Camilla (2015) call for further examining ECX marketing efficiency: to what extent the ECX has actually contributed to increased efficiency remains an open question since very few formal evaluation has so far been implemented, this research will make an effort to examine how so far these six core elements vigorously operating to ensure 'make an efficient market works for everybody'& contribute positively for ECX clear goal.

1.3 Research Question

1.3.1 Main Research Question

- What are the factors that determine the market efficiency of ECX?

1.3.2 Sub Research Question

- To what extent a trading platform contributes to the marketing efficiency of ECX by way of multiple offers to sell and bids to buy,
- To what extent the membership system of ECX attracts marketing agents to enhance market participation and thereby promote market efficiency ,
- To what extent ECX offers contracts that are demanded by traders to boost market efficiency,
- To what extent counterparty risk management reduces the likelihood of contract default /non-performance to improve market efficiency?
- To what extent product integrity influence market efficiency at ECX,
- To what extent regulation and enforcement boosts the trust of market actors to improve the market efficiency of ECX?

1.4**Objectives**

This proposal holds the following general and specific objectives.

1.4.1 General Objectives

The general objective of this proposal is to examine the core determining factors that ECX envisage in creating a dynamic, forward-looking, efficient, and orderly marketing system that serves all.

1.4.2 **Specific objectives**

- To examine the effect of the trading platform on market efficiency of ECX,
- To determine the effect of market participation through membership – client relationships on market efficiency of ECX,
- To examine the extent to which ECX contracts affect market efficiency,
- To examine the effect of counterparty risk management system of ECX on its market efficiency,
- To find out the effect of product integrity influences the market efficiency of ECX,
- To examine the effect of regulation and law enforcement on the market efficiency of ECX.

1.5 Significance of the Research

The researcher believes that the research finding will have many importances in relation to hammering out any major bottlenecks in relation to ECX six core elements that it is fundamentally cemented on as base in realizing 'make an efficient market work for everybody'.

It is, thus, strongly believed to as inputs for ECX & reference for interested parties (students, academician…) to have some sort of valuable insight & understanding that triggers further researches.

1.6 Scope & Limitation of the Research

The study persists and limited to focus on ECX's fundamental core elements that successful efficient marketing can be achieved. In this technology era of our time, only questionnaire will be in use as a data collection instrument. Of course, this method may fail to capture some forms of information like changes of emotions, behaviors and feelings. Similarly, the sample is taken from Addis Ababa that ignores others who are not in the vicinity to include their saying, concern… Besides, the experience of other Commodity Exchanges in Africa and other part of the world required physically observing but bypass due to time and financial constraint.

Chapter Two-Literature Review

2.1 Theoretical Literature Review

2.1.1The Concept of Efficiency

Definition of efficiency is not a simple task. The concept of efficiency has been used in different perspectives. It has been used from consumers' perspective, producers' perspective, market perspective and economic perspective. (Mas-Colellet'al, 1990) stated that the issue of efficiency captured a great deal of the focus of welfare economics. This can generally indicate what is meant by efficiency when it is used in either of the perspectives. It can also be deducted that efficiency has something to do with welfare enhancement. The use of efficiency in consumers' and producers' perspective refers to maximization of consumer and producer surpluses as a measure of welfare gain by the two economic agents

2.1.2 Defining Market Efficiency

It is difficult to get a single definition of market efficiency that may hold for all markets. Even within the same market, different authors use different definitions. Ratchfordet'al (1996, p. 168) forwarded a concise definition of market efficiency that they have deducted from the studies they reviewed. They defined it in terms of the "actual *or potential losses to individual consumers, which results from imperfect information about alternatives: An inefficient market is one in which such losses are or can be large.*" This definition seems to focus on the end results than the process in the market. Preston & Collins (1966, p. 155) on the other hand forwarded a definition that emphasizes the process in the market than the end results as "the *facility and effectiveness with which the potential exchanges are accomplished*". As the authors themselves admit, their definition is divorced from the specific characteristics of the quality and volume of goods and services being traded and the trading prices used in the exchange process. The most widely used definition of an efficient market was given by Fama (1970, p.383) in which he stated that "*A market in which prices always "fully reflect" available information is called "efficient"* "

2.1.3 Commodity Exchange

Organized commodity exchanges have a long history. Grain traders in Japan began experimenting with the idea in 1730, and the Chicago Board of Trade (CBOT) and the London Metal Exchange successfully launched their operations in 1864 and 1877, respectively. For more than a century, commodity exchanges remained largely confined to industrialized nations. However, with market liberalization and increasingly affordable information technology since 1990, commodity exchanges have mushroomed around the world (UNCTAD, 2007).

Rashid (2010) growing interest in commodity exchange from government and donors in Africa is a clear reflection of need for commodity risk management. Because international markets remain volatile and domestic markets are thin and fragmented, risk management is critical for commodity sector development.

There have been many donor-supported initiatives to establish commodity exchanges in developing countries, but very few have succeeded. In Africa, five countries launched agricultural commodity exchanges shortly after market liberalization in the 1990s, but only South Africa succeeded in making its exchange sustainable. Despite the initial stage of success, Zambia and Zimbabwe suspended their operations following unusual price hikes and subsequent government intervention. Other exchanges established in the 1990s include the Kenyan Agricultural Commodity Exchange (KACE) which no longer support actual trades but exist with donor support and the Uganda Commodity Exchange (UCE) which does coordinate trades but not been able to attract sufficient trade volumes to be self-sustaining. Since 2004, more and more countries have been launching exchanges-notable ones include Malawi in 2004, Nigeria in 2006, the Ethiopian Commodity Exchange (ECX) in 2008 and the new Zambian exchange, ZAMACE, established in 2007.

ECX is an institution established by specific legislation and owned by the government. According to Proclamation No. 550/2007, ECX is a wholly State owned market institution, which commenced operation with a government authorized capital of 250 million Birr having its own legal personality. As a government owned entity, it is supervised by the Ministry of Agriculture and Rural Development and regulated by the Ethiopia Commodity Exchange Authority (ECX, 2008). It was funded by a consortium of financing partners including UNDP, the World Bank, American development agency USAID, Canadian Development Agency and the World Food Program (Alemu et al, 2010).

ECX is state owned Public-Private Partnership enterprise. The Government of Ethiopia is the owner of the ECX, while the ECX offers the sale of Membership seats, which are privately owned, permanently and freely transferable rights to the stream of earnings from trading on the Exchange.
It is established as a demutualized corporate entity with clear separation of ownership, membership, and management. Thus, owners cannot have trading stake, members cannot have ownership stake, and the management can be neither drawn from the owners nor from the members. There is a joint Board of Directors drawn from relevant public institutions (state) and ECX members (private) **(**ECX, 2008).

It is anticipated that ECX will reward quality to producers; reduce transaction costs of market participation thus increasing returns to market activity; enable quick capital turnaround thus increasing market volumes, and reduce risk related to counterparty default and prices, thus increasing market participation; increase information and transparency for all market actors, thus empowering smallholders and other disadvantaged actors **(**Alemu et al, 2010).

According to UNCTAD (2007) report, organized commodity exchanges have a long history. Grain traders in Japan began experimenting with the idea in 1730, and the Chicago Board of Trade (CBOT) and the London Metal Exchange successfully launched their operations in 1864 and 1877, respectively. For more than a century, commodity exchanges remained largely confined to industrialized nations. However, with market liberalization and increasingly affordable information technology since 1990, commodity exchanges have mushroomed around the world.

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Following the structural adjustment programs, governments and donors have generously supported commodity exchanges in Africa. By the late 1990s, five countries in Sub-Saharan Africa had established commodity exchanges (Kenya, Uganda, South Africa, Zambia, and Zimbabwe); most of them, except South African and Zimbabwe, received government and donor support. Since then,

Ethiopia, Malawi, and Nigeria have also invested in setting up exchanges, and following ECX success stories in the media, more African countries are now expressing interest in setting up exchanges. Rwanda set up the East African Exchange (EAX) in 2013, Tanzania is now in the process of setting up its own exchange, and Nigeria is making large investments in upgrading its warehouse infrastructure to facilitate a future exchange (Rashid 2015).

The Ethiopian Commodity Exchange (ECX) — another government-led and donor-funded exchange — is widely regarded by the popular media as a success story, but there is little rigorous research to substantiate many of the popular claims (Rashid, 2015).

ECX is an institution established by specific legislation and owned by the government. According to Proclamation No. 550/2007, ECX is a wholly State owned market institution, which commenced operation with a government authorized capital of 250 million Birr having its own legal personality. As a government owned entity, it is supervised by the Ministry of Agriculture and Rural Development and regulated by the Ethiopia Commodity Exchange Authority (ECX, 2008). It was funded by a consortium of financing partners including UNDP, the World Bank, American development agency USAID, Canadian Development Agency and the World Food Program (Alemu et al, 2010).

A Systematic and Logical, Related review and Investigation, which highlights Gabre-Madhin and Goggin (2005) argues that the introduction of a commodity exchange in Ethiopia could potentially remedy to some of market inefficiencies and produce a more integrated agricultural market. More specifically, Introduction of an exchange is justified from a bottom-up perspective, since farmers and traders' demand for a better-organized domestic and regional market, and for improved agro-processing. In addition, a commodity exchange could potentially produce a more efficient and integrated agricultural market by providing actors with better information about market prices, quality controls and product standards as well as a legal framework to reduce the risk of default. However, the success of a commodity exchange depends critically on the economic order and the linking of institutions such as market information systems, quality certification, regulatory frameworks and legislation, arbitration mechanisms and producer and trade associations.

On the other hand, Coulter and Onumah (2002) noted that the warehouse system faces challenges in regards to scale economies, the policy environments, legal limitations, banker confidence, lack of regulatory system and insufficient smallholder involvement. The main cause of market thinness in developing countries is the presence transaction costs caused by poor transport and information

infrastructure and lack of efficient market institutions (Dorward et al., 2005). Consequently, to what extent the ECX has actually contributed to increased efficiency remains an open question since very few formal evaluations has so far been implemented. (Andersson, et al., 2015)

2.2 Empirical Literature

Rashid (2015), we considered exchanges to be successful if they: i) conduct trade and ii) generate enough revenue to profitably pay for their operations. Again, the Ethiopian Exchange (ECX) is an exception in that, although it generates enough revenue to pay for itself, it only does so with direct policy support, which requires all export commodities to go through the exchange.

Black (1986) presents a list of comprehensive pre-conditions for setting up successful commodity exchanges. This study deals mainly with developed countries, but most of the conditions are applicable to developing countries as well. The list of viability conditions in the literature can be grouped into four broad categories: i) commodity-specific conditions; ii) effective regulatory environments; iii) contract-specific conditions; and iv) other enabling conditions. In addition to these, there are several policy related conditions, such as exchange rates policies, trade bans, and agricultural price policies, that are critical for the successful establishment of commodity exchanges (Rashid et al 2010).

Empirical studies of the US markets by Black (1986) and Bronsen and Fofana (2001) found that an active cash market is the primary condition for the success of a new contract. An active market facilitates the definition of contract terms that are balanced and provides a clear assessment of basis risk. According to Shahidur et al (2010), erratic price behaviors that are inconsistent with transaction costs could undermine a commodity exchange by making risk unacceptably high. Prices can also vary significantly across space due to inadequate infrastructure or information asymmetry, both of which are important sources of market failures. The non-competitive situations resulting from market failures can make it difficult to identify how to structure contracts to be traded on an exchange.

Sarkar and Tozzi (1998), suggest that although open outcry systems were more effective to trade highly active contracts, electronic trading has the potential to enhance operational efficiency and reduce costs. In contrary to the above Tse and Zabotina (2001) found that electronic trading systems reduce spreads while open outcry systems have higher market quality due to smaller variance of pricing error and higher information content. Information content is measured by studying the bid-ask spreads in response to trades.

In addition according Robin Thomas (2008) Electronic trading leads to reduced price movement, then it would lead to lower volatility and hence lower risk in the market.

Adebusuyis (2004) finding reveals that communications and transportation infrastructure is critical to a functioning exchange and outstanding constraints, and challenges to the stabilization of commodity prices were identified to include the small scale nature of production and low level of further processing, poor performance of state and public institutions, poor infrastructure which made production uncompetitive and inadequate market information as well as poor access to productive assets. And as per his finding one of the major factors influencing the fluctuation of commodity prices is cyclical income fluctuations in the consuming countries

Shahidur (2010) found that Countries with successful exchanges have far more developed communications and/or transportation infrastructure than countries with less successful exchanges and the researchers added that the real challenge in African commodity exchange is not the development of grades but the enforcement of contracts that use those goods.

Celeste Aida (2010) also found inadequate market information, a weak system to enforce contracts, lack of standards and grades and the inexistence of the necessary institutions that support proper market functioning are some of the constraints of coffee market in Ethiopia.

According to Shahidur (2010), erratic price behaviors that are inconsistent with transaction costs could undermine a commodity exchange by making risk unacceptably high. Prices can also vary significantly across space due to inadequate infrastructure or information asymmetry, both of which are important sources of market failures. The non-competitive situations resulting from market failures can make it difficult to identify how to structure contracts to be traded on an exchange.

Gideon (2010) reported on quality of warehouse and storage management skills tend to be highly variable in most African countries. Improving professional skills in the warehousing industry is necessary if storage losses are to be kept at a minimum. Similar training and capacity building is required to enable traders and processing companies to utilize the WRS in cost-effectively managing their inventories.

According to the study made by Alemu et al (2010) limited availability of international market information in terms of prices and production levels, which is reflected in poor linkage / transmission of price trends with the national market, is expected to be another challenge considerably affecting the competitiveness of the Ethiopian sesame in the international market and

this is expected to create disincentives for sesame exporters to engage in the sesame market through ECX.

And the researchers added that exporters in Ethiopia face several quality problems in terms of quality grading and sampling representation commodities and adulteration especially by mixing sesame seed of different origin and the Ethiopian Quality and Standard Authority (EQSA)s‟, quality grading and certification which has been reported to take a long time as well as prone to corruption.

In addition Celeste Aida (2010) found that Internet and telecommunications in the ECX are still quite deficient (sometimes non- existent) to disseminate information to the participants. And as it is explained by Francesconi (2009) his study "Lack of capital, remoteness, poorly developed roads and telephone lines are only some of the barriers that keep farm households far away from markets, and therefore from the potential benefits of the ECX".

Gabremedhin and Ian Goggin, (2005**)** reasoning for the establishment of the ECX that the Ethiopian grain markets faced some constraints such as; lack of sufficient market coordination between buyers and sellers, the lack of market information, the lack of trust among market actors, the lack of contract enforcement, and the lack of grades and standards, implies that buyers and sellers operate within narrow market channels, that is, only those channels for which they can obtain information and in which they have a few trusted trading partners .and their concluding showed that establishing of a commodity exchange will eliminate constraints that the Ethiopian commodity market faced.

The Ethiopian Commodity Exchange works on the basis of membership. People, who want to sell or buy, have to purchase a membership seat. Farmers or traders, who wish to sell, deposit their commodity in an ECX warehouse13. Only standard lot sizes of 5 tons can be deposited. Most commodities in Ethiopia are produced by millions of smallholder farmers who each produce small quantities. The Ethiopian Commodity Exchange cannot meet the demands of all end markets, especially the high value markets such as the second most important market, the Japanese. Neither does it respond to the requirements of the growing niche markets, nor the demand for sustainably and safely produced mainstream products by major Western retailers. It does meet the demands of the major importer, China, and other countries that pay rather low prices (Mheen-Sluijer, J., 2010)

The Ethiopia Commodity Exchange (ECX) commenced trading operations in April 2008. And subsequently opened trade for white and mixed maize, hard and soft wheat, processed and

unprocessed pea beans, coffee and sesame. The establishment of the ECX was funded by a consortium of financing partners including UNDP, the World Bank, American development agency USAID, Canadian Development Agency CIDA and the World Food Programme and is co-financed by the Government of Ethiopia. Since 2006, UNDP has financed more than USD 3.5 million of the total USD 24 million needed to establish the exchange. In addition, UNDP support included initial project start-up, capacity building, and technical advisory services over four years. UNDP would like to replicate the experience in other African countries. Among these, Tanzania, Kenya, Zambia and Uganda are considering replicating, customizing and scaling up the ECX model (Alemu, D. & Meijerink, G., 2010).

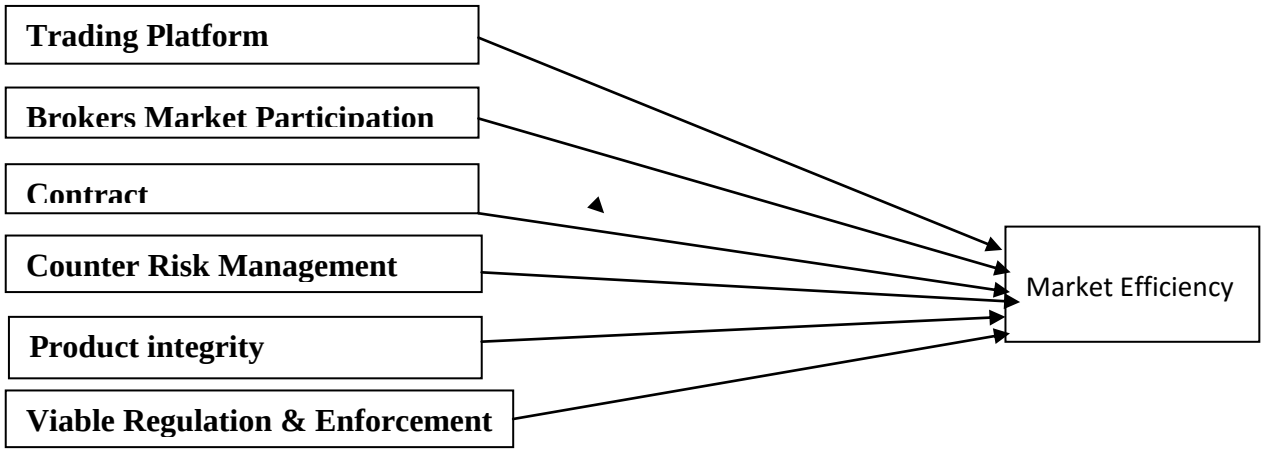
In terms of trade value, the Ethiopian Commodity Exchange can be considered a developing country success story; it generated over US$1.0 billion in revenue in 2012, which is large enough to pay for its own operations. Given that ECX charges a commission of 0.2%, this implies that it generated about US$2.0 million, which is a respectable amount of revenue. However, it is important to understand that although the ECX was launched in 2008 with a mandate to trade cereals, it was soon realized that its trade volumes were insufficient. In late 2008, the government therefore passed a proclamation requiring all coffee and other export crops grown in Ethiopia to be exported through the ECX. At one point in late 2008, the government had to confiscate 17,000 tons of coffee from 80 exporters attempting to bypass the ECX.6

Therefore, it is unclear whether the ECX would have enjoyed its success without government intervention; indeed, it is also unclear what the offsetting costs might be to the benefits of establishing the ECX

2.3 Conceptual Framework

In an efficient market model the statement that current price "fully reflects" available information is assumed to imply that successive price changes are independent and are identically distributed. These two premises together constitute the random walk model (Fama,1970).As a result conceptual framework is developed using the following parameter those are Market Information, Grading & Sampling, Risk management, Clearing & Settlement and Price discover

Figure1. Conceptual Framework



Source: The Devil is in the Details: Understanding a Commodity Exchange (Gabre-Madhin, 2006)

2.3 Research Hypothesis

- **A trading platform**: An exchange needs a system to match multiple offers to sell and bids to buy, whether this is a system where buyers and sellers are physically present or an electronic system where trading is done remotely. The trading platform must be efficient, robust, not too expensive, and fit with clients' needs. With or without technology, every exchange needs a trading system that efficiently matches offers and bids.

  H1. A trading platform has a positive & significant effect on market efficiency

- **Brokers.** Brokers are a vital part of an exchange. Brokers, who are formally licensed and insured, act as marketing agents, enabling a wide population of buyer and seller clients to participate in the exchange. The integrity of the brokers on the exchange is core to the integrity of the exchange itself.

  H2. **Brokers** has a positive & significant effect on market efficiency

- **Contracts**. The exchange needs to offer contracts that are commodity and grade specific, with standard specifications for grade, lot size, delivery, payment, measurement, and dispute resolution, among others. By offering standardized contracts, the exchange makes it easier, cheaper, and less risky for unknown partners to trade with each other. But the contracts need

to be ones that the target clients need or are looking for and they need to be well designed to reflect actual trading practices.

H3. Contracts has a positive & significant effect on market efficiency

- **Counterparty risk management.** One of the key reasons for trading on the exchange is because it greatly reduces the likelihood of contract default or non-performance. The exchange manages counterparty risk in a variety of ways: through imposing discipline on its users with strict rules of trade, through requiring margin deposits of funds in advance of bidding, through requiring that products be weighed and graded and deposited in an insured warehouse in advance of an offer, and through operating a clearing and settlement mechanism, where the Exchange itself or an affiliated body ensures that payments are made against delivery and vice versa. To ensure this, the Exchange must work closely with banks as well as warehouse operators.

H4. Counterparty risk management has a positive & significant effect on market efficiency

- **Product integrity.** Unlike a stock exchange, a commodity exchange involves the transfer of ownership of a physical agricultural product that must be graded, weighed, stored, handled, and ultimately delivered from one location to another. This greatly increases the complexity of a commodity exchange. The Exchange's viability depends on whether it trades products of integrity, with grades that are well understood and unadulterated, and guarantees that the sample truly represents the entire lot, that what is in the warehouse is actually there in the quality, quantity, and condition in which it was deposited, and that it will be delivered in that condition at the completion of the trading transaction. For this to happen, the Exchange must work very closely with warehouse operators, insurers, and transporters.

H5. Product integrity has a positive & significant effect on market efficiency

- **Viable regulation and enforcement.** Ultimately, the whole exchange system relies on trust – trust in the exchange (and its clearing house), trust in the brokers to whom clients entrust their money, and trust in the warehouses and collateral managers who will issue the pieces of paper that will actually be delivered on the exchange. A good system of regulation is necessary to ensure such trust. Although the exchange is a self-regulatory organization, there needs to be an over-arching regulatory and legal infrastructure in place to ensure regulation at

different levels: self-regulation by the brokers, warehouses and the exchange, regulation by trade associations who license and monitor their members, and regulation by a state regulator, such as an Exchange Commission.

- **H6**. A Viable regulation and enforcement has a positive & significant effect on market efficiency

Chapter Three - Research Design and Methodology

3.1. Research Approach

The primary aim of this research is to examine how far determinants of marketing efficiency of ECX is fairly & actively operational to achieve its predetermined goal, 'make an efficient market work for everybody', the research approach is intended to be both qualitative and quantitative approaches. For it is to be descriptive, it requires to have both qualitative and quantitative data that has to be analyzed to answer to the research questions. Thus, it is more than any simply collecting analyzing of both kind data. It is also involves the use of both approaches in tandem so that the overall strength of the study is greater than ether qualitative or qualitative research (Creswell John W., 2009).

Of course, exploratory types of research have the following goals becoming familiars with basic facts, setting and concern, develop well-grounded picture if the situation and developing techniques and sense of direction for future research while descriptive approach presents the pictures of specific details of a situation, social setting or situation. It seeks to determine the answers to who, what, when, where, and how questions. Furthermore, exploratory types of research deal with familiarities with basic facts, setting and concern, develop well-grounded picture if the situation and developing techniques and sense of direction for future research.

On the other hand, Descriptive approach presents the pictures of specific details of a situation, social setting or situation. It seeks to determine the answers to who, what, when, where, and how questions. Descriptive study offers to a researcher a profile of relevant aspect of phenomena of interest and create set of categories.

In general, to address the research questions, this study will use both descriptive and explanatory research approach. Moreover, this research has followed a cross sectional research approach.

3.2. Research Design

The research design is the conceptual structure within which research was conducted. It constitutes the blueprint for the collection, measurement and analysis of data (Kothari 2004). Accordingly, since the aim of this study is to assess the core determining factors ECX's marketing efficiency, it focuses on describing the situation and perception, explaining the relationships among variables for the study population.

It is, therefore, both descriptive and explanatory research designs will be in use. Descriptive research presents a picture of the specific details of a situation, social setting, or relationship. The major purpose of descriptive research, as the term implies, is to describe characteristics of a population or phenomenon while explanatory research design focuses on studying the relationship between variables. It is crucial to use explanatory design to examine the determining factors.

Thus, it is more than simply collecting and analyzing of both kind data: it also involves the use of both approaches in tandem so that the overall strength of the study is greater than either qualitative or quantitative research (Creswell John W. 2009).

3.3. Data type and source

The research has been used both primary and secondary data sources. According to Kothari (2004), primary data are those collected fresh and for the first time and thus happen to be original in character. Secondary data, on the other hand, are those which have already been collected by someone else and which have already been passed through the statistical process. Basing Kothari classification, as a primary data, response of respondents collected through questionnaire was used. In addition to this, Secondary source of data was also used for the study inter alias include data from ECX, published and unpublished materials and electronic sources.

3.4. Population of The study

Population is defined as ―the complete set of units of analysis that are under investigation, while element is the unit from which the necessary data is collected (Davis 2000, pp. 220). As stated in the scope of the study, this study would attempt to examine the determinants of market efficiency of Ethiopian Commodity Exchange. Therefore, the target population of the research was all members in Ethiopian Commodity Exchange. ECX has 346 members (***Intermediary*** 323 and ***Trading 23***)

3.5 Sampling Procedure

Sampling is the selection of a fraction of the total number of units of interest for the ultimate purpose of being able to draw general conclusions about the entire body of unit (Kothari, 2004). There are several decisions to be made in organizing a sample such as identifying target population, selecting sampling technique and determining the sample size.

The research has been used both primary and secondary data sources. According to Kothari (2004), primary data are those collected fresh and for the first time and thus happen to be original in character. Secondary data, on the other hand, are those which have already been collected by

someone else and which have already been passed through the statistical process. Basing Kothari classification, as a primary data, response of respondents collected through questionnaire was used. In addition to this, Secondary source of data was also used for the study inter alias include data from ECX, published and unpublished materials and electronic sources.

3.5.1 Sample Size

From the total study population of 346 ECX members, which were categorized as ***trading*** members and ***Intermediary*** members of the Ethiopian commodity exchange, engaged in buying, selling and exporting of commodities in Ethiopian Commodity Exchange in calculating the sample size, formula developed by Taro Yamane (1967) provided a simplified formula to calculate the sample sizes. This formula was also used to calculate the sample size for the study.

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

Where n= the sample size
N=the size of the population and
e=the error of 5percentage points

$$n = \frac{346}{1+346\,(0.05)^2}$$

$$= 186$$

Therefore, samples of one hundred eighty six members from the total will be taken as representative sample.

3.5.2 Sampling Technique

With regards to sampling techniques, random sampling was used to select the sample from the total population of all members who are trading on ECX.

3.6 Data collection instruments

In this study, the researcher used questionnaire method of data collection. The questionnaire was used because it has the advantage of participating large respondents over other data gathering

techniques; it limits inconsistency and also saves time. The following procedures were pursed to administer questionnaire to respondents. First, the researcher approached potential respondents to ask their corporation in filling the questionnaire and explained the purpose of collecting data, how the questionnaire will be filled and the confidentiality of to be obtained information. Then, the questionnaire was distributed and respondents were asked to furnish information honestly and return the filled up questionnaire.

The semi structured questionnaire had two parts. The first part of the questionnaire was about demographic characteristics of respondents such as sex, age, educational background and membership type. Part two contains the main parts of the questionnaire which determines the market efficiency of Ethiopian commodity exchange. Here some questions were asked to express their agreement/disagreement in five point likert scale, where 1=strongly disagree, 2=disagree, 3=indifferent, 4=agree, 5=strongly agree.

The data collection was held according to the time table and 186 questionnaires were distributed to the potential respondents. Out of the total questionnaire, 175 questionnaires were returned and considered for analysis.

3.7 Data Analysis Techniques

The researcher used both descriptive statistics and multiple linear regression analysis method to analyze the data obtained from primary sources. The result of Descriptive statistics (mean standard deviation, maximum, and minimum) is useful in providing information and detecting normality of the collected data. The researcher used multiple linear regression analysis to examine the relationship between dependent and independent variables. Correlation analysis is useful to measure linear association relationship between variables, their coefficient indicates the strength of linear association between two variables and SPSS version 20 was used to analyze the data.

3.8 Reliability Test

Reliability is the degree to which the measure of a construct is consistent or dependable (Bhattacherjeend, 2012, p.57). The reliability test was executed by Cronbach's alpha coefficient and items which scored above the acceptable value were retained. Out of the 186 copies of questionnaires sent out 177 questionnaires were completed and returned. As per Tavakol & Dennick (2011) if a test has more than one concept or construct, it may not make sense to report alpha for the test as a whole as the larger number of questions will inevitable inflate the value of alpha.

Table 3.1. Case Processing Summary

		N	%
Cases	Valid	175	100.0
	Excluded	0	.0
	Total	175	100.0

According to Zikmund et al., (2010) scales with coefficient alpha between 0.6 and 0.7 indicate fair reliability, a Cronbach‘s alpha score of .70 or higher are considered as adequate to determine reliability. The finding of this research could obtained an alpha coefficient of = 0.811. It is, therefore, the generated data was reliable and free of random errors.

Table 3.2 Reliability Analysis of the variable

Variable	Cronbach's Alpha
Trading Platform, , , ,	0.408
Trade Contracts	0.822
Counterparty Risk Management,	0.743
Brokers Market Participation	0.785
Product integrity	0.573
Viable Regulation and Enforcement	0.710
Market Efficiency	0.710

Table. 3.3Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.811	.852	7

3.9 Validity Analysis

Validity is the extent to which differences found with a measuring instrument reflect true differences among those being tested, (Kothari, 2004). In other words, Validity is the most critical criterion and indicates the degree to which an instrument measures what it is supposed to measure. In order to ensure the quality of the research design content and construct validity of the research will be checked. According to Kothari (2004) Content validity is the extent to which a measuring instrument provides adequate coverage of the topic under study. If the instrument contains a representative sample of the universe, the content validity is good. Its determination is primarily judgmental and intuitive. It can also be determined by using a panel of persons who shall judge how well the

measuring instrument meets the standards, but there is no numerical way to express it. Based on this the content validity was verified by the professionals.

3.10 Test of normality of the Data

Among the others, one of the assumptions was normality of the data should be tested before running the analysis of the data using skwness and Kurtosis. According to Fieled (2005), normally distributed data assumed that the data are from one or more normally distributed populations. The rationale behind hypothesis testing relies on having normally distributed populations and so if these assumptions are not met then the logic behind hypothesis testing is flawed.

Therefore, value of S (Skewness) and K (Kurtosis) and their respective standard errors were computed. An absolute value between -2 and +2 score for Skewness and Kurtosis is expected to be significant at $p< 0.05$. Large sample will give rise to small standard errors and so when sample sizes are big, significant values arise from even small deviations from normality for both skewness and Kurtosis (Fieled, 2005).

Table 3.4 skewness and Kutosis for normality of Data

	N	Skwness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
Trading Platform	175	-815	.184	.451	.365
Broker Market Participation	175	-.955	.184	.659	.365
Trade Contract	175	-.752	.184	-.694	.365
Counter Risk Management	175	-.815	.184	-.743	.365
Product Integrity	175	-.765	.184	.829	.365
Viable Regulatory & Enforcement	175	-.654	.184	-.911	.365
Marketing Efficiency	175	-.897			

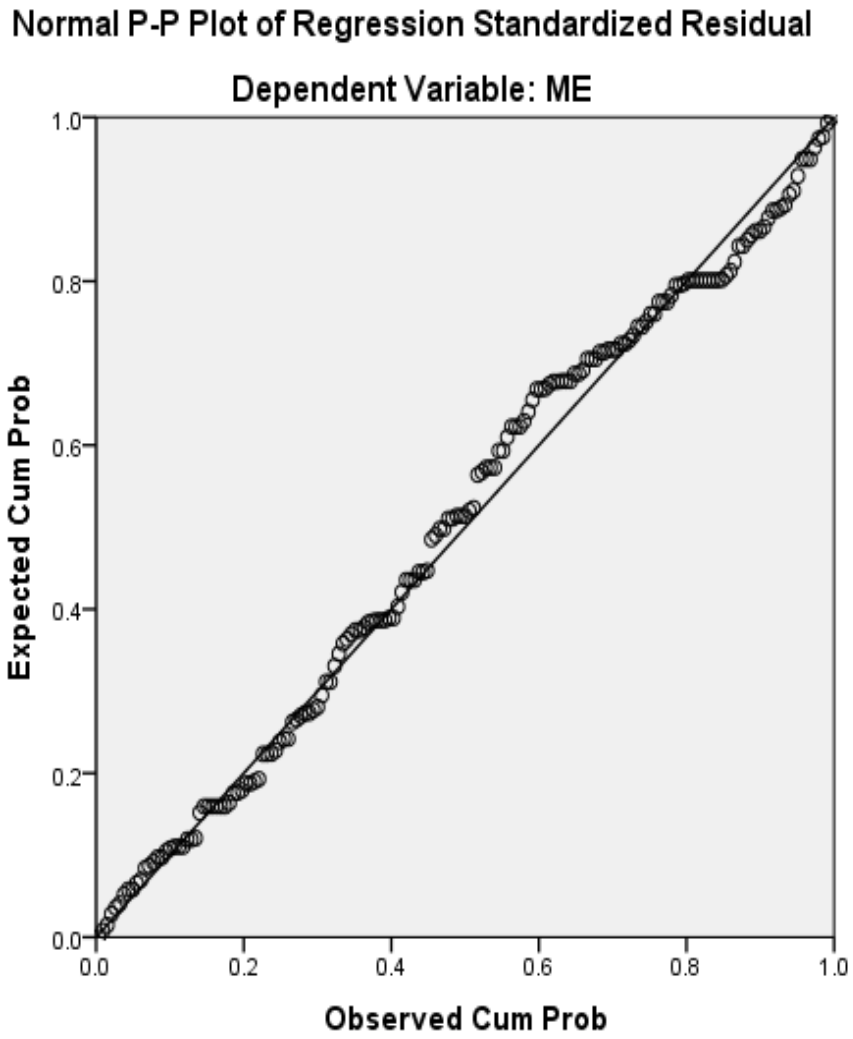
(Source: Researcher's Survey, 2019)

The above table 3.2 display that all the absolute values of skwness and the kurtosis are between -2 and +2.

3.11 Statistical testing of the linearity assumption

Linearity means that the predictor variables in the regression have a straight-line relationship with the outcome variable. As the Linearity means that two variables, "x" and "y," are related by a mathematical equation "y = cx," where "c" is any constant number. The importance of testing for linearity lies in the fact that many statistical methods require an assumption of linearity of data (i.e. the data was sampled from a population that relates the variables of interest in a linear

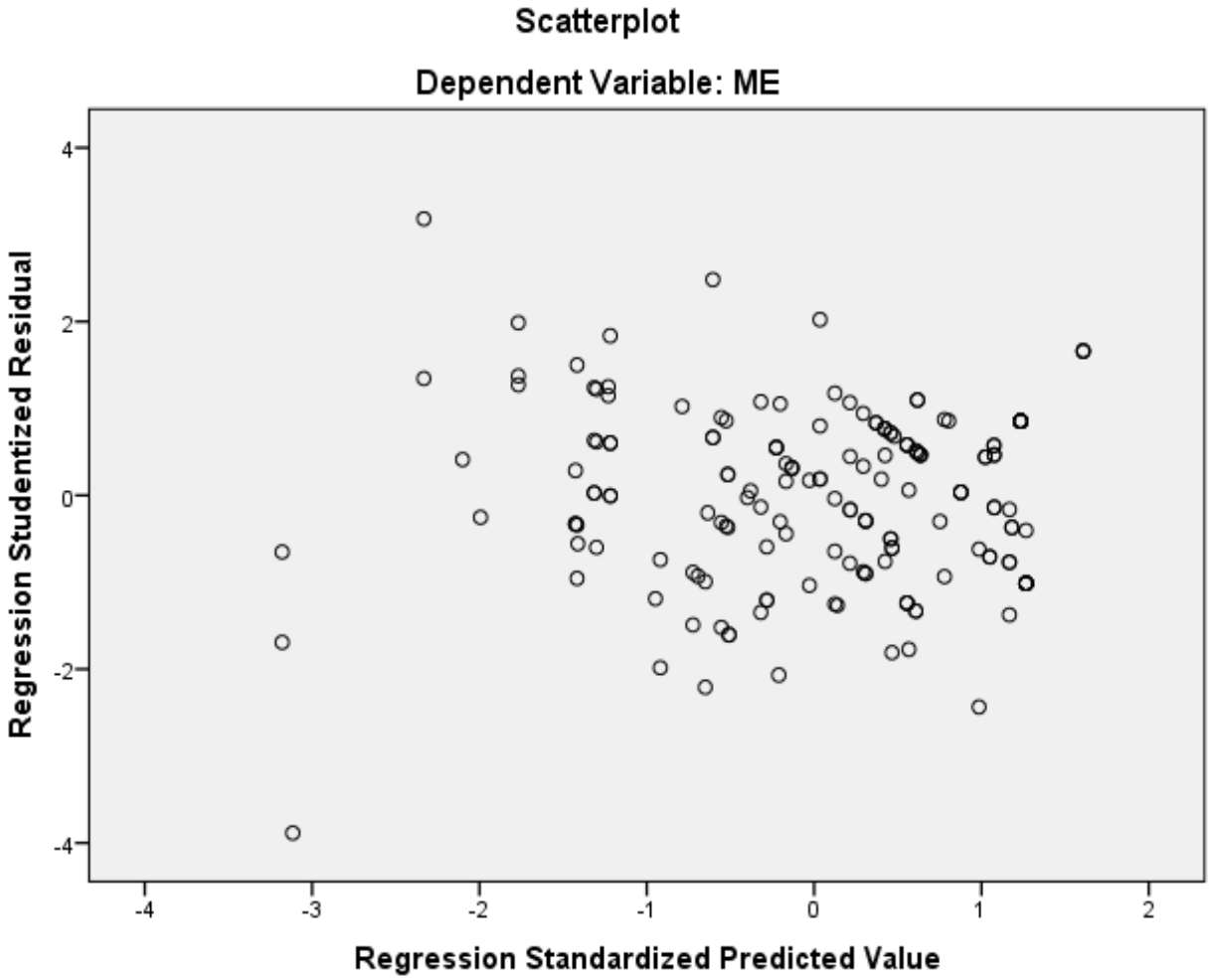
fashion). This means that before using common methods like linear regression, tests for linearity must be performed to make clear there is a statistically significant association between independent and the dependent variables.



Source: own survey (2019)

3.13 Homoscedasticity: refers to whether these residuals are equally distributed, or whether they tend to bunch together at some values, and at other values, spread far apart. The residuals of the regression should follow a normal distribution. The residuals are simply the error terms, or the differences between the observed value of the dependent variable and the predicted value. If we examine a normal Predicted Probability (P-P) plot, we can determine if the residuals are normally distributed. If they are, they will conform to the diagonal normality line indicated in the plot.

In general, the data is homoscedastic if it looks somewhat like a shotgun blast of randomly distributed data. The assumption is conducted by plotting the predicted values and residuals on a scatterplot.



Source: own survey (2019)

3.14 Ethical Considerations

The Researcher had considered some ethical issues. This are the respondent has the right to respond or not, the respondent has the right to participate or not, the Researcher had inform respondents the purpose of the questioner and the study considers the confidentiality of the response by not asking to state name. While conducting the study, emerging ethical issues were considered and attention had been given.

For this purpose the introduction part of the questionnaire stated the purpose and importance of the study, confidentiality. Respondent were informed their full right to fill the questions or to withdraw

from the study at any time without any unfavorable consequences, and they are not harmed as a result of their participation or non-participation.

In order to collect primary data, structured questionnaire were distributed. Up on distributing to ECX members, only general information was written in the paragraph of the questionnaire to protect their response from predisposition. The confidentiality of respondents was protected and respondents' identities were not disclosed.

Finally all research finding has not been obscured and is free from any plagiarism by acknowledging every reference used. In addition to this, the study was done in an open minded manner and attitudes were expressed as they are. Nothing was modified and changed. Hence information going to be collected is presented as they are and all the literatures gathered for the purpose of this study were appreciated in the reference.

CHAPTER FOUR

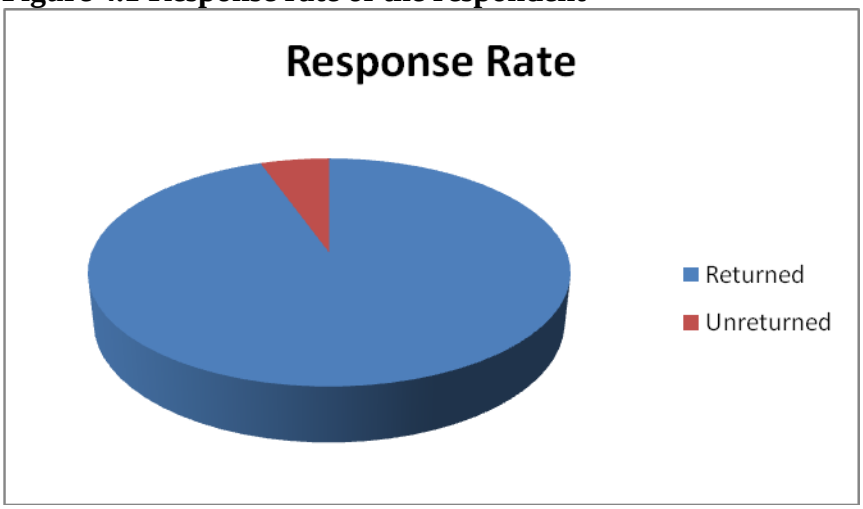
ANALYSIS AND DISCUSSION

4.1 Data Analysis and interpretation

4.1.1 Rates of response

The study had initially targeted 186 respondents, 175 respondents filled and returned their questionnaires thus constituting 94.1% response rate, while 11 of the respondents didn't respond and never returned the questionnaires and constituted 5.9% non-response rate. This collaborate *Zikmund (2003)* assertion that a response rate of 50% is adequate, while a response rate greater than 70% is very good. This implies that based on this assertion; the response rate in this case of 94.1% was very good and facilitated collection of data on variability perspective of the different respondents of the Ethiopian Commodity Exchange members.

Figure 4.1 Response rate of the respondent



Source: own survey (2019)

4.1.2 Demographic profile of Respondents

Gender description

(Gender, age, educational level, and membership type of respondents) a total of 186 responses were distributed for Ethiopian Commodity Exchange, out of which 11 were rejected for it niether filled properly nor returned the questionnaires at all. It is, therefore, a total of 175 responses have been taken into consideration for the analysis. Concerning the Gender position of respondents (58.3.7%) of them are males and the rest (41.7%) are females. It can be concluded that the female participation in such technological trading is encouraging understanding the fact that the traditional business in the male world is getting dwindling.

Figure 4.2: Gender description of Respondents

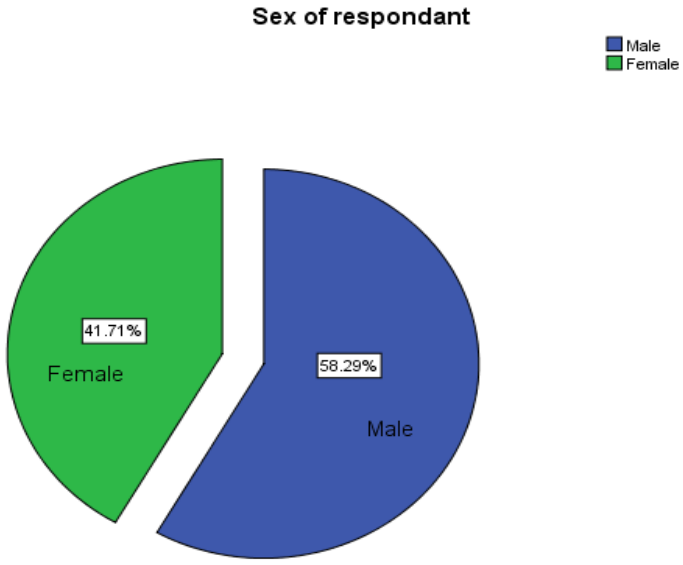


Table 4.1Sex of respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	102	58.3	58.3	58.3
	Female	73	41.7	41.7	100.0
	Total	175	100.0	100.0	

Source: own survey (2019)

Age Description:

Majority of respondents belong to age group (36-45) years with 41.8% followed by (26-35) years which is 30.5%, (46-55) years having 26.0% , and the minimum representation at 1.7% is for age group of above 56 years old. This confirms that majority of Ethiopian Commodity Exchange members are between the age group of 36-45 implies that dominated by adult group.

Figure 4.3: Age description of the respondents

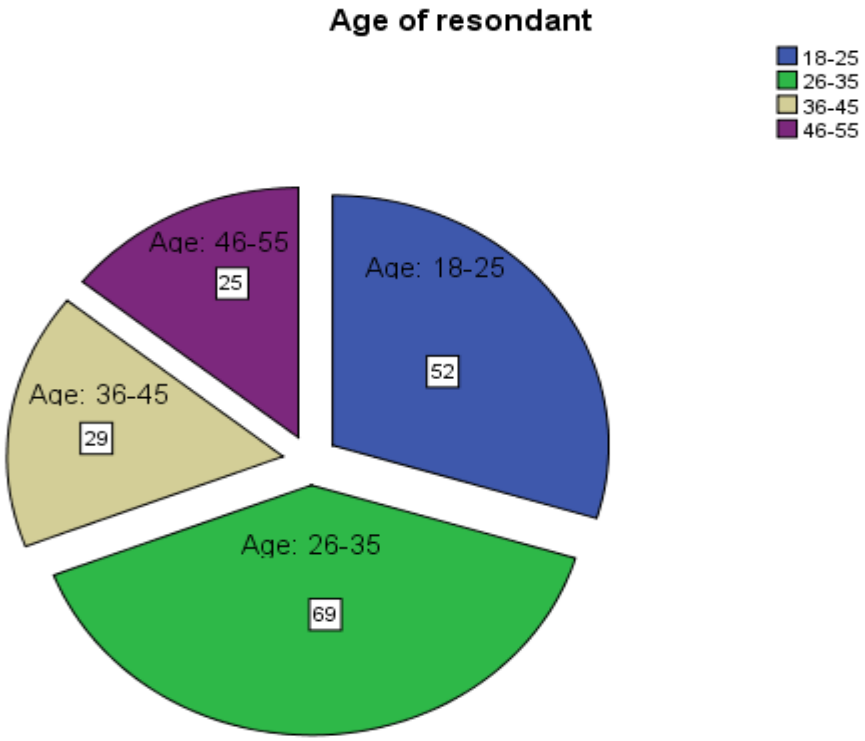


Table. 4.2 Age of respondent in detail

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-25	52	29.7	29.7	29.7
	26-35	69	39.4	39.4	69.1
	36-45	29	16.6	16.6	85.7
	46-55	25	14.3	14.3	100.0
	Total	175	100.0	100.0	

Source: Own survey, 2019

Educational level descriptions of the respondents

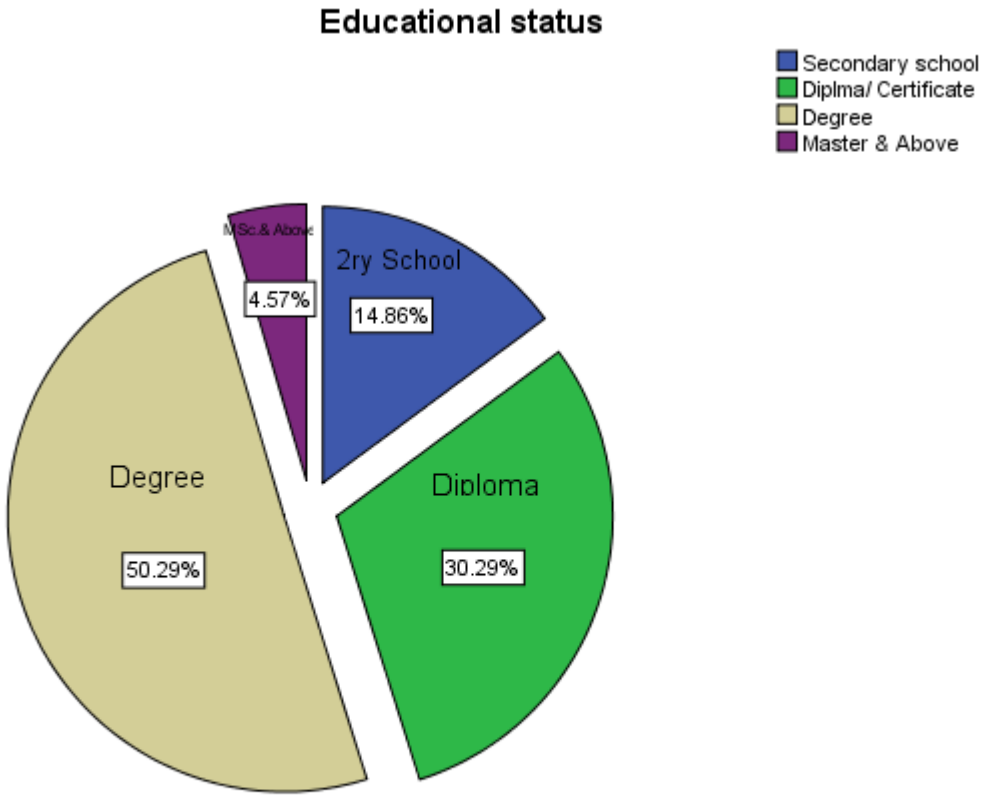
Evidence of the research outcome indicates that out of the 186 sample respondents, 88(50.3%) of the respondents are degree holders followed by the second largest respondents who have completed their diploma 53(30.3%) and the rest are: secondary school 26(14.9%) and MA/MSc and above 8(4.6%). In general, the finding of the research indicates that more educated market participants are joining Ethiopian

Commodity Exchange. This circumstance, of course, contributes positively to ensure marketing efficiency.

Table. 4.3 Educational status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Secondary school	26	14.9	14.9	14.9
	Diploma/ Certificate	53	30.3	30.3	45.1
	Degree	88	50.3	50.3	95.4
	Master & Above	8	4.6	4.6	100.0
	Total	175	100.0	100.0	

Figure. 4.4 Educational status.



Source: Own survey, 2019

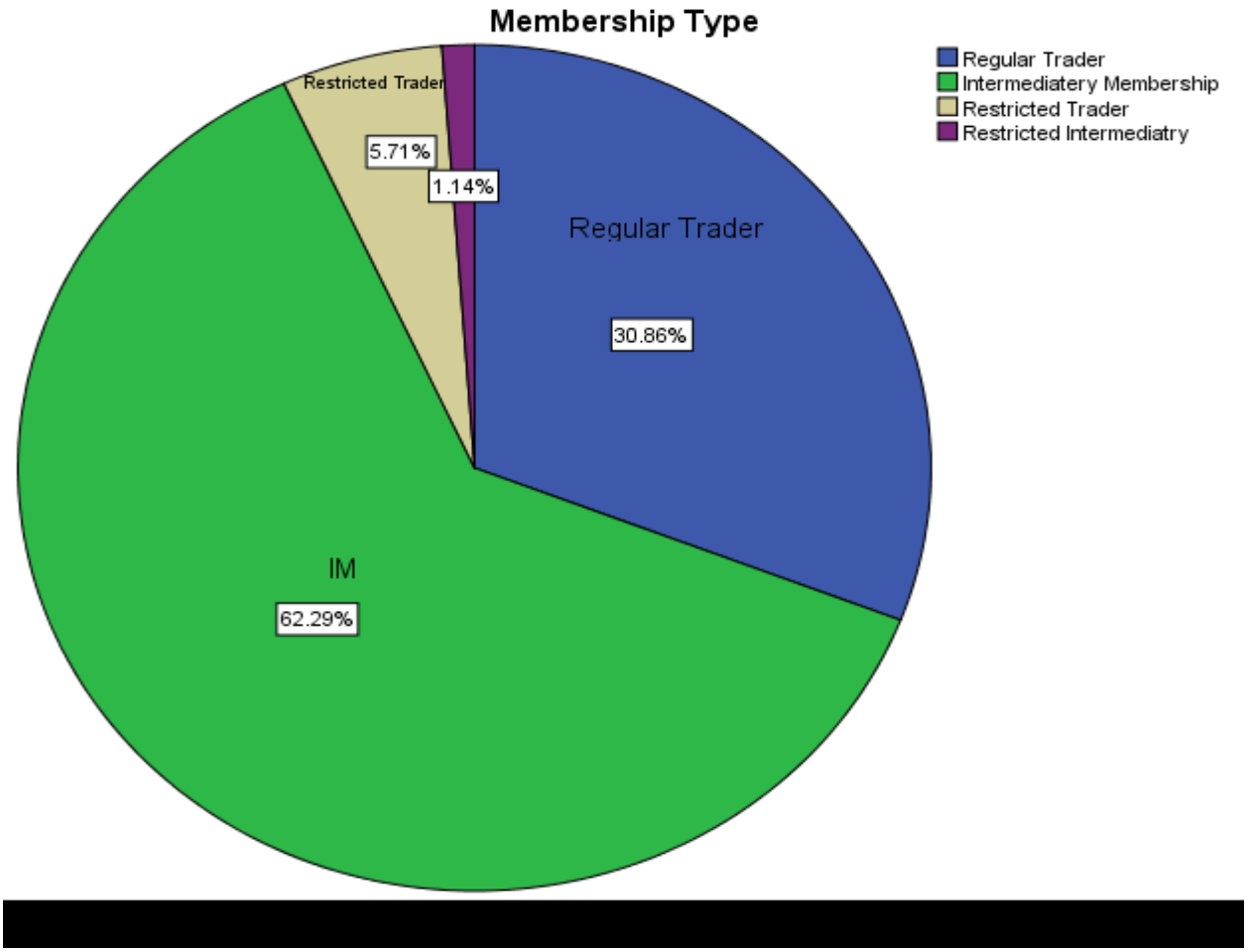
Membership Type

Traders are varies in case of their involvement in ECX marketing. These are Regular Trader, Intermediary membership, Restricted Trader and Restricted Trader. As per the outcome of the study, Intermediary Members holds the majority base, 109 (62.3%), while followed by Regular Trader,54(30.9%) as well as Restricted Trader, 10 (5.7%), and Restricted Trader 20(1.1). .

Table. 4.5 Membership Type

Type of Membership		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Regular Trader	54	30.9	30.9	30.9
	Intermediary Membership	109	62.3	62.3	93.1
	Restricted Trader	10	5.7	5.7	98.9
	Restricted Intermediary	2	1.1	1.1	100.0
	Total	175	100.0	100.0	

Figure 4.5: Membership description of Respondents, in pie graph



Source: Own survey, 2018

4.1.3 Market Efficiency Dimensions

To reach in the conclusive manner to the Market Efficiency here respondents independent answers explained and in turn, the information processed, analyzed and interpreted. Here bellows Table 4.1 to Table 4.10 display the core issues of items for analysis and conclusion: Trade Platform, Broker Market Participation, Contract, Counter Risk Management, Product Integrity and Viable Regulation and Enforcement. Accordingly,

Table 4.6 Descriptive statistics of Trade Platform

Inquiry		S. Disagree %	Disagree %	Indifferent %	Agree %	S. Agree %	Total
Electronic trading is user friendly		8.6	6.9	1.1	49.7	33.7	100
The trading platform is robust		8.0	14.9	14.9	48.0	13.1	100
The trading platform is too expensive		8.6	13.1	32.0	30.3	16.0	100

As the table4.6 above displays, responses for how far the Electronic Trading is user friendly, 49.7% and 33.7% of the respondents agree and strongly agree with the statement respectively.

While 8.6 respondents strongly disagree, 6.9% disagree and 1.1% respondents preferred to neutrality. From this table, it can be reached conclusion that the electronic trading is user friendly.

Electronic trading is user friendly

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very disagree	15	8.6	8.6	8.6
	Disagree	12	6.9	6.9	15.4
	Indiferent	2	1.1	1.1	16.6
	Agree	87	49.7	49.7	66.3
	Agree Very much	59	33.7	33.7	100.0
	Total	175	100.0	100.0	

On the other hand for 'The trading platform is robust', 48.0% of them agree while equal number of respondents, 14.9% for each neutrality and disagree and 8.6% respondents disagree. From this finding, it is possible to conclude, the trade platform is robust.

The trading platform is robust

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very disagree	14	8.0	8.0	8.0
	Disagree	26	14.9	14.9	22.9
	Indiferent	26	14.9	14.9	37.7
	Agree	86	49.1	49.1	86.9
	Agre very much	23	13.1	13.1	100.0
	Total	175	100.0	100.0	

For question 'The trading platform is too expensive', 32% answered Indifferent. Similarly 30.3% of respondents agree and 16% of them are strongly agreed, the remaining 13.1% and 8.6% respondents disagree and strongly agree with the statement respectively. This implies those who answered 'Indifferent' might declined or reluctant to answer about the expensiveness of the trading platform. Of course, significant numbers of traders are hired by respective private company and their focus is on the day today trading of the exchange.

The trading platform is too expensive

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very disagree	15	8.6	8.6	8.6
	Disagree	23	13.1	13.1	21.7
	Indifferent	56	32.0	32.0	53.7
	Agree	53	30.3	30.3	84.0
	Agree very much	28	16.0	16.0	100.0
	Total	175	100.0	100.0	

On the other hand, beyond the likert scale measuring of the responses, alternative questions provided for answer to learn more about the problems encountered during electronic trading that, of course, have effect on the market efficiency that ECX endeavor for. Accordingly, respondents for Internet line disruption, 64.6%, loaded software programme dysfunctional, 17.7%, Difficulty in how to manipulate, 3.4% and Power blackout, 2.3% while other an unspecified reasoning took 12%.

Table.4.7 Problem encountered during electronic trading

Inquiry	Frequency	Percent	Valid Percent	Cumulative Percent
Power black out	4	2.3	2.3	2.3
Difficulty in how to manipulate	6	3.4	3.4	5.7
Loaded software programme dysfunctional	31	17.7	17.7	23.4
Internet line disruption	113	64.6	64.6	88.0
Other reason	21	12.0	12.0	100.0
Total	175	100.0	100.0	

(Source: Researcher's survey, 2019)

4.3 Intermediary Members Market Participation

Intermediary Members/ IM plays crucial role in the ECX trading for they act as marketing agents. As it is core the integrity of IM for integrity of the exchange marketing, Table 4.3 the respondents result indicated bellow.

Table 4.8 Intermediary Members Market Participation

Inquiry	S. Disagree %	Disagree %	Indifferent %	Agree %	S. Agree %	Total
IM passed through appropriate criteria	2.3	9.1	37.1	39.4	12.0	100
IM is formally licensed & Insured	2.9	6.9	29.7	46.9	13.7	100
IM is enabled wide proportion of buyers & sellers to participate	2.3	14.3	17.1	50.9	15.4	100
IM integrity is trusted	6.9	12.0	20.6	55.4	5.1	100
IM is providing the required information to the client	3.4	8.6	21.1	54.3	12.6	100

As per table 4.7.the list of inquiries comprise of Intermediary Members Market Participation and their response scored. As shown in the table above, respondents who agree with IM passed through appropriate criteria amount to 39.4% and 37.1% preferred neutrality. While 12% respondents strongly agree, 9.1% disagree. Only2.3% of respondents strongly disagree the IM passing through appropriate criteria.

Intermediary member passed through appropriate criteria

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very disagree	4	2.3	2.3	2.3
	Disagree	16	9.1	9.1	11.4
	Indifferent	65	37.1	37.1	48.6
	Agree	69	39.4	39.4	88.0
	Strongly Disagree	21	12.0	12.0	100.0
	Total	175	100.0	100.0	

For the second, respondents who agree with IM are formally licensed & insured amount to 39.4% and 37.1% preferred neutrality. While 12% respondents strongly agree, 9.1% disagree. Only 2.3% of respondents strongly disagree the IM are formally licensed & insured.

Intermediary member is formaly licensed & Insured

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very disagee	5	2.9	2.9	2.9
	Disagree	12	6.9	6.9	9.7
	Indifferent	52	29.7	29.7	39.4
	Agree	82	46.9	46.9	86.3
	Agree very much	24	13.7	13.7	100.0
	Total	175	100.0	100.0	

For the third, respondents who agree with IM are enabled wide proportion of buyers & sellers to participate amount to 50.9% and 17.1% preferred neutrality. While 2.3% respondents strongly agree, 14.3% disagree. Only 15.4% of respondents strongly agree the IM are enabled wide proportion of buyers & sellers to participate.

Intermediary member is enabled wide proportion of buyers & sellers to participate

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very disagree	4	2.3	2.3	2.3
	Agree	25	14.3	14.3	16.6
	Indifferent	30	17.1	17.1	33.7
	Agree	89	50.9	50.9	84.6
	Agree very much	27	15.4	15.4	100.0
	Total	175	100.0	100.0	

For the fourth inquiry, IM integrity is trusted, 60.5% (55.4% agree and 5.1% strongly agree) consent while 20.6% respondents preferred neutrality. 18.9% (12 disagree and 6.9% strongly disagree) respondents disagree on the IM integrity.

Intermediary member integrity is trusted

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very disagree	12	6.9	6.9	6.9
	Disagree	21	12.0	12.0	18.9
	Indifferent	36	20.6	20.6	39.4
	Agree	97	55.4	55.4	94.9
	Agree very much	9	5.1	5.1	100.0
	Total	175	100.0	100.0	

For the last inquiry 66.6 % (54.3% agree and 12.6% strongly agree), agree that the IM is providing the required information to the client. 12% (8.6% disagree and 3.4% strongly disagree) respondents disagree on IM is providing the required information to the client. 12.6% preferred to keep their neutrality.

Intermediary member is providing the required informatin to the client

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very disagree	6	3.4	3.4	3.4
	Disagree	15	8.6	8.6	12.0
	Indifferent	37	21.1	21.1	33.1
	Agree	95	54.3	54.3	87.4
	Agree very much	22	12.6	12.6	100.0
	Total	175	100.0	100.0	

4.4 Descriptive statistics of Contract

The exchange needs to offer contracts that are commodity and grade specific, with standard specifications for grade, lot size, delivery, payment, measurement, and dispute resolution, among others. By offering standardized contracts, the exchange makes it easier, cheaper, and less risky for unknown partners to trade with each other.

Table 4.8 Descriptive statistics of Contract

Inquiries	S. Disagree %	Disagree %	Indifferent %	Agree %	S. Agree %	Total
ECX serving properly in standard grading, lot size, delivery, payment, dispute resolution	8.6	16.6	20	51.4	3.4	100
ECX serving properly to trade unknown partners to trade each other easily & in less risky	14.9	17.7	9.1	46.9	11.4	100
ECX is well designed the contract offer that reflect actual trading practice	10.9	17.1	17.1	42.3	12	100

As finding of the research on table 4.8 indicated 54.4% (51.4% agree & 3.4% S. agree) of respondents agree that ECX serving properly in standard grading, lot size, delivery, payment, dispute resolution while 25.2% (8.6% s. disagree & 16.6% disagree) respondents disagree. 3.4% of respondents are neutral to the statement.

ECX serving properly in standard grading, lot size, delivery, payment, dispute resolution

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very disagree	15	8.6	8.6	8.6
	Disagree	29	16.6	16.6	25.1
	Indifferent	35	20.0	20.0	45.1
	Agree	90	51.4	51.4	96.6
	Agree very much	6	3.4	3.4	100.0
	Total	175	100.0	100.0	

For the second inquiry, 56.0% (46.9% agree & 9.1% agree) respondents agree for ECX serving properly to trade unknown partners to trade each other easily & in less risky while 32.5% (14.9% disagree & 17.7 disagree) respondents disagree. The remaining 11.4%of the respondents are neutral to the statement.

ECX serving properly to rade unknowen partners to trade each other easily & in less risky

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very disagree	26	14.9	14.9	14.9
	Disagee	31	17.7	17.7	32.6
	Indifferent	16	9.1	9.1	41.7
	Agree	82	46.9	46.9	88.6
	Agree very much	20	11.4	11.4	100.0
	Total	175	100.0	100.0	

For the last inquiry, 54.3% (42.3% agree & % 12strongly agree) respondents agree with ECX is well designed the contract offer that reflect actual trading practice while 28% (10.9% disagree &17.1%agree) respondents disagree. The remaining17.1% respondents are neutral.

ECX is well designed the contract offer that reflect actual trading practice

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very disagree	19	10.9	10.9	10.9
	Disagree	30	17.1	17.1	28.0
	Indifferent	31	17.7	17.7	45.7
	Agree	74	42.3	42.3	88.0
	Agree very much	21	12.0	12.0	100.0
	Total	175	100.0	100.0	

4.5 Counterparty risk management.

One of the key reasons for trading on the exchange is because it greatly reduces the likelihood of contract default or non-performance.

Table4.9 Descriptive statistics of Counterparty risk management

Inquiry	S. Disagree %	Disagree %	Indifferent %	Agree %	S. Agree %	Total
The existing counterpart risk management system is efficient enough	3.4	19.4	22.3	37.1	17.7	100
ECX itself or affiliated body ensure that payments are made against delivery & vice versa	6.9	1.7	19.4	52.6	19.4	100
ECX is closely work with bank, insurance , warehouse operator	6.9	1.7	19.4	52.6	19.4	100
Trust on ECX imposing discipline on its users with strict rule of trade through margin deposit, store in insured warehouse	5.1	8.0	14.9	48.6	23.4	100
ECX reduced the likelihood of contract default or non performance	5.7	12.6	29.1	44.6	8.0	100

As the first inquiry from above Table 4.5 Counterparty risk management indicates, 54.8% (37.1% agree & 17.7% strongly agree) respondents agree with the existing counterpart risk management system is efficient enough while 22.8% (3.4% strongly disagree % 19.4% disagree) respondents disagree. The remaining 22.3% respondents are neutral.

The existing counterpart risk managment system is efficient enough

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very disagree	6	3.4	3.4	3.4
	Disagree	34	19.4	19.4	22.9
	Indifferent	39	22.3	22.3	45.1
	Agree	65	37.1	37.1	82.3
	Agree veery much	31	17.7	17.7	100.0
	Total	175	100.0	100.0	

The second inquiry, 72% (52.6 % agree & 19.4% strongly agree) respondents agree with ECX itself or affiliated body ensure that payments are made against delivery & vice versa while 8.6% (6.9% strongly disagree % 1.7 disagree) respondents are disagree. The remaining 19.4% respondents are neutral.

ECX itself or affiliated body ensure that payments are made against delivery & vice versa

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very disagree	3	1.7	1.7	1.7
	Disagree	8	4.6	4.6	6.3
	Indifferent	31	17.7	17.7	24.0
	Agree	101	57.7	57.7	81.7
	Agree very much	32	18.3	18.3	100.0
	Total	175	100.0	100.0	

For the third inquiry ECX is closely work with bank, insurance , warehouse operator…similar responses recorded with the second inquiry. 72% (52.6 % agree & 19.4% strongly agree) respondents agree with ECX itself or affiliated body ensure that payments are made against delivery & vice versa while 8.6% (6.9% strongly disagree % 1.7 disagree) respondents are disagree. The remaining 19.4% respondents are neutral.

ECX is closely work with bank, insurance , warehouse operater

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very disagree	11	6.3	6.3	6.3
	Disagree	3	1.7	1.7	8.0
	Indifferent	35	20.0	20.0	28.0
	Agree	92	52.6	52.6	80.6
	Agree very much	34	19.4	19.4	100.0
	Total	175	100.0	100.0	

The fourth inquiry, 72% (48.6% agree & 23.4% strongly disagree) respondents agree with Trust on ECX imposing discipline on its users with strict rule of trade through margin deposit, store in insured warehouse while 13.1% (5.1% strongly disagree % 8% disagree. The remaining 14.9 respondents are neutral.

Trust on ECX imposing dicsipline on its users with strict rule of trade through margin deposit, store in insured warehouse

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very disagree	9	5.1	5.1	5.1
	Disagree	14	8.0	8.0	13.1
	Indifferent	26	14.9	14.9	28.0
	Agree	85	48.6	48.6	76.6
	Agree very much	41	23.4	23.4	100.0
	Total	175	100.0	100.0	

The last inquiry, 52.6% (44.6% agree & 8% strongly agree) respondents agree with ECX reduced the likelihood of contract default or non performance while 18.3% (5.7% strongly disagree and12.6% disagree) respondents disagree. The remaining 29.1% respondents are neutral to the statement.

ECX reduced the liklihood of contract default or non performance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very disagree	9	5.1	5.1	5.1
	Disagree	22	12.6	12.6	17.7
	Indifferent	51	29.1	29.1	46.9
	Agree	79	45.1	45.1	92.0
	Agree very much	14	8.0	8.0	100.0
	Total	175	100.0	100.0	

4.6 **Product integrity.**

Unlike a stock exchange, a commodity exchange involves the transfer of ownership of a physical agricultural product that must be graded, weighed, stored, handled, and ultimately delivered from one location to another.

Table 4.9 Descriptive statistics of Product integrity

Inquiry	S. Disagree %	Disagree %	Indifferent %	Agree %	S. Agree %	Total
ECX is conducting transfer of ownership of physical of physical agri-prdt that graded, weighed, stored, deliver from one location to another	3.4	8.0	13.7	50.9	23.4	**100**
ECX ensure on product integrity that graded, weighed, quality, quantity, stored product by working with partners	8.6	14.9	31.4	35.4	9.7	**100**
ECX guarantee that the sample truly represent the entire lot that actually deposited in the warehouse in quality, quantity, condition stored	14.3	16.6	20.0	33.7	15.4	**100**
ECX give guarantee any trade breaching happen on its trading	5.1	16.6	33.1	41.7	3.4	**100**

(Source: Researcher's survey, 2019)

As the first inquiry from above Table 4.9 Product integrity indicates, 74.3% (50.9% agree & 23.4% strongly agree) respondents agree with ECX is conducting transfer of ownership of physical of physical agri-prdt that graded, weighed, stored, deliver from one location to another while 11.4% (3.4% strongly disagree % & 8% disagree) respondents disagree. The remaining 22.3% respondents are neutral.

ECX is conducting transfer of ownership of physical of physical agri-prdt that graded, weighed, stored, deliver from one location to another

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very disagree	6	3.4	3.4	3.4
	Disagree	10	5.7	5.7	9.1
	Indiferent	20	11.4	11.4	20.6
	Agree	95	54.3	54.3	74.9
	Agree very much	43	24.6	24.6	99.4
	31	1	.6	.6	100.0
	Total	175	100.0	100.0	

The second inquiry, 74.3% (48.6 % agree & 23.4% strongly agree) respondents agree with ECX ensure on product integrity that graded, weighed, quality, quantity, stored product by working with partners while 13.1 % (5.1% strongly disagree & 8% disagree) respondents are disagree. The remaining 14.9 % respondents are neutral.

ECX ensure on product integrity that greaded, weighed, quality, quantity, stored product by working with partners

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very disagree	9	5.1	5.1	5.1
	disagree	19	10.9	10.9	16.0
	Indifeent	49	28.0	28.0	44.0
	Agree	74	42.3	42.3	86.3
	Agree very much	24	13.7	13.7	100.0
	Total	175	100.0	100.0	

For the third inquiry, 72% (52.6 % agree & 19.4% strongly agree) respondents agree with ECX itself or affiliated body ensure that payments are made against delivery & vice versa while 8.6% (6.9% strongly disagree % 1.7 disagree) respondents are disagree. The remaining 19.4% respondents are neutral.

ECX garantee that the sample truly represent the entire lot that actually deposited in the warehouse in quality, quantity, condition stored

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very disagree	17	9.7	9.7	9.7
	Disagree	24	13.7	13.7	23.4
	Indifferent	32	18.3	18.3	41.7
	Agree	71	40.6	40.6	82.3
	Agree very much	31	17.7	17.7	100.0
	Total	175	100.0	100.0	

The last inquiry, 72% (48.6% agree & 23.4% strongly disagree) respondents agree with Trust on ECX imposing discipline on its users with strict rule of trade through margin deposit, store in insured warehouse while 13.1% (5.1% strongly disagree % 8% disagree. The remaining 14.9 respondents are neutral.

ECX give garantee any trade breaching happen on its trading

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	8	4.6	4.6	4.6
	Disagree	25	14.3	14.3	18.9
	Indifferent	55	31.4	31.4	50.3
	Agree	77	44.0	44.0	94.3
	Strongly agree	10	5.7	5.7	100.0
	Total	175	100.0	100.0	

4.7 Viable regulation and enforcement. Ultimately, the whole exchange system relies on trust – trust in the exchange (and its clearing house), trust in the brokers to whom clients entrust their money, and trust in the warehouses and collateral managers who will issue the pieces of paper that will actually be delivered on the exchange.

Table 4.10 Descriptive statistics of Viable regulation and enforcement

Inquiry	S. Disagree %	Disagree %	Neutral %	Agree %	S. Agree%	Total
ECX in place over-arching regulatory & legal infrastructure to ensure regulation at different level	6.3	8.0	15.4	58.3	12.0	100
ECX provides protection from those lack integrity	5.1	21.7	21.1	44	8.0	100
ECX is well organized & equipped with cyber security to withstand cyber attack	10.9%	14.9%	33.7	29.1	11.4	100
Adequate supervision and monitoring is undertaken in maintaining market integrity	3.4	27.4	16.6	26.9	25.7	100
In conducting audit of exchange & intermediary	6.9	6.3	40.0	36.0	10.9	100
Price negotiation take in to account and base the current market price	17.7	22.9	14.9	29.1	13.7	100
Regarding concern on delivery of traded commodity	2.9	10.9	11.4	58.9	14.3	100

(Source: Researcher's survey, 2019)

As the first inquiry from above Table 4.10 respondents agree with ECX in place over-arching regulatory & legal infrastructure to ensure regulation at different level, 70.3% (58.3% agree & 12% strongly agree) while 14.3% (6.3% strongly disagree % & 8% disagree) respondents disagree. The remaining 15.4% respondents are neutral.

ECX in place over-arching regulatory & legal infrastructure to ensure regulation at different level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very disagree	10	5.7	5.7	5.7
	Disagree	13	7.4	7.4	13.1
	Indifferent	27	15.4	15.4	28.6
	Agree	104	59.4	59.4	88.0
	Agree very Much	21	12.0	12.0	100.0
	Total	175	100.0	100.0	

For the second inquiry, 53.7% (28 % agree & 25.7% strongly agree) respondents agree with ECX provides protection from those lack integrity while 29.8% (2.9% strongly disagree % 26.9% disagree) respondents are disagree. The remaining 21.1% respondents are neutral

ECX provides protection from those lack integrity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very disagree	9	5.1	5.1	5.1
	Disagree	38	21.7	21.7	26.9
	Indifferent	37	21.1	21.1	48.0
	Agree	77	44.0	44.0	92.0
	Agree very much	14	8.0	8.0	100.0
	Total	175	100.0	100.0	

The third inquiry, 40.5% (29.1% agree & 11.4% strongly agree) respondents agree ECX is well organized & equipped with cyber security to withstand cyber attack while 25.8 % (10.9% strongly disagree & 14.9% disagree) respondents are disagree. The remaining 33.7 % respondents are neutral.

ECX is well organised & equipped with cyber security to withstand cyber attack

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very disagree	19	10.9	10.9	10.9
	Disagree	26	14.9	14.9	25.7
	Indifferent	58	33.1	33.1	58.9
	Agree	52	29.7	29.7	88.6
	Agree very much	20	11.4	11.4	100.0
	Total	175	100.0	100.0	

The fourth inquiry, 52.6% (26.9% agree & 25.7% strongly disagree) respondents agree with Adequate supervision and monitoring is undertaken in maintaining market integrity while 30.8% (3.4% strongly disagree 27.4% disagree. The remaining 16.6% respondents are neutral.

Adequate supervision and monitoring is undertaken in maintaining market integrity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very disagree	5	2.9	2.9	2.9
	Disagree	47	26.9	26.9	29.7
	Indifferent	29	16.6	16.6	46.3
	Agree	49	28.0	28.0	74.3
	Agree very much	45	25.7	25.7	100.0
	Total	175	100.0	100.0	

The fifth inquiry, 46.9% (36.0% agree & 10.9% strongly agree) respondents agree with conducting audit of exchange & intermediary while 13.3% (6.9% strongly disagree and6.3% disagree) respondents disagree. The remaining 40.0% respondents are neutral to the statement.

In conducting audit of exchange & intermediatory

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very disagree	12	6.9	6.9	6.9
	Disagree	10	5.7	5.7	12.6
	Indifferent	70	40.0	40.0	52.6
	Agree	63	36.0	36.0	88.6
	Agree very much	20	11.4	11.4	100.0
	Total	175	100.0	100.0	

The final inquiry, 73.2% (58.9% agree & 14.3% strongly agree) respondents agree with regarding concern on delivery of traded commodity while 18.3% (2.9% strongly disagree and 10.9% disagree) respondents disagree. The remaining 11.4% respondents are neutral to the statement.

Regarding concern on delivery of traded commodity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very disagree	5	2.9	2.9	2.9
	Disagree	19	10.9	10.9	13.7
	Indifferent	20	11.4	11.4	25.1
	Agree	103	58.9	58.9	84.0
	Agree very much	25	14.3	14.3	98.3
	6	3	1.7	1.7	100.0
	Total	175	100.0	100.0	

4.1.4 Mean and Standard Deviation

To capture, analyze and reach conclusion about the ECX marketing efficiency, 35 questions were ruled into six dimensions for genuine answer from the trade participants; The Six dimension are: **Trading Platform, Brokers Market Participation, Contract, Counter Risk Management, Product integrity and Viable Regulation & Enforcement.**

In order to compare the respondents Market efficiency, descriptive statistics of mean and standard deviation are used. The mean indicates to what extent the sample group averagely agrees or disagrees with the different statements. The higher the mean the more the respondents agree with the statement while the lower the mean the more the respondents disagree with the statement. In addition, standard deviation shows the variability of an observed response. Below the results are discussed on by one.

4.1.4.1 Trading Platform

According to Mokotjo and Kalusoa, the characteristics of quality information involve relevance, accuracy, timeliness and understandability. Market Information is hence is formed to judge the overall quality of information. ECX provided electronic based system to match multiple offers to sell and bids to buy. Therefore, 6 questions related to Trading Platform provided to the respondents and the results of the analysis are displayed in table 4.11 below.

Table 4.11 Trading Platform

Inquiry	Mean	Std. Deviation
Electronic trading is User Friendly	3.93	1.182
Problem encountered during electronic trading	3.81	.778
How many time problem/s you have encountered during electronic trading	2.54	1.118
The trading platform is robust	3.45	1.138
The trading platform is too expensive	3.32	1.150
The trading platform is efficient	3.25	1.201

(Source: Researcher's survey, 2019)

As illustrated on Table 4.11 all of the variables of Market Efficiency scored relatively high with an overall 3.25 mean score. The respondents also gave the highest mean score to the user Friendly Electronic Trading that provided by ECX with a mean score of 3.93 while they gave a low mean score of 2.54 to the number of times problems encountered during electronic trading. From this, it can be ease to conclude that the respondents have a high level suitability with the electronic trading.

4.1.4.2 Broker Market Participation

Brokers are a vital part of an exchange. Brokers, who are formally licensed and insured, act as marketing agents, enabling a wide population of buyer and seller clients to participate in the exchange. In relation to this, Table 4.8 presents respondents result of Broker Market Participation with mean and standard deviation of values for each variable.

Table 4.12 Broker Market Participation

Descriptive Statistics			
	N	Mean	Std. Deviation
Intermediary member passed through appropriate criteria	175	3.50	.903
Intermediary member is formally licensed & Insured	175	3.62	.908
Intermediary member is enabled wide proportion of buyers & sellers to participate	175	3.63	.985
Intermediary member integrity is trusted	175	3.40	1.000
Intermediary member is providing the required information to the client	175	3.64	.929

(Source: Researcher's survey, 2019)

As per table 4.12.the list of items comprising of Broker Market Participation, the mean score for the Intermediary member is providing the required information to the client scored the highest with a mean score of 3.64 while the Intermediary member integrity is trusted scored the lowest with a mean score of 3.40%. The overall mean score indicates that the respondents have a good understanding towards the role of broker market participation.

4.1.4.3 Trade Contract

The exchange needs to offer contracts that are commodity and grade specific, with standard specifications for grade, lot size, delivery, payment, measurement, and dispute resolution, among others. The contracts need to be ones that the target clients need or are looking for and they need to be well designed to reflect actual trading practices.

Table 4.13 Trade Contract

	N	Mean	Std. Deviation
ECX serving properly in standard grading, lot size, delivery, payment, dispute resolution	175	3.25	1.052
ECX serving properly to trade unknown partners to trade each other easily & in less risky manner	175	3.22	1.287
ECX is well designed the contract offer that reflect actual trading practice	175	3.27	1.201
Valid N (listwise)	175		

(Source: Researcher's survey, 2019)

Table 4.13 show that ccounterparty risk management system scored the highest among the list of inquiry related to ECX is well designed the contract offer that reflect actual trading practice with a mean score of 3.27 while the respondents gave the least score of 3.22 for ECX is well designed the contract offer that reflect actual trading practice. In the finding there is not much significant range with the highest and the lowest scores as table display.

4.1.4.4 Counterparty Risk Management

One of the key reasons for trading on the exchange is because it greatly reduces the likelihood of contract default or non-performance. This can be fulfilled only by working closely with banks as well as warehouse operators.

4.14 Counterparty Risk Management

Inquiries	N	Mean	Std. Deviation
The existing counterpart risk management system is efficient enough	175	3.46	1.097
ECX itself or affiliated body ensure that payments are made against delivery & vice versa	175	3.86	.826
ECX is closely work with bank, insurance , warehouse operator	175	3.76	1.011
Trust on ECX imposing discipline on its users with strict rule of trade through margin deposit, store in insured warehouse	175	3.77	1.058
ECX reduced the likelihood of contract default or non performance	175	3.37	.996
Valid N (listwise)	175		

(Source: Researcher's survey, 2019)

As per table 4.14 display the mean score the highest for 'ECX itself or affiliated body ensure that payments are made against delivery & vice versa' with a mean score of 3.86 while 'ECX reduced the likelihood of contract default or non performance' scored the lowest with a mean score of 3.37%. The finding indicates that respondents have good attitude toward ECX working closely with counterparts.

4.1.4.5 Product integrity

The Exchange's viability depends on whether it trades products of integrity, with trades that are well understood and unadulterated, and guarantees that the sample truly represents the entire lot, that what is in the warehouse is actually there in the quality, quantity, and condition in which it was deposited, and that it will be delivered in that condition at the completion of the trading transaction.

Table 4.15Product integrity

Inquiries	N	Mean	Std. Dev.
ECX is conducting transfer of ownership of physical of physical agri-prdt that graded, weighed, stored, deliver from one location to another	175	3.99	2.279
ECX ensure on product integrity that graded, weighed, quality, quantity, stored product by working with partners	175	3.23	1.090
ECX guarantee that the sample truly represent the entire lot that actually deposited in the warehouse in quality, quantity, condition stored	175	3.19	1.290
ECX give guarantee any trade breaching happen on its trading	175	3.22	.940
Valid N (listwise)	175		

(Source: Researcher's survey, 2019)

Table 4.16 indicates that respondents are welcoming 'ECX is conducting transfer of ownership physical of physical agri-prdt that graded, weighed, stored, deliver from one location to another' with the highest mean score of 3.99 and the lowest mean score for ECX guarantee that the sample truly represent the entire lot that actually deposited in the warehouse in quality, quantity, condition stored' that is 3.19.

4.12 Viable Regulation and Enforcement

The whole exchange system relies on trust – trust in the exchange (and its clearing house), trust in the brokers to whom clients entrust their money, and trust in the warehouses and collateral managers who will issue the pieces of paper that will actually be delivered on the exchange. A good system of regulation is necessary to ensure such trust.

Table 4.16 Viable Regulation and Enforcement

Inquiries	N	Mean	Std. Deviation
ECX in place over-arching regulatory & legal infrastructure to ensure regulation at different level	175	3.62	1.010
Adequate supervision and monitoring is undertaken in maintaining market integrity	175	3.44	1.234
In conducting audit of exchange & intermediary	175	3.38	.997
Regarding concern on delivery of traded commodity	175	3.76	.982
ECX provides protection from those lack integrity	175	3.28	1.054
ECX is well organized & equipped with cyber security to withstand cyber attack	175	3.15	1.147
Valid N (listwise)	175		

(Source: Researcher's survey, 2019)

Table 4.16 show that ccounterparty risk management system scored the highest among the list of inquiry related to 'regarding concern on delivery of traded commodity' with a mean score of 3.76 while the respondents gave the least score of 3.15 for ECX is well organized & equipped with cyber security to withstand cyber attack. It is clear that the finding witness that the respondents have no problem/ concern on the delivery side where as either they did not have adequate knowledge of the cyber security ECX readiness to abort and conduct its business without threat or respondents are in concern someday it happens.

4.1.4.6 Overall Market Efficiency

To learn more from respondents about the overall market efficiency, six inquiries prepared to answer. Table 4.18 display the processed analysis and subsequent interpretation.

Table 4.17 Overall Market Efficiency

Item	Mean	Std. Deviation
The trading platform is fair and justifiable	3.56	.974
Broker market participation in the trading practice is trustworthy	3.68	.935
ECX offers standard contract	3.45	.992
ECX reduced the likelihood of contract default or non performance	3.66	.856
ECX ensure on product integrity	3.60	.897
ECX in place over-arching regulatory & legal infrastructure and in operation to ensure regulation at different level	3.68	.959
Marketing Efficiency	3.78	..962
Valid N (listwise)		

(Source: Researcher's survey, 2019)

Table 4.17 is displaying the respondents gave a low mean score of 3.45 for ECX offers standard contract which regarded as fair. From the above table it can be possible to conclude that majority of the respondents are satisfied with marketing service ECX provided.

4.2 Correlation Analysis

The correlation between dependent and independent variables along with the causal effect was analyzed using Statistical Package for Social Science (SPSS). This study made in use Pearson Correlation coefficient to show the strength of relationship among the variables considered in the questionnaire.

The below correlation matrix used to provide evidence of convergent validity and Pearson correlation coefficients that reveal magnitude and direction of relationships (either positive or negative) and the intensity of the relationship (-1.0 + 1.0). Correlations are perhaps the most basic and most useful measure of association between two or more variables (Marczyk, Dematteo and Festinger, 2005).

General guidelines of correlations of .01 to .03 are considered small, correlations of 0.3 to 0.7 are considered moderate, correlations of 0.7 to 0.9 are considered large and correlations of 0.9 to 1.00 are considered to be very large (Marczyk, Dematteo and Festinger, 2005).

Table 4.18 Correlations

		TP	TC	CRM	BP	PI	VRE	ME
TP	Pearson Correlation	1	.647**	.661**	.609**	.619**	.813**	.852**
	Sig. (2-tailed)		.000	.001	.005	.159	.005	.000
	N	175	175	175	175	175	175	175
TC	Pearson Correlation	.647**	1	.849**	.796**	.864**	.914**	.903**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000
	N	175	175	175	175	175	175	175
CRM	Pearson Correlation	.661**	.849**	1	.853**	.754**	.964**	.891**
	Sig. (2-tailed)	.001	.000		.000	.000	.000	.000
	N	175	175	175	175	175	175	175
BP	Pearson Correlation	.609**	.796**	.853**	1	.797**	.870**	.879**
	Sig. (2-tailed)	.005	.000	.000		.000	.000	.000
	N	175	175	175	175	175	175	175
PI	Pearson Correlation	.619	.864**	.754**	.797**	1	.811**	.927**
	Sig. (2-tailed)	.159	.000	.000	.000		.000	.000
	N	175	175	175	175	175	175	175
VRE	Pearson Correlation	.813**	.914**	.964**	.870**	.811**	1	.953**
	Sig. (2-tailed)	.005	.000	.000	.000	.000		.000
	N	175	175	175	175	175	175	175
ME	Pearson Correlation	.852**	.903**	.891**	.879**	.927**	.953**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	
	N	175	175	175	175	175	175	175

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

As per table above, the coefficient show that all independent variables were positively related with dependent variable (market efficiency) within the range of 0.852 - 0.953 were all are significant at $p<0.01$ level.

The independent variables trade contract, product integrity and viable regulatory and enforcement have the highest and strong positive relation 0.927, 0.903 & 0.953 respectively. Among all variables trading platform relatively recorded moderate (0.852) and positive relation with market efficiency.

The Table displays the correlation among the independent variables that they are positively correlated with each other. The strongest correlation goes between viable regulatory and enforcement with 0.914 and also viable regulatory and enforcement with counterparty risk management (0.964) as well as trade contractor with counter risk management (at 0.914) while mostly moderate correlation between the independent variable is recorded as it is clearly displayed on the table.

4.2.1 Test for Linear Regression Model Assumptions

4.2.1.1Multicollnearity Test Assumption

In regression, multicollinearity occurs when independent variables in the regression model are more highly correlated with each other than with the dependent variable When the independent variables the regression model is highly correlated with one another; they are basically measuring the same thing. In other words, when two variables are highly correlated, they both communicate essentially similar information. One way to assess multicollinearity is to examine correlations among the independent variables. If a correlation matrix demonstrates correlations of 0.90 or higher among the independent variables, they may be a problem with multicollinearity. Hair et al. (2006) argued that correlation coefficient below 0.90 may not cause serious multicollinearity problem, cited by Muhammed (2012). Multicollinearity can also be detected using tolerance value and variance inflator factor (VIF) value. An insignificant tolerance value point to the variable under discussion is almost a perfect liner combination of the independent variables already in the equation and that it should be dropped out from to the equation. Multicollinearity does not exist among all the independent variables provided that the tolerance value of all the independent variables was greater than 0.1 and the VIF values of all the independent variables are also less than 10.

Table4.19 Collinearity Statistics

	Collinearity Statistics	
Model	**Tolerance**	**VIF**
Trading Platform TP	.394	1.119
Trade Contracts TC	.235	4.868
Counterparty Risk Management CRM	.366	2.735
Brokers Market Participation BP	.249	6.821
Product integrity PI	.339	5.336
Viable regulation and enforcement VRE	.377	6.097

(Source: Researcher's survey, 2019)

The table 4.20 above all independent variables are greater than 0.1 and the VIF value of all the independent variables are also less than 10.

4.3 Regression analysis

Regressions fit a predictive model to data and use that model to predict the values of dependent variable from one or more independent variables. Linear multiple regression estimates the

coefficients of the linear equation, involving one or more independent variables that best predict the value of the dependent variable.

Table. 20Model Summary

Mode	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.951[a]	.904	.904	.26961	1.947

(Source: Researcher's survey, 2019)

1. **Predictors/ Constant:** Trading Platform, Trade Contracts, Counterparty Risk Management, Brokers Market Participation, Product integrity, Viable Regulation and Enforcement
2. **Dependent Variable:** Market Efficiency

The adjusted R^2 is called the coefficient of determination that reflects the strength of the effect of Predictors/ Constant (Trading Platform, Trade Contracts, Counterparty Risk Management, Brokers Market Participation, Product integrity, Viable regulation and enforcement) on the dependant variable(Market Efficiency).

As it display on the above model summary, adjusted R^2 is 0.904. This implies that independent variable (Trading Platform, Trade Contracts, Counterparty Risk Management, Brokers Market Participation, Product integrity, Viable Regulation and Enforcement) on the dependant variable (Market Efficiency) with the variation of 90.4 %.

Table 4.21 bellow provides the results of the linear multiple regression analysis that made in use to clarify more for this study.

Table 4.21 Coefficient of Determination

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	**Std. Error**	**Beta**		
1	(Constant)	-.924	.232		-4.837	.000
	Trading Platform	.233	.027	.358	6.221	.000
	Trade Contracts	.432	.078	.322	6.840	.000
	Counterparty Risk Management	.310	.072	.011	4.142	.000
	Brokers Market Participation	.327	.055	.361	5.931	.000
	Product integrity	.057	.044	.068	2.304	.000
	Viable Regulation and Enforcement	.232	.060	.374	6.205	.000

1. **Predictors/Constant:** Trading Platform, Trade Contracts, Counterparty Risk Management, Brokers Market Participation, Product integrity, Viable Regulation and Enforcement
2. **Dependent Variable**: Market Efficiency

(Source: SPSS data 2019)

Regression table, Table 4.22, displays the significance/ acceptability of the model from a statistical point of view. As the significance value of indicate value of (.000), which is less than $p<0.05$ that it confirms the model is significant which, in turn, confirms the variation explained by the model is appropriate and acceptable.

The strength of each independent variable effect on dependent variable can be examined by standardized Beta Coefficient. The regression coefficient explains the average amount of change in the dependent variable that is caused by a unit change in the independent variable. The larger value of Beta coefficient an independent variable has, brings the more support to the independent variable as the more important determinant in predicting the dependent variable. price, market information, grading, risk, clearing were found to be a determinant of Market Efficiency in their ascending order referring to viable regulatory and enforcement as the most important underlying factor of Market Efficiency.

The adjusted R Square statistic reflects the proportion of variance in the dependent variable that is accounted for by the independent variables. In this case the co- efficient of determination adjusted

(R^2) was 0.904. This implies that about 90.4% of the dependent variable, Market Efficiency, can be explained by the independent variables.

According to Table 4.21, the standardized coefficients for the six independent variables (Trading Platform, Trade Contracts, Counterparty Risk Management, Brokers Market Participation, Product Integrity, Viable Regulation and Enforcement) strength on dependent variable 0.358, 0.322, 0.011, 0.361, 0.068, 0.374 and the significance levels .000, .000, .000, .000, .000 respectively which are all less than 0.05. This indicates a significant relationship between the independent variables and the dependent one. Since, coefficients of the predictor variables are statistically significant at less than five percent; alternative hypotheses related to all five dimensions of market efficiency were accepted.

From the above table we can have the following general formula for the study. The regression equation was

OME =α+β1x1+β2x2+β3x3+β4x4+ Σ..... (1)

OME =α+β1TP+ β2TC +β3CRM+ β4BP+ β5PI + β5VRE …….. (2)

OME=-0.924+0.358TP+0.322TC+0.011CRM+0.361BP+0.068PI+0.374VRE+ Σ ……. (3)

The regression model from table 4.22 above result shows that:

- ✓ Trading Platform does have positive & significant effect on market in the market Efficiency of Ethiopian Commodity Exchange.
- ✓ Trade Contracts does have positive & significant effect on market Efficiency of Ethiopian Commodity Exchange.
- ✓ Counterparty Risk Management does have positive & significant effect on market Efficiency of Ethiopian Commodity Exchange.
- ✓ Brokers Market Participation does have positive & significant effect on market Efficiency of Ethiopian Commodity Exchange.
- ✓ Product Integrity does have positive & significant effect on market Efficiency of Ethiopian Commodity Exchange.
- ✓ Viable Regulation and Enforcement does have positive & significant effect on market Efficiency of Ethiopian Commodity Exchange.

4.22 Hypothesis Testing and Interpretation of Results

Table 4.22 Summary of the overall outcome of the Research Hypotheses

Hypotheses	Result	Reason
Ho: Trading Platform does not have & significant effect on market efficiency	Ho: Rejected	β= 0.358, p<0.05
Ho: Trade Contracts does not have & significant effect on market efficiency	Ho: Rejected	β= 0.358, p<0.05
Ho: Counterparty Risk Management does not have & significant effect on market efficiency	Ho: Rejected	β= 0.358, p<0.05
Ho: Brokers Market Participation does not have & significant effect on market efficiency	Ho: Rejected	β= 0.358, p<0.05
Ho: Product Integrity does not have & significant effect on market efficiency	Ho: Rejected	β= 0.358, p<0.05
Ho: Viable Regulation and Enforcement does not have & significant effect on market efficiency	Ho: Rejected	β= 0.358, p<0.05

4.5 Discussion

This study is designed and carried out in order to identify and measure the underlying dimensions with factors that determine the materializing of Market Efficiency.

In over viewing ECX operation, it is fully employing the digital technology in its day to day business activities. This technology based business open new sphere of opportunity for the female, youth, adult… The business as usual as it comes to off the road at least for relatively big marketing institution like ECX change the demographic row. The business run by ECX looks for educated and agile business men and women. As the study finding reveal, (58.3.7%) of respondents are males and the rest (41.7%) is females. This is an encouraging step that the male dominated digital base business is welcoming new family, Women.

In relation to the age distribution, youth (26-35 years) which is 30.5% follow the adult group (36-45) years with 41.8%. This is still encouraging to see the youngsters are joing the business world. It is clear that this youth & women may not the business owner but having opportunity to learn the business acumen in the value chain.

Regarding the educational status of the respondents, the finding indicates the literate group among respondents: MA/MSc and above 4.6%, 50.3% degree graduate and 30.3% diploma. Almost 85% of respondents is higher education graduate which, of course, encourage and attract for more skilled business people to open their eyes and to join the digital base business world.

As it is (ECX) big business institution, the actors in the trading govern by ECX's rules & role to play as member in the business field. This membership include category of Regular Trader, Intermediary Membership, Restricted Trader and Restricted Intermediary. As per the outcome of the study, respondents represent for Intermediary Members holds the majority base, 109(62.3%), followed by Regular Trader, 54(30.9%). The remaining respondents comprise: Restricted Trader, 10 (5.7%), and Restricted Intermediary are 20(1.1%).

Regarding the marketing dimensions of the study focus on the examining the Trading Platform, Trade Contracts, Counterparty Risk Management, Brokers Market Participation, Product integrity, Viable Regulation and Enforcement.The administered questionnaires captured the require information where the ECX is and leading to realize what it promised the Market Efficiency. To this study, six independent variables (Trading Platform, Trade Contracts, Counterparty Risk Management, Brokers Market Participation, Product integrity, Viable Regulation and Enforcement) employed to capture the required marketing efficiency status.

Accordingly, these six independent variables are found to have a positive correlation with market efficiency that revealed from the Pearson's Correlation Coefficient. The coefficients of the variables indicated that these variables have different magnitudes of correlation with each other too. As the finding reveals, product integrity and viable regulatory and enforcement have the highest and strong positive relation where as trading platform relatively recorded moderate.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

The objective of this study was to examine the market efficiency of Ethiopian Commodity Exchange that the institution promised and working toward. Out of the total of 186 questionnaires distributed, 175 of them collected and processed as it is found to be sufficient to capture the required information.

In order to do this, six determinants of market efficiency variables are used. These variables are Trading Platform, Trade Contracts, Counterparty Risk Management, Brokers Market Participation, Product integrity, Viable Regulation and Enforcement.

The finding indicates that these six independent variables are found to have a positive correlation with market efficiency that revealed from the Pearson's Correlation Coefficient. The coefficients of the variables indicated that these variables have different magnitudes of correlation with each other too. As the finding reveals, product integrity and viable regulatory and enforcement have the highest and strong positive relation where as trading platform relatively recorded moderate.

In general, the study finding reveals that these core determinant factors have positive influence in the process of capturing the status of marketing efficiency under ECX governance.

5.2 Conclusions

- ✓ ECX is fully employed the electronic platform. As it is an internet base trading and attention should be given to the power supply and the constant provision of the internet. The power supply with the current trend, especially regional warehouse and other electronic connected facility will be affected. This call for partnership building with active and uninterrupted line supply
- ✓ Those actors those trading on the ECX business platform are passing the appropriate on boarding process and they are formally licensed & insured which help to the market integrity that boosts traders' confidence.
- ✓ The existing contract system designed by ECX is acceptable by this stage. This situation enhances the smooth transaction of the business.
- ✓ The counterparty risk management of the ECX is appreciated and the close work with partners trigger and blossoming the businesses activities.
- ✓ The trading contract is well acceptable by respondent it require update with the change in the business world.
- ✓ Product integrity is appreciated by respondents; still how far the sample truly represents the entire lot need special attention to avoided damage caused for it is unknown partners to trade each other easily & in less risky manner.
- ✓ Viable regulation and enforcement are breasting in materializing the market efficiency for it is strongly influence the progress of fair and justifiable market. Similarly, the finding revealed that the cyber protections from intruders/s are vague to substantial number of respondents who are reluctant to agree or disagree.

5.3 Recommendations

Based on the findings, the researchers advance the following recommendations to address

- ✓ ECX should use alternative means to internet interruption and blackout. This also requires building partnership and working closely various partners including Ethio-Electric power authority and Ethiotelecom.
- ✓ ECX should organise feedback platform that can be held with direct market participant at9 least 1-2 per year meeting
- ✓ In the trading of product, ECX need to find ways how traders can check how far the sample truly represents the entire lot need special attention to avoided damage caused for it is unknown partners to trade each other easily & in less risky manner. Sample display mechanism including video and other electronic means
- ✓ Viable regulation and enforcement are has tremendous impact in safe guarding the market integrity in general. Updating the regulation after reviewing the so far progress as the world business stride forward.
- ✓ Similarly, the finding revealed that the cyber protections from intruders/s are vague to substantial number of respondents. As it is ECX is organised itself to curve the threat, Traders need to know the effort is being made behind the door for it build the confidence of its participants and market integrity too.

5.4 Areas for Further Research

This study has mainly focused on examining determinates of market efficiency of Ethiopian commodity exchange. Nevertheless, the findings should be interpreted carefully, as there were a number of drawbacks which also represent the market efficiency for further research. Market Efficiency determinants include market information, grading & sampling, risk management, clearing & settlement and price discovery if there are other determinates that the researchers did not take in to account in this study, thus the future researcher could conduct a study on the same title by considering other determinant factors. Moreover, future research may investigate determinates of market efficiency of Ethiopian commodity exchange.

APPENDIX 1

Questionnaire in English

Addis Ababa University

College of Business and Economics School of Commerce

Marketing Management Graduate Program

Dear respondents,

I am attending a post graduate program in Marketing Management at Addis Ababa University College of Business and Economics School of Commerce. I am doing my dissertation in title "**determinates of market efficiency of commodity exchange: the case study of Ethiopian commodity exchange"** in partial fulfillment of a post graduate degree (MA) in Marketing Management.

This questionnaire is intended to gather data on the topic selected for the study. To make this research successful your contribution through attempting the entire question will have a paramount importance. Therefore the researcher would like to appreciate your contribution from the outset.

The information you provide is confidential and for the sole purpose of academic reason. Hence, you are kindly requested to respond to the statements in the following questionnaire. Your response has a great impact for this survey study. The main objective of the study is to identify the determinants of market efficiency of commodity exchange and recommend solutions for problems related to the subject matter.

DETERMINING FACTORS OF MARKET EFFICENCY OF COMMODITY EXCHANGE: THE CASE OF ETHIOPIAN COMMODITY EXCHANGE

Part I General Information

Please, provide your responses by putting '√' mark in the space provided.

English version of Questionnairy

1. Gender 1. Male 2. Female
2. Age

A. ☐18–25 year B. ☐26–35 year C.☐36–45 year D. 4☐46–55 year E. ☐Over 56 year

3. Education

1. Primary Education (≤ Grade 8) 2. □ High School (9 – 12th Grade) 3. Diploma/Vocational Education D. ☐ Degree E. ☐Master's Degree or Above

4. Membership Type 1. Regular Trader 2. Intermediary Trader 3. Restricted Trader 4. Restricted Intermediary

Electronic trading is user friendly? 1. Strongly Disagree 2. Disagree 3. Indifferent 4. Agree 5. Strongly Agree
Problem encountered during electronic trading? 1. Power blackout, 2. Loaded 3.Software programme dysfunctional 4. Internet line disruption 5. Other reason
How many time problem/s you have encountered during electronic trading? 1. 1-2 2. 3-5 3. More than 5 times 4. No problem at all
The trading platform is robust? 1. Strongly Disagree 2. Disagree 3. Indifferent 4. Agree 5. Strongly Agree
The trading platform is too expensive? 1. Strongly Disagree 2. Disagree 3. Indifferent 4. Agree 5. Strongly Agree
The trading platform is efficient? 1. Strongly Disagree 2. Disagree 3. Indifferent 4. Agree 5. Strongly Agree
Intermediary member passed through appropriate criteria? 1. Strongly Disagree 2. Disagree 3. Indifferent 4. Agree 5. Strongly Agree
Intermediary member is formally licensed & Insured? 1. Strongly Disagree 2. Disagree 3. Indifferent 4. Agree 5. Strongly Agree
Intermediary member is enabled wide proportion of buyers & sellers to participate? 1. Strongly Disagree 2. Disagree 3. Indifferent 4. Agree 5. Strongly Agree
Intermediary member integrity is trusted? 1. Strongly Disagree 2. Disagree 3. Indifferent 4. Agree 5. Strongly Agree
Intermediary member is providing the required informatin to the client? 1. Strongly Disagree 2. Disagree 3. Indifferent 4. Agree 5. Strongly Agree
ECX serving properly in standard grading, lot size, delivery, payment, dispute resolution? 1. Strongly Disagree 2. Disagree 3. Indifferent 4. Agree 5. Strongly Agree
ECX serving properly to rade unknowen partners to trade each other easily & in less risky? 1. Strongly Disagree 2. Disagree 3. Indifferent 4. Agree 5. Strongly Agree
ECX is well designed the contract offer that reflect actual trading practice? 1. Strongly Disagree 2. Disagree 3. Indifferent 4. Agree 5. Strongly Agree
The existing counterpart risk managment system is efficient enough? 1. Strongly Disagree 2. Disagree 3. Indifferent 4. Agree 5. Strongly Agree

ECX itself or affiliated body ensure that payments are made against delivery & vice versa? 1. Strongly Disagree 2. Disagree 3. Indifferent 4. Agree 5. Strongly Agree
ECX is closely work with bank, insurance , warehouse operator? 1. Strongly Disagree 2. Disagree 3. Indifferent 4. Agree 5. Strongly Agree
Trust on ECX imposing dicsipline on its users with strict rule of trade through margin deposit, store in insured warehouse? 1. Strongly Disagree 2. Disagree 3. Indifferent 4. Agree 5. Strongly Agree
ECX reduced the liklihood of contract default or non performance? 1. Strongly Disagree 2. Disagree 3. Indifferent 4. Agree 5. Strongly Agree
ECX is conducting transfer of ownership of physical of physical agri-prdt that graded, weighed, stored, deliver from one location to another? 1. Strongly Disagree 2. Disagree 3. Indifferent 4. Agree 5. Strongly Agree
ECX ensure on product integrity that graded, weighed, quality, quantity, stored product by working with partners? 1. Strongly Disagree 2. Disagree 3. Indifferent 4. Agree 5. Strongly Agree
ECX garantee that the sample truly represent the entire lot that actually deposited in the warehouse in quality, quantity, condition stored? 1. Strongly Disagree 2. Disagree 3. Indifferent 4. Agree 5. Strongly Agree
ECX give garantee any trade breaching happen on its trading? 1. Strongly Disagree 2. Disagree 3. Indifferent 4. Agree 5. Strongly Agree
ECX in place over-arching regulatory & legal infrastructure to ensure regulation at different level?
1. Strongly Disagree 2. Disagree 3. Indifferent 4. Agree 5. Strongly Agree
Adequate supervision and monitoring is undertaken in maintaining market integrity?1. Strongly Disagree 2. Disagree 3. Indifferent 4. Agree 5. Strongly Agree
In conducting audit of exchange & intermediatory?1. Strongly Disagree 2. Disagree 3. Indifferent 4. Agree 5. Strongly Agree
Regarding concern on delivery of traded commodity?1. Strongly Disagree 2. Disagree 3. Indifferent 4. Agree 5. Strongly Agree
ECX provides protection from those lack integrity?1. Strongly Disagree 2. Disagree 3. Indifferent 4. Agree 5. Strongly Agree
ECX is well organised & equipped with cyber security to withstand cyber attack?1. Strongly Disagree 2. Disagree 3. Indifferent 4. Agree 5. Strongly Agree
The trading platform is fair and justifiable?1. Strongly Disagree 2. Disagree 3. Indifferent 4. Agree 5. Strongly Agree
Brocker market participation in the trading practice is trustworthy?1. Strongly Disagree 2. Disagree 3. Indifferent 4. Agree 5. Strongly Agree
ECX offers standard contract?1. Strongly Disagree 2. Disagree 3. Indifferent 4. Agree 5. Strongly Agree
ECX reduced the liklihood of contract default or non performance?1. Strongly Disagree 2. Disagree 3. Indifferent 4. Agree 5. Strongly Agree
ECX ensure on product integrity?1. Strongly Disagree 2. Disagree 3. Indifferent 4. Agree 5. Strongly Agree
ECX in place over-arching regulatory & legal infrastructure and oprationalized to ensure regulation at different level?1. Strongly Disagree 2. Disagree 3. Indifferent 4. Agree 5. Strongly Agree

የኢትዮጵያ ምርት ገበያ (ECX) የገበያ ብቃትን ግንባታ የሚወሰኑ አካላትን የሚያጠና የአማር መጠይቅ

ክፍል I. አጠቃላይ መጠይቅ

1. **ፆታ** A. ☐**ወንድ** B. ☐**ኴት**
2. **ዕድሜ** A . 18- 25 **ዓመት** B. 26 - 35 C. 36 - 45 D. 46 -55 E. 55 **በላይ**
3. **የትምህርት ደረጃ**

A. **የመጀመሪያ ደረጃ** B. **የሁለተኛ ደረጃ** C. **ዲፕለማ/የሙያ ትም/ት** D. **ዲግሪ** E. **ማስተርና ከዛ በላይ**

4. **የ**ECX **አባልነት አይነት**

A. **ተገበያይ መደበኛ አባል** ☐

B. **አገናኝ መደበኛ አባል** (Intermediary membership) ☐

C. **ውስን ተገበያይ አባል** ☐

D **ውስን አገናኝ አባል**

ክፍል II. የግብይይት መድረክን (trading platform) **የተመለከተ መጠይቅ**

1. **በኮምፒዉተር (ኤሌክትሮኒክስ) ግብይይቱ ለተጠቀሚ ቀላልና የተመቻቸ ነው**

A. **በጣም አልስማማም** B. **አልስማማም** C. **እንጃ** D. **እስማማለሁ** E. **በጣም እስማማለሁ**

2. **በኮምፒዉተር (ኤሌክትሮኒክስ) አጠቃቀም ጊዜ ያጋጠመ ችግር አለ?**

A **ኤሌክትሪክ መጥፋት** B. **በአጠቃቀም አለመረዳት** C. **የኮምፒዉተር ላይ የተጫነው ፕሮግራም አለመሥራት** D. **የኢንተርኔት መስመር መቆራረጥ** E. **በሌላ ምክንያት**

3. **በኤሌክትሮኒክስ ግብይት ወቅት ምን ያህል ጊዜ ችግር አገጠመህ ?**

A. 1- 2 **ጊዜ** B. 3- 5 **ጊዜ** C. **ከ**5**ጊዜ በላይ** D. **ምንም ችግር አጋጥሞኝ አያውቅም**

4. **በኢትዮጵያ ምርት ገበያ -**ECX) **የቀረበው የገበያ መድረክ ሰፋ ያለና አሳታፊ ነው ?**

A. **በጣም አልስማማም** B **አልስማማም** C. **እንጃ** D. **እስማማለሁ** E. **በጣም እስማማለሁ**

5. **የምርት ገበያው የገበያ መድረክ ለተጠቃሚ/ተገበያይ ውድ ነው ?**

A. **በጣም አልስማማም** B **አልስማማም** C. **እንጃ** D. **እስማማለሁ** E. **በጣም እስማማለህ**

6. **መድረኩ ብቃት ባለው ሁኔታ የተጠቃሚዎችን ፍላጎት የሚያሳካ ነው::**

A.**በጣም አልስማማም** B **አልስማማም** C. **እንጃ** D. **እስማማለሁ** E. **በጣም እስማማለህ**

ክፍል III. አገናኝ አባላት (Intermediary members) **የገበያ ተሳትፎን የሚመለከት**

1. **በትክክለኛ የምርጫ መሥፈርት ሂደት ያለፉ ናቸው ?**

በጣም አልስማማም B **አልስማማም** C. **እንጃ** D. **እስማማለሁ** E. **በጣም እስማማለህ**

2. **ህጋዊ ፍቃድ እና ኢንሹራንስ አላቸው?**

A. **በጣም አልስማማም** B **አልስማማም** C. **እንጃ** D. **እስማማለሁ** E. **በጣም እስማማለህ**

3. **ብዙ የንግድ ህብረተሰብን/ተገበያይ ማሳተፍ የቻሉ ናቸው ?**

A. **በጣም አልስማማም** B **አልስማማም** C. **እንጃ** D. **እስማማለሁ** E. **በጣም እስማማለህ**

4. **ቅንነታቸው ላይ ተአማኒ ናቸው?**

A. **በጣም አልስማማም** B **አልስማማም** C. **እንጃ** D. **እስማማለሁ** E. **በጣም እስማማለህ**

5. **አስፈላጊውን አንፎርሜሽን ለደንበኞቻቸው ያቀርባሉ ?**

A. **በጣም አልስማማም** B **አልስማማም** C. **እንጃ** D. **እስማማለሁ** E. **በጣም እስማማለህ**

ክፍል IV. የገበያ ኮንትራትን (Trading Contract) በተመለከተ

1. ECX አስፈላጊውን አገበያየትን የተመለከተና የምርት ዝርዝርና በደረጃ፣ በብዛት፣ ርክክብን ክፍያን፣ አለመግባባትን በመፍታት ደረጃ ባለው ሁኔታ እያገለገለ ነው ?

A. በጣም አልስማማም B አልስማማም C. እንጃ D. እስማማለሁ E. በጣም እስማማለሀ

2. የECX የግብይት ሥርዓት ተገበያዮች (በአይን ሳይተያይ ለሚገበያዩ) ግልጽና ከአደጋ /ችግሮች/ በፀዳ መልክ እያገለገለ ነው ?

A. በጣም አልስማማም B አልስማማም C. እንጃ D. እስማማለሁ E. በጣም እስማማለሀ

3. ትክክለኛውን የግብይት ክንውን የሚያስተናግድ የኮንትራት ሲስትም ዘርግቶ እየሠራ ነው ?

A. በጣም አልስማማም B አልስማማም C. እንጃ D. እስማማለሁ E. በጣም እስማማለሀ

ክፍል V. የአደጋ መከላከል አያያዝ /ማኔጅ ማድረግ (Counter Risk Management)

1. አሁን በሥራ ላይ ያለው የግብይት ስርአት አደጋን የመቀልበሻ ሲሰተም ከኮንትራት ጋር ተያያዥነት ያላቸው ችግሮችን በብቃት ምላሽ መስጠት የሚችል ነው ?

A. በጣም አስማማም B አልስማማም C. እንጃ D. እስማማለሁ E. በጣም እስማማለሀ

2. የኢትዮጵያ ምርት ገበያ (ECX) ወይም ተባባሪዎች አካላት ክፍያና ርክክብ መከናወኑን ያረጋግጣሉ?

A. በጣም አስማማም B አልስማማም C. እንጃ D. እስማማለሁ E. በጣም እስማማለሀ

3. (ECX) ከገበያ ተዋንያን እንደ ባንክ፣ የመጋዘን ኦፕሬተር፣ ኢንሹራንስ ጋር በቅርበት ይሠራሉ ?

A. በጣም አልስማማም B አልስማማም C. እንጃ D. እስማማለሁ E. በጣም እስማማለሀ

4. የኢትዮጵያ ምርት ገበያ (ECX) በሚወስዳቸው እርምጃዎች ማለትም በስነ ሥርዓት እርምጃ በጥሩ ማከማቻ በቂ ባንክ ውስጥ ገንዘብ ማስቀመጥ መቻል በመሳሰሉት ላይ እምነት አለህ ?

A. በጣም አልስማማም B አልስማማም C. እንጃ D. እስማማለሁ E. በጣም እስማማለሀ

5. የኢትዮጵያ ምርት ገበያ የኮንትራት መጣረስን አለመከናወን አስመልክቶ የሚነሱ ችግሮች ቀንሷል በሚል ይስማማሉ ?

A. በጣም አልስማማም B አልስማማም C. እንጃ D. እስማማለሁ E. በጣም እስማማለሀ

ክፍልVI. የምርት ጥራትን (Product Integrity) በተመለከተ

1. የኢትዮጵያ ምርት ገበያ ግዥና ሽያጭ የተካሄደበትን ምርት የህጋዊ ባለቤትነት መብትን በተመለከተ እና ከመጋዘን ወደ ሌላ ተገበያይ መዘዋወሩን ያከናውናል ?

A. በጣም አልስማማም B አልስማማም C. እንጃ D. እስማማለሁ E. በጣም እልስማማም

2. ትክክለኛው የምርት ደረጃቸውን በጠበቀ ሁኔታ በማረጋገጥ ከአባሪ አካላት (ከመጋዘን ትራንስፖርት ኢንሹራንስ) ጋር በቅርበት ይሰራል ?

A. በጣም አልስማማም B አልስማማም C. እንጃ D. እስማማለሁ E. በጣም እልስማማም

3. የኢትዮጵያ ምርት ገበያ የሚያቀርባቸው ሳምፕሎች በእርግጠኝነት በመጋዘን ያለውን ደረጃ ሁኔታ፣ ጥራት፣ ብዛት፣ በትክክል ይወክላል?

A. በጣም አልስማማም B አልስማማም C. እንጃ D. እስማማለሁ E. በጣም እልስማማም

4. የኢትዮጵያ ምርት ገበያ ማንኛውንም የንግድ መጣረስ በማገበያያ መድረኩ ላይ ቢደርስ ዋስትና ይሰጣል?

A. በጣም አልስማማም B አልስማማም C. እንጃ D. እስማማለሁ E. በጣም እልስማማለሀ

ክፍል VII. የህግና ደንብ መስፈፀሚያን (Viable regulation & Enforcement) በተመለከተ

1. አስፈላጊውን የህግ መዋቅር ዘርግቷል ?

A. በጣም አልስማማም B አልስማማም C. እንጃ D. እስማማለሁ E. በጣም እስማማለሀ

ብቃት ባለው ሁኔታ የፋይናንስ ውል ተአማኒነታቸውን በማስጠበቅ ረገድ

2. **የበቂ ካፒታል ባንክ ክምችት በተገበያዮችና አገባያዮች መስያዝን በተመለከተ** (Capital Adequacy of Exchanges and Intermediaries) ?

A. **በጣም አልስማማም** B **አልስማማም** C. **እንጃ** D. **እስማማለሁ** E. **በጣም እልስማማም**

3. **በቂ ክፍያዎችን በአገበያዮች መከፈሉን** (Payment of Adequate Margins by Intermediaries) ?

A. **በጣም አልስማማም** B **አልስማማም** C. **እንጃ** D. **እስማማለሁ** E. **በጣም እልስማማም**

4. **የገበያተአማኒነትን በማስጠበቅ Maintaining Market Integrity በቂ ቅኝትና ክትትል ይካሄዳል**

A. **በጣም አልስማማም** B **አልስማማም** C. **እንጃ** D. **እስማማለሁ** E. **በጣም እልስማማም**

A. **በጣም አልስማማም** B **አልስማማም** C. **እንጃ** D. **እስማማለሁ** E. **በጣም እልስማማም**

6. **አዲት በምርት ልውውጥ (ግዥና ሽያጭ) በአገበያዮች** Audit of Exchanges and Intermediaries **ላይ መካሄድን በተመለከተ** ?

A. **በጣም አልስማማም** B **አልስማማም** C. **እንጃ** D. **እስማማለሁ** E. **በጣም እልስማማም**

በመጪው የምርት ዘመን ምርቱ ባለበት የዋጋ መጠን ማጣጣምን በተመለከተ

1. **የዋጋው ድርድር በትክክለኛ የወቅቱ ገበያን ዋጋ መሠረት በማድረግ ነው**.

A. **በጣም አልስማማም** B **አልስማማም** C. **እንጃ** D. **እስማማለሁ** E. **በጣም እልስማማም**

2. **የመረካከቢያ አሳሳቢነት /ሥጋትን በመቀነስ በኩል በተመለከተ** ?

A. **በጣም አልስማማም** B **አልስማማም** C. **እንጃ** D. **እስማማለሁ** E. **በጣም እልስማማም**

3. **በአገበያዮች በቂ ክፍያ መከናወኑን በተመለከተ** Payment of Adequate Margins by Intermediaries?

A. **በጣም አልስማማም** B **አልስማማም** C. **እንጃ** D. **እስለሁ** E. **በጣም እልስማማም**

የንግድ ተዋናዮችን (ተገበያዮችን) ስለመጠበቅ /ከላለ ስለመስጠት Trade Actors Protection

1. **ግብቱ አድሎ አልባና ፍትሃዊ ነው።።**

A. **በጣም አልስማማም** B **አልስማማም** C. **እንጃ** D. **እስለሁ** E. **በጣም እልስማማም**

2. **ከኢተአማነ አገበያዮች በመጠበቅ በኩል**

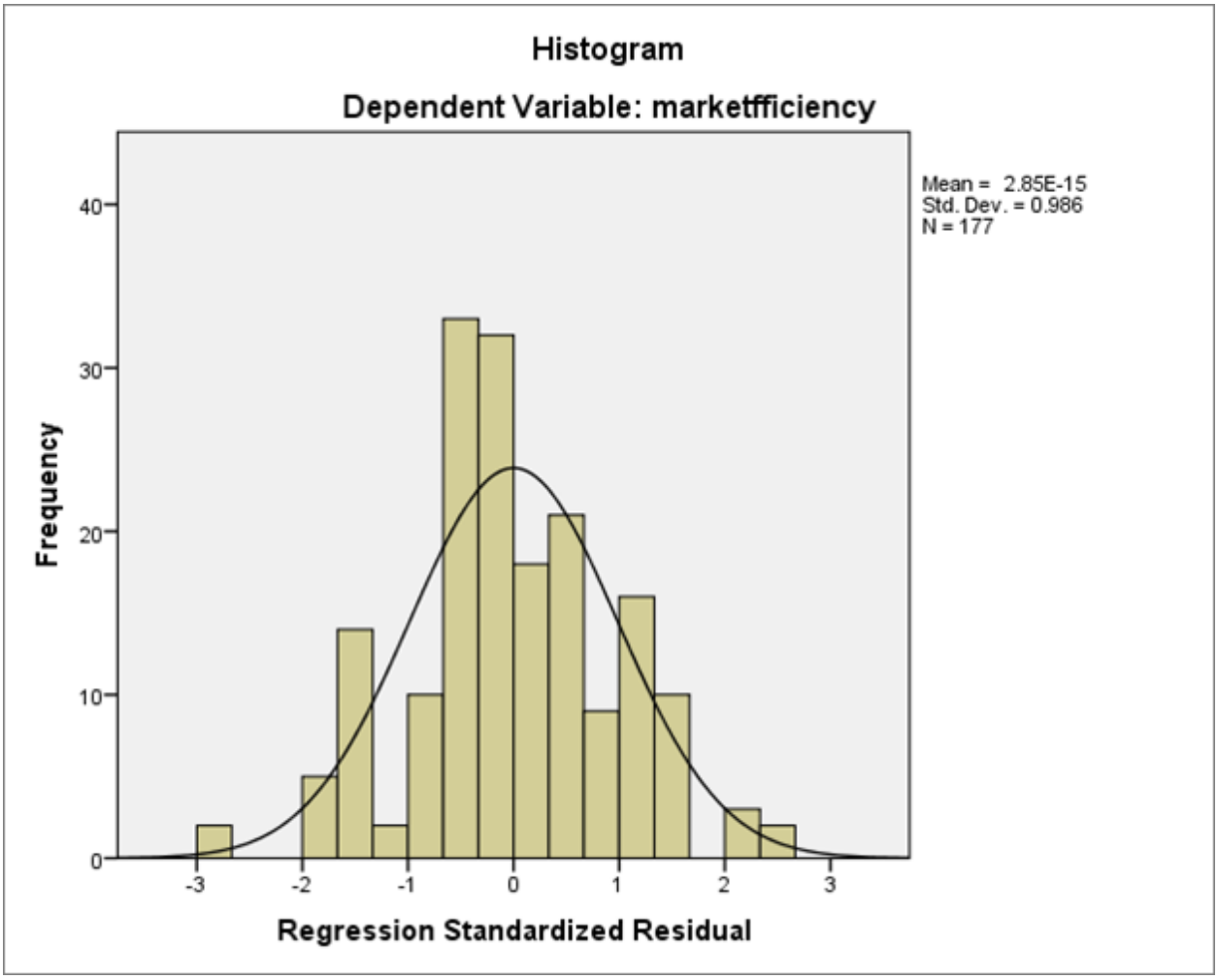
A **በጣም አልስማማም** B **አልስማማም** C. **እንጃ** D. **እስለሁ** E. **በጣም እልስማማም**

የኤሌክትሮኒክ ግብይቱ በበቂ የኤሌክትሮኒክስ መሰረተማች የተገነበ Well-equipped by technology infrastructure **ነው** ?

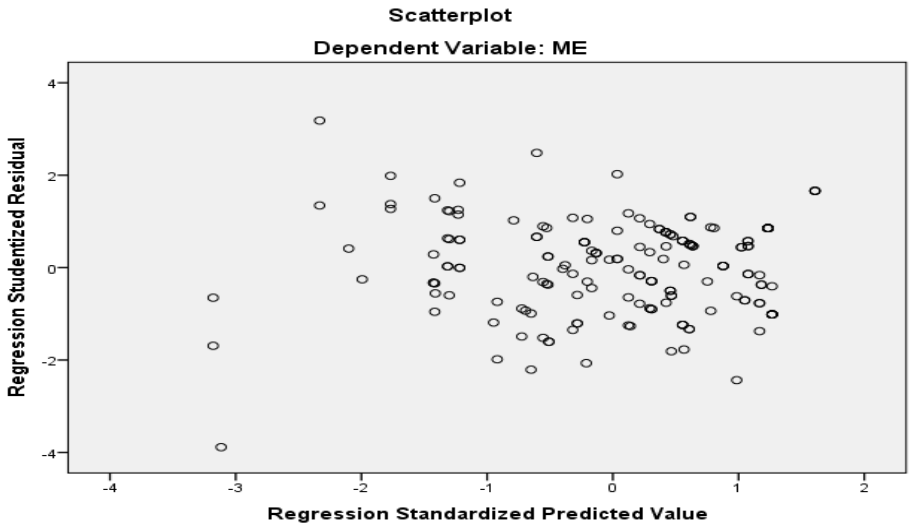
የኤሌክትሮኒክስ ንግድ አዛቢዎችን /አጣራሽ/ Well-equipped by cyber security **ለመቋቋም በተሟላ ደረጃ / ብቃት አለው።።**

A **በጣም አልስማማም** B **አልስማማም** C. **እንጃ** D. **እስለሁ** E. **በጣም እልስማማም**

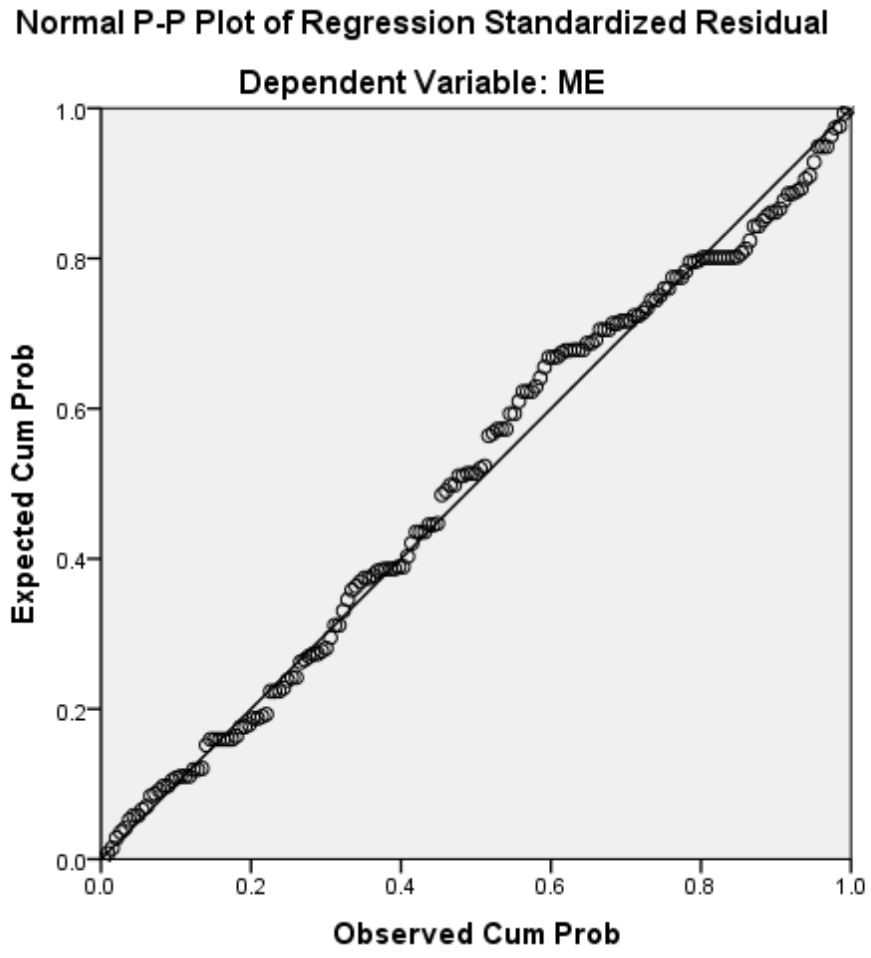
APPENDIX 2: Histogram for Normality Test of the Data



Appendix 3: Homoscedasticity Plot to Test Data Distribution



APENDIX 4: Normal P-P Plot to Test Normality of the Data



APPENDIX 4 Model Summary

Model Summary

Mode	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.951[a]	.904	.904	.26961	1.947

(Source: Researcher's survey, 2019)

3. **Predictors/ Constant:** Trading Platform, Trade Contracts, Counterparty Risk Management, Brokers Market Participation, Product integrity, Viable Regulation and Enforcement
4. **Dependent Variable:** Market Efficiency

Appendix: 5

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2006.900[a]	1140	.000
Likelihood Ratio	635.333	1140	1.000
Linear-by-Linear Association	53.193	1	.000
N of Valid Cases	175		

APPENDIX 5

Table 2. ANOVA

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	901.232	6	150.205	53.884	.000[b]
	Residual	468.315	168	2.788		
	Total	1369.548	174			

a. Dependent Variable: ME

b. Predictors: (Constant), VRE, TP, BP, PI, TC, CRM

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