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ADDIS ABABA UNIVERSITY

SCHOOL OF COMMERCE

MARKETING MANAGEMENT GRADUATE PROGRAM

**DETERMINANTS OF MARKET EFFICIENCY OF COMMODITY EXCHANGE:
EVIDENCE FROM ETHIOPIAN COMMODITY EXCHANGE**

By: Yalemget Ejigu

Thesis Submitted to Addis Ababa University School of Commerce Marketing Management Graduate program in Partial Fulfilment of the Requirement for the Degree of Master of Arts in Marketing Management.

Advisor: Mulugeta Gebremedhin (PhD)

MARCH 2023

ADDIS ABABA, ETHIOPIA

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Declaration

I, Yalemget Ejigu, hereby declare that this research paper entitled “Determinants of Market Efficiency of Commodity Exchange: Evidence from 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.

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Certification

This is to certify that the thesis is prepared by Yalemget Ejigu, entitled; **Determinants of Market Efficiency of Commodity Exchange: Evidence from 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

Advisor: Name _____ Signature _____ Date _____

Internal Examiner: Name _____ Signature _____ Date _____

External Examiner: Name _____ Signature _____ Date _____

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Acronyms

AMC	Agricultural Marketing Corporation
CBOT.....	Chicago Board of Trade
CEO.....	Chief Executive Organization
ECX.....	Ethiopia Commodity Exchange
EGC.....	Emerging Growth Company
EGTE.....	Ethiopian Grain Trade Enterprise
KACE.....	Kenyan Agricultural Commodity Exchange
UCE.....	Uganda Commodity Exchange
UNCTAD.....	United Nations Conference on Trade and Development
UNDP.....	United Nations Development Program
USAID.....	United States Agency for International Development
WB.....	The World Bank
WR.....	Warehouse Receipts

Abstract

The Ethiopian commodities exchange was founded to modernize Ethiopian agriculture and restructure the economy. Commodity exchanges can significantly help in the attainment of a nation's economic and developmental goals and increase the bargaining power of participants when implemented and regulated properly. The overall objective of the study was to investigate determinants of market efficiency in Ethiopian commodity exchange. Primary and secondary data were used to attain the purpose of the study. The researcher disseminated to 283 questionnaires personally. Out of the total questionnaire disseminated, 270 were considered valid for analysis from Ethiopian commodity exchange participants or members selected through random sampling. The data was analysed through descriptive and inferential statistical analysis using SPSS version 26. The descriptive data was analysed via mean, freq, %, standard deviation and figures while the inferential statistics analysis was analysed using correlation and regressions. The finding of the study revealed that transaction cost, clearing and settlement service, trust and market information system have a significant effect on the market efficiency of Ethiopian commodity exchange. The study concluded that the market efficient of Ethiopian commodity exchange has found in a good condition to attain the national development. The study recommends that the Ethiopian commodity exchange collaborate with trade members in order to enhance the marketing efficiency of commodity exchange.

Keywords: *clear and settlement service, electronic trading, market information system, transaction cost, trust, warehouse receipt financing*

CHAPTER ONE

INTRODUCTION

The background of the study, the problem statement, and the research questions, the aims of the study, its significance, its scope, its limitations, the definition of words, and its organization are all included in this chapter.

1.1 Background of the Study

Commodity exchanges have a long history that dates to the middle Ages. The Royal Exchanges were founded in the sixteenth century as a result of the expansion and size of English international trade. Many markets in underdeveloped nations can be distinguished by their low trading volumes, shoddy competition, and unpredictable prices. Low trade volume may indicate that the amount and quality of the information being transmitted are both constrained (Yordanos 2020).

“Efficient markets” are defined as markets in which asset prices always fully and instantaneously reflect all available information (Fama 1970, p. 383). This is the strong form version of the “market efficiency hypothesis”. Related to this definition is the notion of the efficient market hypothesis. The hypothesis describes an efficient market as one which consistently incorporates all information in determining prices. The three well-known assumptions of the hypothesis are: (1) That there is no transaction cost; (2) Information is costless available to all market participants; and (3) The implications of current information for both the current price and distributions of future prices are accepted by all market participants (Fama, 1970 p. 389).

Similar to this, Sisay (2019) noted that an efficient market is a market where provided the accessible evidence, actual price at every point in time represent very good estimate of intrinsic value. It is also expected that investors are accomplished processing all accessible information and that is the rationale why the price of an asset is reflex of that information.

The government of Ethiopia together with its development partners (The World Bank, International Monetary Fund, Oxfam GB, among others) launched the Ethiopian Commodity Exchange (ECX) with the aim of creating an efficient, transparent and orderly marketing system to serve the needs of buyers, sellers and intermediaries, and promote increased market

participation of Ethiopian small-scale producers. It further envisioned creating a centralized trading floor for buyers and sellers. The new system anticipated to develop more secure and reliable schemes for handling, grading, storing, among other services, encourage risk-free payments, and offer a goods delivery system to settle transactions (Gabre-Madhin 2006).

The authors Camilla, Mintewab, and Andrea (2016) cited Gabre-Madhin and Goggin (2005) as stated that a commodities exchange in Ethiopia has the ability to address market inefficiencies and create a more integrated agricultural market. According to the studies mentioned above, enhanced agro-processing and a better-organized domestic and regional market are demands shared by both farmers and traders; therefore the establishment of an exchange makes sense from a bottom-up perspective.

The idea for founding the Ethiopian Commodities Exchange was straightforward. Markets will meet the needs of buyers and sellers and contribute to the wellbeing of everyone who participates in the market economy if they operate in such a way as to reward quality, reduce transaction costs of market participation thereby increasing returns to market activity, enable quick capital turnaround thereby increasing market volumes, and reduce risk of market participation. As a result, it is anticipated that ECX will increase information and transparency for everyone, reward producers for quality, decrease transaction costs of market participation, increasing returns to market activity, enabling quick capital turnaround, increasing market volumes, and reducing counterparty default and price risk (Dawit & Gerdien 2010).

Therefore, this study investigated the determinants of market efficiency in Ethiopian commodity exchange.

1.2 Statement of the Problem

The marketing of agricultural products and increasing the return for the primary farmers have both benefited greatly from the commodities exchange. The Ethiopian Commodity Exchange is a one-of-a-kind partnership aimed at establishing a market where buyers and sellers may come together to deal in a way that promotes market transparency, integrity, and efficiency (Yordanos 2020).

According to Teshome (2009), Ethiopian governments have utilized a variety of tactics to regulate the commodity marketing system, including the execution of traders who were suspected of hoarding grain and the importation of grain to maintain market prices. These events show the nation's efforts to control prices using both market-based and non-market mechanisms. Still, today the commodity market is not stable like the year before 1974. Even some studies claim that the price variation is higher since 1991 than the years before that. The problems of commodity market can be summarized in three parts.

The problems of commodity market can be summarized in three parts. The first part is the absence of integrated commodity marketing policy that addresses all the processes that involve transport, grading, storage and information facilities for the producer as well as for consumer. The second part is the absence of well-equipped commodity institutional establishment which can provide all marketing services to all market actors. In this regard, all the three government established EGC, AMC and EGTE, with little financial and material support. In addition of this those institution helps to stabilise producer and consumer price and maintain buffer stock for market stabilisation (Girma 2002). Unfortunately all these institutions failed to bring relatively stable commodity prices in the country. The last part is the absence of private and public partnership in the commodity market (Teshome 2009).

Studies on the factors affecting the market efficiency of the commodity exchange, specifically the instance of the commodity exchange in Ethiopia, have been done. Coulter & Onumah(2002) studied the role of warehouse receipt systems in enhanced commodity marketing and rural livelihoods in Africa. The study mainly focuses in a broader context of Africa to address the role of warehouse receipt systems in Africa. The study has time gabs to solve the current problem of commodity market.

Samuel (2019) investigated the challenges of Ethiopian Commodity Exchange Market Performance in Trading Partners in the Case of Wolaita Sodo Branch. He only addressed buying and selling, financial related factors, access to market information factors, storage related factors and transport service related factors. Therefore, the researchers mainly focused on the challenges associated with market performance aspect but not the determinants of market efficiency in the context of warehouse receipt system, trust, transaction, clearing and settlement, market information system and electronic trading aspects. Yordanos (2020) has also conducted research on the effect of price discovery practices and identity preserve models on the effectiveness of the ECX coffee market. Based on the above studies, one can infer that there is time gap to analyse the current situation of commodity market. Likewise, the previous finding of those studies didn't adequately address the current problems of commodity market in the Ethiopian context due to policies and strategies were changed to improve it. So, this study tries to fill gaps by undertaking the determinants of market efficiency in Ethiopian commodity exchange.

1.3 Research Questions

1.3.1 Basic research question

What are the determinants of market efficiency of commodity exchange: evidence from Ethiopian commodity exchange?

1.3.2 Sub Research Question

The study was guided by the following research questions;

1. What is the effect of clearing and settlement services on the market efficiency of ECX?
2. What is the effect of transaction cost on the market efficiency of ECX?
3. How does a warehouse receipt system influence on the market efficiency at ECX?
4. What is the effect of trust on the market efficiency of ECX?
5. What is the effect of electro trading on the market efficiency of ECX?
6. How market information system is influences on the market efficiency of ECX?

1.4 Research Objective

1.4.1 General Objective

The general objective of the study was to investigate determinants of market efficiency of commodity exchange: evidence from Ethiopian commodity exchange.

1.4.2 Specific Objectives

The specific objectives of the study are:

1. To determine the effect clearing and settlement services on the market efficiency of ECX,
2. To determine out the effect of transaction cost on the market efficiency of ECX,
3. To examine the effect of warehouse receipts financing on the market efficiency of ECX,
4. To examine the effect of trust on the market efficiency of ECX.
5. To examine the effect of electro trading on the market efficiency of ECX.
6. To determine the effect of market information system on the market efficiency ECX.

1.5 Significance of the Study

Academic contribution: While this study is an explanation, the primary academic contribution is the analysis of the factors that affect the efficiency of the commodities exchange using data from the Ethiopian commodity exchange. By raising multiple pertinent questions to direct future research, this study will contribute to the field of mixed marketing strategy research in relation to Ethiopia's various commodities exchange sectors. In the meantime, it might contribute fresh information to the body of literature and serve as a starting point for scholars to do in-depth follow-up research on the subject. The fact that this study integrated both qualitative and quantitative data on the topic under study may also be of methodological value to academics and practitioners.

Relevance to concerned exporters and EXC members: The study's findings may assist current member exporters in developing a mixed marketing strategy based on the problems identified and strengthening their competitiveness in both their target countries and potential global markets. It might also encourage growers who aren't exporting to get involved in the export and other commodity exchange industries.

By looking at potential improvements to the efficiency of export marketing to exporters in the Ethiopian commodity exchange, the study may eventually expand the contribution of standardizing and practicing the appropriate export marketing to Ethiopian exporters as specifically related to the international marketing concepts.

The results of this study may therefore assist the member exporters in strengthening their marketing plans and better satisfying customer needs.

Relevance for institutional supporters and decision-makers: Institutional supporters can develop strategies based on a thorough awareness of the circumstances by developing a deeper understanding and recognition of the severity of the crisis that the exporters are experiencing. The researcher is also hopeful that the various commodity exchange sectors' players and institutions that offer export assistance services may learn something from the current study.

The main suggestions will be forceful suggestions for decision-makers to evaluate policies and regulations in order to create workable policies and appropriate regulations that can enhance the performance of the sector. The study may also be used as policy inputs for planning and supporting export development as well as for enhancing the international marketing performance of businesses in the commodity industries. The study also plays a significant function in supplying essential information for interested academics and academicians for future analysis in the industry, which is important in identifying critical areas of participation.

1.6 Scope of the Study

The study has thematic, geographic, methodology and time scope. Thematically, the study was mainly focused on the market efficiency of ECX in their markets. Geographically, the study delimit in Addis Ababa in the head office of Ethiopian commodity exchange. Methodologically, the study was used regression and correlation to show the cause and effect relation between independent and dependent variables. Timely, the study was used a cross sectional data to gather in a specific period of time.

1.7 Limitation of the Study

The study has encountered different problems during the conducting of the research. In this context, the relevant persons need for the study wasn't presented due to several factors/reasons include lack of attention and cooperation by the respondents particularly filling and returning the questionnaires on time. To manage this problem, the researcher tried to provide orientation about the purpose of the study to fill the questionnaire correctly and return on time. In addition to this, the study has limitation on the methodological part of the study.

To reduce the limitation, the researcher tried to ask friends and read different research books to realize more about the research methods so as to attain the study.

1.8 Organization of the Study

Overall, the study was organized into five chapters. The first chapter presents the background of the study, problem statement, objectives of the study (general and specific), research questions, scope of the study, limitation, significance of the study, and definition of key terms. Chapter two deals with related literature on theoretical framework, empirical literature reviews, and conceptual frame work. Chapter three highlights the research methodology was employed .The fourth chapter presents the analysis, discussion and interpretation of data. The final and fifth chapter give due attention to the summary, conclusion and recommendation.

1.9 Definition of terms

Commodity: Webster (2010) defined commodity as an economic goods, as a product of agriculture or mining an article of commerce especially when delivered for shipment, a mass produced unspecialized product a good or service whose wide availability typically leads to smaller profit margin and diminishes the importance of factor (as brand name) other than price, one that is subject to ready exchange or exploitation within a market.

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

Efficiency: maximization of consumer and producer surpluses as a measure of welfare gain by the two economic agents (Mas-Colellet'al 1995).

Ethiopian Commodity Exchange (ECX): is among of the agricultural exchange markets found in Africa. Currently, the country is following a development policy of Agricultural Development Lead Industrialization. This policy inspires farmers and private investors to produce market focused commodities (Paul I 2011).

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1. Theoretical Literature Review

2.1.1. The Concept of efficiency

The issue of defining efficiency is not straightforward. Many viewpoints have applied the idea of efficiency. It has been applied from the perspectives of consumers, producers, markets, and the economy. Mas-Colell et al (1995) 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 deduced 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 The Concept of Market Efficiency

No single concept of marketing efficiency applies to all markets. Market efficiency is defined as the "real or potential losses to individual customers, which derives from poor information about alternatives: An inefficient market is one in which such losses are or can be considerable," according to Ratchford et al. (1996, p. 168). This definition appears to place more emphasis on final outcomes than on market processes. In a similar vein, Preston & Collins (1966, p. 155) noted that market efficiency is more about the process than the final product as it relates to "the ease and efficiency with which the possible exchanges are carried out." The definition provided by the authors, as they acknowledge, is not tied to the details of the quantity and quality of the commodities and services.

Fama (1970) noted that the majority of the empirical research came before the theory's development. According to the notion, a market that is efficient allows for trading based on supply.

Similar to this, Yordanos (2020) claimed that a market can only be regarded as efficient if we hypothesize a model for returns. The Model for returns means which can provide investors with an estimate of the return of a particular security given certain input parameters. Tests of market

efficiency are now coupled with tests of market behavior and asset pricing models. According to the efficient market hypothesis' weaker version, prices accurately represent the knowledge contained in the historical price sequence.

Whereas the strong form of market efficiency claims that information known to any participant is represented in market prices, the semi-strong form of the hypothesis states that prices reflect all pertinent information that is publicly available. Hence, investigations of weak form market efficiency are where the literature starts.

2.1.3 Understanding Commodity Exchange

Organized commodities trades, according to UNCTAD (2007), have a lengthy history. The Chicago Board of Trade (CBOT) and the London Metal Exchange effectively inaugurated their operations in 1864 and 1877, respectively, after grain traders in Japan started experimenting with the concept in 1730. Commodity exchanges were primarily limited to industrialized countries for more than a century. Yet since 1990, as markets have opened up and information technology has been more widely accessible, commodities exchanges have proliferated all over the world.

Commodity exchanges are incredibly effective venues for bringing buyers and sellers together to trade, control price risk, and enhance physical product transactions. They provide numerous advantages; including chances for economic growth, strengthening linkages between agriculture and finance, and boosting the efficiency and competitiveness of the commodity sector (Yordanos 2020).

2.1.4 Commodity Exchange in Africa

Rashid et al. (2010) observed that the necessity for commodity risk management is clearly reflected in the government and donor community's increased interest in commodity exchange in Africa. Risk management is essential for the growth of the commodity sector because domestic markets are small and fragmented and overseas markets are still turbulent.

Rashid et al (2010) stated that while various donor-supported projects have been made to set up commodity markets in poor nations, very few of them have been successful. Following market liberalization in the 1990s, five African nations established agricultural commodity exchanges; however, only South Africa was able to continue its exchange. Zambia and Zimbabwe terminated their operations after extraordinary price increases and subsequent government

intervention, notwithstanding the early stage of success. Other exchanges founded in the 1990s include the Uganda Commodity Exchange (UCE), which does coordinate trades but hasn't been able to draw enough trade volume to be self-sustaining, and the Kenyan Agricultural Commodity Exchange (KACE), which no longer supports actual trades but continues to exist with donor support. Exchanges have been formed in an increasing number of nations since 2004. Notable examples include Malawi in 2004, Nigeria in 2006, the Ethiopian Commodities Exchange (ECX) in 2008, and the new Zambian commodity exchange founded in 2007.

Millions of households rely on the production and trading of commodities as their main source of income, so the growth of the commodity sector is crucial for reducing poverty and advancing the economy as a whole. Many perceive commodity exchanges as an alternate option to control risks and boost efficiency in a liberalized market environment when faced with price volatility and high marketing costs (Rashid et al 2010).

A market where commodities can be bought or sold called ECX. Its operation, however, is highly dependent on and well-integrated with other industries and organizations. The Exchange pledges to replace the disorganized, unreliable, inefficient commodity market with a market that has higher efficiency, order, transparency, and integrity, as stated by the founder and previous CEO (Gabre-Madhin 2009).

A centralized trading mechanism, automated back office operations, standardized grade-specific contracts, trading on the basis of product grade certificates and guaranteed warehouse receipts, clearing and settling all transactions, and creating an efficient, transparent, and orderly marketing are all claimed accomplishments of the Ethiopian commodity exchange. It was financed by a group of financial partners that included the World Bank, USAID, UNDP, Canada Development Agency, and World Food Program (Alemu et al 2010).

2.1.5 Determinants of Market Efficiency in Commodity Exchange

2.1.5.1 Transaction Cost

One of ECX's goals is to lower transaction costs. By offering services at a lower price than those offered by participants in the commodity sectors, commodity exchange lowers transaction costs. Finding a trustworthy trans actor, establishing a contract's terms and conditions, securing financing to support the transaction, handling credit, cash, and product transfers, and paying

parties to arbitrate disputes between contractual counterparties are some of these expenditures. A commodities exchange can therefore stimulate trade by lowering the costs borne by the parties to a possible transaction (UNCTAD 2007). Moreover, efficiently operating commodity exchanges can encourage more effective production, storage, marketing, and agro-processing operations as well as enhanced overall performance in the agriculture sector. Simply because of these advantages, things have changed.

By taking into account the importance of commodity exchanges in the policy discussion, transaction costs might be a big problem (UNCTAD 2007). It is demonstrated that the participants to a commodity-linked transaction will incur a sizable amount of extra, nonproduction costs. These expenses would undoubtedly total a large figure when added together, requiring a significant outlay of cash as well as time and goodwill.

2.1.5.2 Warehouse Receipts

Grain warehouse receipts were originally used in Mesopotamia in 2400 BC, and negotiable silver warehouse receipts were the first paper money used in the UK, according to Budd (2001). The use of WRs is frequently linked to structured financing transactions, which guarantee that if a transaction goes as planned, the lender will be automatically reimbursed (the loan is self-liquidating) and that if something goes wrong, the lender will still have access to collateral that can be easily liquidated.

Warehouse receipts (WR) are records produced by warehouse operators as proof that certain items, of stated quantity and quality, have been placed at specific locations by named depositors, according to Coulter and Onumah's 2002 study. A producer, farmer cooperative, trader, exporter, processor, or indeed any other individual or legal entity, may be the depositor.

The warehouse owner has safe custody of the product being stored, which means he has no legal or beneficial stake in it but is legally obligated to make up any value lost due to theft, fire damage, or other calamities.

According to Gedion (2003), WRs can be transferred to lenders under promise in many nations. Under this arrangement, the borrower retains ownership of the items and any asset appreciation, less the cost of storage and financing. Only when the borrower misses a payment will the lender be able to sell the items. The receipts can also be transferred to a trading partner, enabling the

holder to receive the product upon showing the WR to the warehouse. Farmers can obtain financing without having to sell their products by holding their commodities in a reputable warehouse and using the warehouse receipt that is provided as loan collateral. The idea that a warehouse receipts system is essentially a price stabilization mechanism is a prevalent misconception. Its main objective is to serve as a funding system in the first place (Kirubel 2019).

Yet, by encouraging storage just after harvest, it may have favorable effects on price stability, albeit this is not a given. Despite the fact that the receipt is a crucial tool for farmers to relieve their cash shortage, it must be kept in mind that farmers who keep receipts are also engaging in high-risk speculation since they are assuming a position in the market based on their opinion of the future course of prices. Over the past few years, many inventory credit schemes have failed across sub-Saharan Africa due to this single problem (Kirubel 2019).

WRS is a useful tool for financing agricultural commodity chains, particularly in nations where a lack of alternative forms of collateral is one of the biggest barriers to accessing credit. Operators of warehouses offer warehouse receipts as proof that certain commodities, in the prescribed quantity and quality, have been placed at certain locations by designated depositors. The warehouse owner has safe custody of the product being housed, which means he is legally responsible for making up any value lost due to theft, fire damage, or other calamities but has no beneficial or legal interest in it (Gideon 2010).

In most developing nations, the caliber of warehouse and storage management skills is highly variable. If, then upgrading professional abilities is required in the warehouse sector. The transferrable warehousing system is extremely compatible to the purposes of the exchange, claim Gebremedhin & Goggin (2005). The receipts system and a commodities exchange are complementary in the following ways: Grades and standards are necessary for a commodity exchange with standardized contracts as well as warehouse operations; Because receipts list the grade, which generates pricing data that can also be used on the exchange, price transparency is made possible; Selling receipts on the exchange transfers risk; and, Integrity and order: It is essential for both for the legal system to uphold standards of quality and the transferability of receipts.

Decentralized warehouses have been used for storage purposes in Ethiopia for a fair amount of time. Yet, as the economy became more liberalized, many warehouses lost their usage because they were not lucrative. The ones that continued to operate were concentrated in a few cities. Warehouses are important to the ECX, and one of its goals is to progressively reopen local warehouses. Instead of being transported to a central auction in Addis Abeba, coffee is sold directly from the warehouses in the several areas under the new method. The new system also suggests that goods are kept in the closest regional storage in surplus areas around Ethiopia. At the warehouses, commodities are sampled and sorted based on quality and quantity (Camilla, Mintewab & Andrea 2016).

Also, the Ethiopian Commodity Exchange was founded by representatives of the Ethiopian House of People in accordance with Proclamation No. 372/2003, which was intended to expedite the commodity trade quickly. In this instance, the Proclamation states that in order to allow anyone to store their goods, including specific standardized agricultural products, in warehouses and borrow money upon delivery of the warehouse receipt as collateral, a valid contract between the bailee and the bailor must be established. Additionally, the system must be properly directed and administered, and an organized and effective marketing system for agricultural products must be created. Consequently, the purpose of this study is to ascertain how the warehouse receipts system has actually been put into practice at the Ethiopian Commodities Exchange.

2.1.5.3 Electro Trading

Trading on the internet was one of the common exchange markets. In this instance, electro trading serves three key purposes in the futures market: supplying aggregate data including price, volume, and news; (ii) directing orders; and (iii) coordinating orders. The level of automation often varies between two extremes: in the first, open outcry trading is completely abolished and orders are entered and matched through a computer network, while in the second, pit traders only get electronic news (Tsang 1999). The phrase "electronic trading" is said to cover a wide range of technologies, from basic order transmission services to fully functional trade execution facilities, according to Gorham & Singh (2009). A system that allows for electronic trading offers some.

The delivery of user orders to the execution system via electronic order routing, automated trade execution, and electronic distribution of pre-trade (bid/offer quotes and depth) and post-trade

information (transaction price and volume data) are all examples of facilities that offer some or all of these services.

Location-neutral and allowing on-going multilateral contact, electronic trading is both. The users' shared physical location is not relevant for trading as long as they can connect to the system. So, rather than traditional markets, electronic trading systems promote cross-border trading as well as cross-border alliances and mergers between trading systems. By boosting the computer network's capacity, electronic trading can scale. Increasing the quantity and/or capacity of intermediaries engaged in a phone-based market in traditional marketplaces requires physically expanding the floor space, which is a significantly more expensive operation (Gorham & Singh 2009).

Moreover, Gbremedhin et al. (2005) explained that trading on a commodity exchange is similar to a continuous two-way auction in which offers to purchase and sell are active at the same time. This is feasible due to the graded product's lack of requirement for a description under a standardized contract and the volume of buy and sells orders. This study attempts to discern how the Ethiopian commodity exchange employs electronic trading to enable swift service in a market, in line with the literature.

2.1.5.4 Market Information System

Any commodity exchange must have a market information system. Providing accurate market information has a crucial role in sustaining increased productivity and enhancing smallholder farmers' standard of living. Hence, a country's integrated market information system plays a crucial role in improving the performance of the commodity exchange (Sisay 2019).

A market information system is a service that entails the routine gathering of data on prices and, occasionally, quantities of widely traded agricultural products from wholesale and retail markets, as necessary, and the timely and routine distribution of this information to farmers, traders, government officials, policy-makers, and other stakeholders, such as consumers, through various media (Gebremedhin & Goggin 2005).

Additionally, pointed out that market data aids prospective buyers and sellers in making market judgments and offers them confidence that the market is open and capable of meeting their needs. Since market users go to and from the market to other locations, information about the

market is spread by word of mouth once it has been established. Market information is frequently reported in newspapers that are circulated in the market's catchment region as the market develops; today, such information can also be spread by radio, TV, telephone linkages, and the internet (Gebremedhin & Goggin 2005).

2.1.5.5 Trust

A commodity exchange operates according to a well-established set of guidelines or standards. These regulations cover the product, how its price is determined, the participants in the market, and the agreements that tie them together. Together, these methods and norms instill the system with much-needed trust.

In order to trade products on an exchange, known norms of quality and quantity must first be applied to the goods. Inspectors who are qualified and subject to regulation must be licensed in order to grade and certify grades. Grading may be carried out through a sample-based laboratory located within the exchange or by external parties, such as the government or commercial entities. The importance of the product grades' widespread acceptance by all market participants, including farmers, merchants, processors, and consumers, are involved in their development and acceptance. All parties must regard the certification as impartial and fair. So, whether or not the exchange does the grading, one of the exchange's major responsibilities is to guarantee that items are brought to the market with the appropriate grading (Kirubel 2019).

Second, an exchange runs a specific price bidding mechanism designed to transparently and affordably present purchase and sell offers to the public. Some exchanges run on a "open outcry" system, where market participants shout out their bids and orders on the trading floor in front of everyone. As an alternative, an exchange may run using a real or virtual "bulletin board" where offers and bids are openly displayed. The crucial aspect is that public bidding is used rather than private bidding (Kirubel 2019).

Third, membership based trading is used by Exchange to enforce rules compliance. To qualify for membership, a person must be able to adhere to the exchange's rules and meet specific requirements. Also, membership in an exchange is fixed since pandemonium would quickly arise if it were continuously available to growing numbers.

The real seat or membership on an exchange floor is paid for with an initial price, much like a share, and can be purchased or sold on the market. This is in addition to an annual fee. This guarantees that participants have a stake in the market's performance and sustains its trust (Kirubel 2019)

Since there are only a limited number of people who can trade on the exchange, how can a big number of buyers and sellers be integrated into the market? The main group of participants on an exchange are brokers, who as exchange participants trade on behalf of an infinite number of buyer and seller clients. Market participants are greatly empowered by the role of brokers, whose responsibility it is to inform their clients, whether they are buying or selling, as to the best market opportunities and when and where these are likely to occur. Brokers must, however, be specifically licensed and examined in their profession due to their crucial significance. The exchange's legitimacy relies heavily on the honesty of its brokers (Ethiopian Development Research Institute 2005).

All market actors who are registered with exchanges must scrupulously abide by the regulations and codes of conduct that they prescribe because exchanges are essentially self-regulatory institutions (Ethiopian Development Research Institute 2005).

2.1.5.6 Clearing and Settlement Services

A clearing and settlement mechanism that guarantees payment to sellers and reduces counterparty overexposure is necessary, according to Gideon (2003). Members of the exchange who are financial institutions typically provide clearing services. Reliable and prompt broadcast of market data is necessary to ensure that local and regional traders can make educated decisions. Market efficiency depends on informed decisions.

According to Sahadevan (2002) as described in Sisay (2019), clearing is the process of determining liabilities, which is followed by the discharge of such responsibilities through settlement. The title to monies, securities, and other assets are legally transferred on the settlement date as part of a two-way process called settlement.

The clearing bank services are a very time-sensitive task since delays have an immediate effect on the members/exchange. Banks have a significant impact on the ecosystem as a whole, including exchanges, members, clients, custodians, etc. The business is very transactional in

nature. The essential elements of operating this firm are a committed infrastructure, skilled labor, and technology use.

As a result, the various authors that discussed the factors in the literature did so in a comprehensible manner. Using the use of several arguments from the literature, it was determined how those determinants affected the effectiveness of marketing in the studied area. Also, the information provided in the literature assisted in identifying the various market efficiency factors in the Ethiopian commodity exchange.

2.2 Empirical Studies

The following research about factors influencing the efficiency of the commodity exchange market is relevant ones:

According to Gideon (2010) quality of warehouse and storage management skills tends 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.

In the same way, 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.

Gabre Madhin (2006) discussed that transaction costs are much reduced in commodity exchanges by “facilitating contact between buyers and sellers; enabling centralized grading of products; ensuring that contracts are enforceable; providing a mechanism for price discovery; simplifying transactions with standard contracts; and, transmitting information volumes. Further an Exchange increases market liquidity, enables the transfer of price risks, and enhances trust, order, and integrity in the market”.

Moreover, Yordanos (2020) conducted research on the factors that affect market efficiency on the Ethiopian commodity exchange: specifically, the coffee market. According to the study's findings, identity preservation has a stronger impact on the efficiency of the ECX coffee market

(0.281) than price discovery (0.267), trading system (0.264), rule and regulation (0.264), and rule and regulation (0.232). The ECX coffee market efficiency did not, however, show any correlations between transaction cost (0.028), warehousing system (-0.018), and risk management (-0.012). The results of the study were used to develop suggestions for the ECX family on how to increase their level of understanding of the effectiveness of the exchange's coffee market.

Tollens (2006) in his study cited that the absence of easily accessible market information for farmers or small traders leads to lack of market transparency, low bargaining power of the buyers and sellers, low and highly variable prices due to market inefficiency, coexistence of surplus and deficit areas due to weak spatial integration of markets, high risks, low produce quality and high losses, high transaction costs and insufficient production to satisfy consumer demand.

Samuel (2019) conducted research on the difficulties of the Wolaita Sodo Branch of the Ethiopian Commodities Exchange Market Performance in Trading Partners. In both conventional and modern markets, the study discovered a strong and favorable association between market conduct variables. The findings of this study also suggest that the primary barriers to trading partners' participation in ECX were influenced by the nature of purchasing and selling, a lack of funding, a lack of knowledge allowing for market access, an inability to store goods, and the availability of inconvenient transportation options. Government should support media that raises awareness of the benefits that contemporary markets offer to both trading partners and the economy as a whole.

Samson & Mesfin (2014) discovered a large capacity issue and a significant skills gap among dealers. The current system has its own importance in balancing the negotiating power of traders by spreading trustworthy data, and limits in the absence of market integrity, subpar procedures for determining prices, and restrictions on session and ticket writing hours. Also, a positive view of the online trading system was discovered. By implementing an online trading system, the exchange hopes to increase transparency, market oversight, market integrity, and the availability of more commodities. The primary hurdles are infrastructure issues and trader capacity. The article suggests implementing an integrated surveillance system, acceptable session time allocation, understanding of the regulations, in-depth training of employees and traders, and construction of a redundant system in light of the findings.

Fetene (2019) conducted research on how Ethiopia's commodity exchange (ECX) encouraged the export of agricultural goods, namely coffee. The facilitation of physical trade dimension had the greatest rating, with a mean value of 3.83, while the storage and grading dimension received the lowest rating, with a mean value of 2.86, according to the results of descriptive statistics of the independent variables. The results of the correlation study showed that there was a modest association between the other variables and export performance and that there was a significant link between the facilitation of physical commerce and export performance with a 95% confidence interval and at 0.05 p-values. 54.6% of the variation in export performance was explained by the linear combination of the predictors (independent variable).

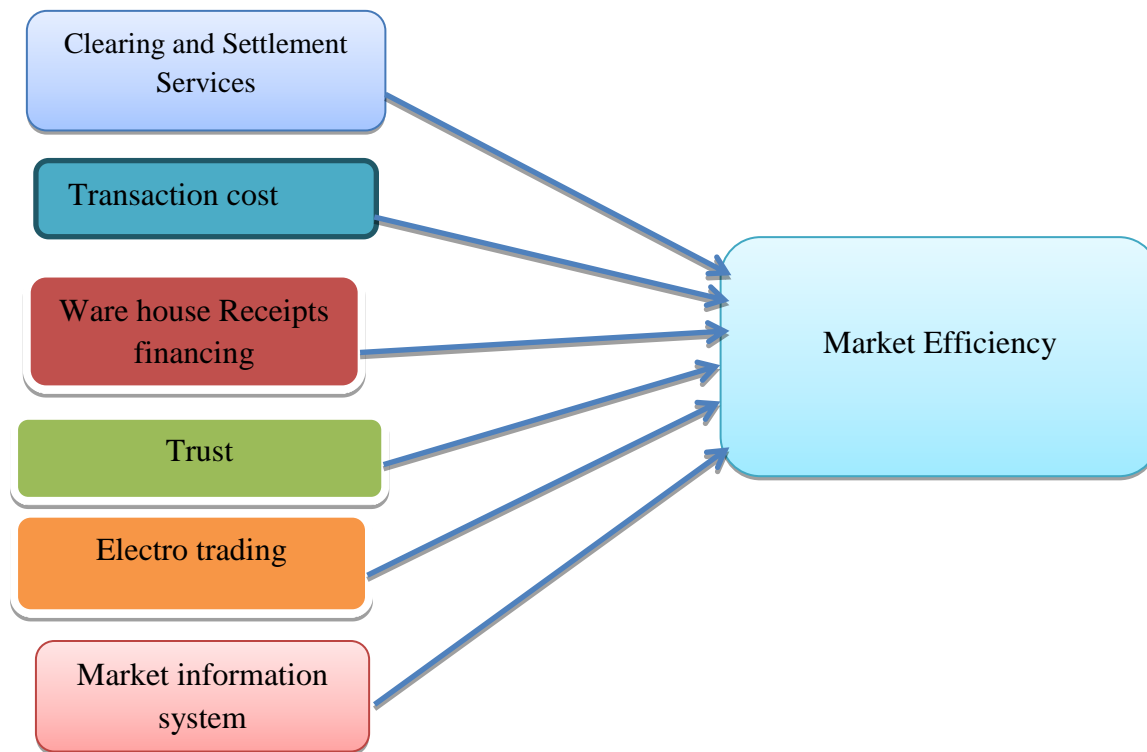
Further regression analysis was performed in addition to the correlation study, and the results showed that the market information provision, storage and grading, and market development aspects of ECX's activities had a considerable beneficial impact on the export performance of coffee exporters. The findings assist ECX identify service focus areas that can improve the success of its member coffee exporters.

Coulter & Onuma (2001) conducted the contribution of warehouse receipt systems to improved agricultural livelihoods and commodity trade in rural Africa. The study made it abundantly evident that the system will reduce fraud in weights and measures, make financing easier to acquire at all points in the marketing chain, reduce seasonal price variability, and encourage tools to reduce price risks. Also, it will lessen the necessity for government intervention in agricultural markets and, if necessary, lower the cost of such interventions.

Disabling aspects in the policy environment is the main obstacle to the implementation of WR systems in Africa. The authors provide suggestions for how this problem might be solved, the most important of which is to garner significant stakeholder support for the program. They do this by drawing on experience from projects that were carried out in Africa during the previous decade.

2.3 Conceptual Framework

The conceptual framework of the study comprises independent and dependent variables. For this reason, clearing and settlement services, transaction cost, ware house receipts financing, trust, electro trading and market information system were taken as independent variable and market efficiency as dependent variable for the study.



Source: Adapted from Yordanos (2020) & Sisay(2019)

Figure 2. 1: Conceptual framework of the Study

2.4. Research Hypothesis

The study has the following research hypothesis

Clearing and Settlement Services:

It is crucial to have a clearing and settlement system that guarantees payment to sellers and reduces counterparty overexposure. Members of the exchange who are financial institutions typically provide clearing services. Reliable and prompt broadcast of market data is necessary to ensure that local and regional traders can make educated decisions. Market efficiency depends on informed decisions (Gideon 2003). Thus, the following theory is put forth.

H1: Clearing and Settlement Services has a significant effect on the market efficiency of ECX.

Transaction cost:

By streamlining communications between buyers and sellers, enabling centralized product grading, ensuring that contracts are enforceable, supplying a tool for price discovery, conducting straightforward transactions with standard contracts, and transmitting information volumes, according to Gabre Madhin's (2006) analysis, transaction costs in commodity exchanges are significantly reduced.

H2: Transaction cost has a significant effect on the market efficiency of ECX

Warehouse Receipts: The transferrable storage system is extremely complementary to the purposes of the exchange, as outlined by Gebremedhin & Goggin (2005). The receipts system and a commodity exchange go hand in hand since both require grades and standards for warehouse operations and standardized contracts for a commodities exchange. Also, in order to address the current issues and inefficiencies in the ECX warehouse receipting system, the supporting new on-truck transaction system is used. Thus, the following theory is put forth:

H3: Warehouse Receipts has a significant effect on the market efficiency of ECX

Trust: A commodity exchange functions according to a set of well-established rules or customs. These regulations cover the product, how its price is determined, the participants in the market, and the agreements that tie them together. Together, these methods and norms instill the system with much-needed trust. Prior to trading, products must be standardized in accordance with established norms of quality and quantity (Kirubel, 2019). Thus, the following theory is put forth:

H4: Trust has a significant effect on the market efficiency of ECX

Electronic Trading:

The term "electronic trading" refers to a broad range of technologies, from straightforward order transmission services to fully functional trade execution facilities. Electronic order routing (the delivery of user orders to the execution system), automated trade execution (the conversion of orders into trades), and electronic dissemination of pre-trade (bid/offer quotes and depth) and post-trade information (transaction price and volume data) are all services offered by an electronic trading system (Gorham & Singh 2009).

H5: Electro trading has a significant effect on the market efficiency of ECX

Market Information System:

The primary function of an exchange, according to Gebremedhin & Goggin (2005), is to increase market transparency by producing and transmitting information. The market information system is a service that involves the regular collection of information on prices and, in some cases, quantities of widely traded agricultural products from rural assembly markets, wholesale and retail markets, as appropriate, and dissemination of this information on a timely and regular basis through a variety of media. Through its own functioning, the exchange creates market information about the underlying supply and demand conditions in the economy.

H6: Market information system has a significant effect on the market efficiency of ECX

CHAPTER THREE

RESEARCH METHODOLOGY

This chapter contains the general methodology of the study by which the questions raise within the study was analyzed throughout the thesis in order to meet its research objectives. As a result, this chapter deals with research design, research approach, sample population and size, sampling technique, data source, data gathering instruments, methods of data analysis, ethical consideration, reliability and validity of tools .

3.1 Research Design

“A research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure” (Kothari, 2004 p.31). In this study, descriptive and explanatory research designs were employed to address the research objective. Descriptive answer questions of who, what, where, when, how, and how many. It looks individuals, groups, institutions, methods, and materials in order to describe, compares contrast, classifies, analyzes and interprets the entities various field of inquiry (Abiy et al, 2009). In line with this, the study was used descriptive research to enable describing the determinants of determinants of market efficiency in Ethiopian commodity exchange whereas explanatory research design focuses on studying the relationship between variables. It is crucial to use explanatory design to show the relationship between independent variables of transaction cost, clear and settlement service, warehouse receipt system, trust, electronic trading, market information system with market efficiency.

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 was greater than either qualitative or quantitative research (Creswell 2009).

3.2 Research Approach

For the purpose of this study, both quantitative and qualitative data approach were utilized. Combination of two research approaches gives better interpretation as the information missed by one might be captured by the other and thus an enhanced and integrated result may emerge from the analysis. According to Leech and Onwuegbuzie (2006), an increasing number of researchers

are utilizing mixed methods researches to undertake their studies in order to draw meaningful results from both types of data. With due respect, the qualitative method was appropriated to study the selected issues in depth and to assess attitudes and opinions of the respondents and was collected through interview.

It seeks a better understanding of complex situations and often descriptive in nature. The Quantitative method helps to generate extensive information (breadth) and provides results which can be condensed to statistics and were collected through opened and closed questionnaire. For this reason, the researcher used both qualitative and quantitative data to triangulate the data as well as strengthening the witness of the other type of data.

3.3 Source of Data and Data Collection Instruments

3.3.1 Source of Data

A. Primary data source: This is the first-hand information gets from the researcher for the first time. Therefore, the researcher utilized primary data through conducting questionnaire and interview.

B. Secondary data source: In order to well articulate this study, different secondary sources of data were employed from Ethiopian commodity exchange, published and unpublished materials and electronic sources.

3.3.2 Data Collection Instruments

A. Structured Questionnaires: is a written list of questions, the answers to which are recorded by respondents (Kumar 1999.p.198). Similarly, the author noted that closed questions are extremely useful for eliciting factual information and open-ended questions for seeking opinions, attitudes and perceptions. In this study, both open and closed-ended questionnaire were employed to achieve the objective on the determinants of market efficiency of commodity exchange: the case of Ethiopian commodity exchange. First of all, the researcher prepared open ended and closed ended question both in English and Amharic then clarify the research objective, proper wording, arranged its logical sequence, make good layout, optimize questionnaire length and conduct a pilot study before distribute the questionnaire for the respondents. Finally, the questionnaire was distributed the questionnaire for the members, expert and head of different directorates in the organization.

B. Semi-Structured Interview: for the purpose of obtaining firsthand qualitative information, an interview was applied appropriately. *"Interviews provide in-depth information pertaining to participants' experiences and viewpoints of a particular topic"* (Turner 2010. p.56). This method helps the interviewer in order to gather more information in greater depth and provides greater flexibility in restructuring questions whenever necessary (Kothari 2004).

So that, for the sake of support other methods and getting the heart feeling of respondents both senior experts and top management were interviewed.

C. Document Analysis/review: According to Ndunguru (2007) noted that the documentation method was utilized by gathering data from the secondary source. The documentary sources of data for research purposes include published books, manuscripts, journals, research reports, newspapers and other unpublished literary works. Therefore, the researcher was utilized in this method to collect already gathered information from books, reports, and written materials from Ethiopian commodity exchange and other respective organizations.

Table 3. 1: Summary of Data Gathering Tools

No	Objective	Approach		Data Gathering Instrument	Participant
		Qualitative	Quantitative		
1	To determine the effect clearing and settlement services for commodity market efficiency of ECX,	✓	✓	Questionnaire and Interview	trading members and Intermediary members
2	To point out the extent to transaction cost for commodity market efficiency of ECX,	✓	✓	Questionnaire and interview	trading members and Intermediary members
3	To examine the effect of warehouse Receipts financing of ECX on its market efficiency,	✓	✓	Questionnaire & Interview	trading members and Intermediary members
4	To examine the effect of trust and transparency on the market efficiency of ECX.	✓	✓	Questionnaire and Interview	trading members and Intermediary members
5	To find out the effect of technology influences the market efficiency of ECX.	✓	✓	Questionnaire and interview	trading members and Intermediary members

Source: Own constructed by the researcher (2022)

3.4 Population of the Study

Population was 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). Based on the purpose of this study, the research was attempted to investigate the determinants of market efficiency of Ethiopian Commodity Exchange.

According to the data as of June 30, 2022 from ECX there are a total of 975(401+574) members and nonmembers. In the same way, the target population for the study was members and nonmembers of ECX. Therefore, the inclusion criteria the study mainly included trade members who have experienced in the commodity exchange markets while secretary and other participants who weren't familiar with the commodity exchange markets were the exclusion criteria of the study.

3.5 Sample Size

The sample size is represented as an optimum size of a sample is one which fulfils the requirements of representativeness and reliability. From this study, the sample size of the participants was selected based on the following formula Taro Yamane (1967) at 95% Confidence level and 5% of Margin of error. The formula usually was applied when the population parameter is known. The total population in the study area was 975. Therefore, the sample size was determined as follows.

$$n = \frac{N}{1 + NE^2}$$

Where n = sample size, N= Total population, E= Margin of error

$$n = \frac{975}{1 + 975(0.05)^2} = \frac{975}{3.44} = 283$$

Therefore, the sample size of the respondents for questionnaire were 283.

For the interviews, data's were collected through semi-structured one to one interviews with seven key informants. This includes four from members and two from the Ethiopian commodity exchange office. The key informants were selected based on their knowledge, experience, expertise, and involvement in the sector. Additionally, they were selected that the researcher expects from them to get enough and accurate information which was relevant for the study. Therefore, the total sample size was 288 when it adds the questionnaire respondents of 283 and the six respondents from the individual interview.

3.6 Sampling Technique and Sampling Procedure

First of all, the researcher was purposively selected Ethiopian commodity exchange because major market exchange can be applied more. Then simple random sampling technique was used to select respondents to distribute the questionnaire. On the other hand, purposive sampling technique was employed purposively to select key informants for interview.

The key informants were selected based on their experience, knowledge, and skill and relevant for the study to gather accurate information from them. Thus, commodity exchange members and the organization senior experts were participated for interview.

3.7 Validity and Reliability Test

3.7.1 Validity Test

Sounders et al. (2012) defined validity as the extent to which data collection method or methods accurately measure what they were intended to measure. If the measurement items in the survey adequately cover the content domains or aspects of the concept being measured, an instrument has content validity (Ahire et al 1996).

John et al. (2007) categorized validity in to three categories; namely content validity, criterion validity and construct validity. Content validity measures the extent of the instrument to provide adequate coverage of the topic being studied. This measurement could be judgmentally considered to be good if the number of population is highly representative of the universe. Criterion validity refers to the extent to which an instrument is fully, relevant, unbiased, reliable and available to the topic of the study.

On the other hand, construct validity refers to the degree to which a measure actually assesses the theoretical construct it is meant to assess (Fornell et al 1981). In the assessment of construct validity, the establishment of discriminant and convergent validation is important (Campbell & Fiske 1959).

In this research, criterion and content validity were assessed numerically, but can only be subjectively judged by the researcher. The following activities were performed: The questionnaire was subjected to peer review from colleagues and the supervisor. This was aims to red flag any potential errors in the research instruments thus ensuring the result's validity.

- Data were collected from the reliable sources and
- Survey questions were prepared based on previous empirical review and literature review to ensure result validity.
- To ensure construct validity, only discriminant validations were made statistically using the exploratory factor analysis although some may use additional validation.

3.7.2 Reliability Test

Reliability is the degree to which the measure of a construct is consistent or dependable (Bhattacharjeend 2012, p.57). For this study, Cronbach’s alpha will be used to assess the internal consistency of variables in the research instrument. It is a reliability coefficient that indicates how well the items in a set are positively related to one another. In addition to these structured questionnaires with likert-scale would be used to remove unstructured answers.

Moreover, Cronbach’s alpha is a coefficient of reliability used to measure the internal consistency of the scale; it represented as a number between 0 and 1 and items which scored above the acceptable value will be retained. 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.

Table 3. 2: Alpha Coefficient for Each Section of Questionnaire

S/n	Section	No. of Items	Alpha Value
1	Factors of clearing and settlement service	4	0.710
2	Factors of Transaction Cost	4	0.733
3	Factors of warehousing receipts	5	0.711
4	Factors of Trust	4	0.788
5	Factors of Electronic Trading	12	0.806
6	Factors of Marketing Information System	6	0.709
7	Factors of marketing efficiency	8	0.853

Source: Research Questionnaire (2023)

As shown the reliability result indicated above, the internal consistency of the data was acceptable because the *alpha coefficient was greater found between above 0.7*

3.8. Method of Data Analysis and Presentations

The data was analyzed through quantitative and qualitative. Quantitatively, the data were coded in SPSS 26 version software. Then the data were analyzed via descriptive statistics and inferential statistics. This means the researcher used both descriptive statistics and multiple linear regression analysis method to analyze the data obtained from primary sources. The results of Descriptive statistics (mean standard deviation, frequency) were useful in provided information and detecting normality of the collected data.

The researcher also used multiple linear regression analysis to examine the relationship between dependent and independent variables and Correlation analysis was used to measure linear association relationship between explanatory and dependent variables. The dependent variable of marketing efficiency was a continuous variable that can be measured in an infinite way of variables. For this case, multiple linear regressions was appropriate to show the cause and effect relationship between the independent and dependent variables

On the other hand, the qualitative data was analyzed through personal interviews. In this case, the qualitative data that was obtained from the open-ended questionnaire and interview were presented using narrative analysis. After data was presented and analyzed, conclusion and recommendations were drawn from the findings.

3.9 Ethical Consideration

In the course of this study, all requirements of the selected organization and the research procedures of the Addis Ababa University were properly adhered. All the scientific evidence and supporting documents were consulted and acknowledged.

All the participants in this study were appropriately informed about the purpose of the research and their consent was secured before the commencement of the data gathering process. The researcher was also informed the subject that their response was only for the purpose of the study. In addition, the researcher was assured the respondents that their identity and that of their organizations. Confidential issues were kept confidential.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND RESULTS

This chapter presents the analysis and interpretation of both quantitative and qualitative data collected from respondents. The data results obtained via questionnaire and interview were analysed, presented and interpreted by using frequency distributions, tables, percentage and figures.

4.1 Response Rate

Table 4.1: Response rate of respondents (N=270)

No	Questionnaire	Number	%
1	Dispatched/distributed	283	100
2	Return	270	95
3	For analysis	270	95
4	Interview	6	100%

Source: field survey (2022)

The response of respondent rate is displayed in Table 4.1. In this instance, 270 completed questionnaires with a response rate of 95% were included in the analysis out of a total of 283 respondents who were invited to participate in the study. The remaining 13 surveys, however, were not returned by the deadline since the respondents weren't present when the researcher and enumerator repeatedly went to their offices. Similarly, 6 responses (100%) were used for the interview.

Table 4. 2: Mean score range for the five Likert scale responses

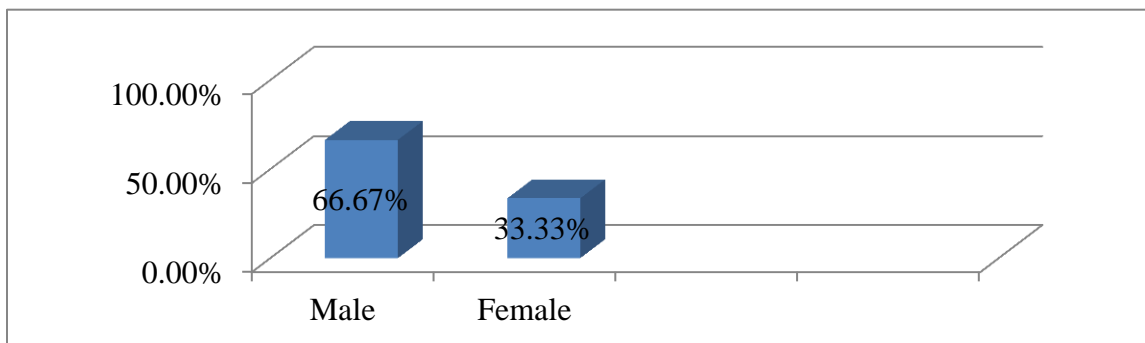
No.	Mean range	response options
1	[1.00, 1.80)	Strongly Disagree
2	[1.81, 2.60)	Disagree
3	[2.61, 3.40)	Neutral
4	[3.41, 4.20)	Agree
5	[4.21, 5.00]	Strongly Agree

Source: Al-Sayaad et al. (2006)

4.2 Descriptive Analysis

4.2.1 Demographic Characteristics of the Respondent

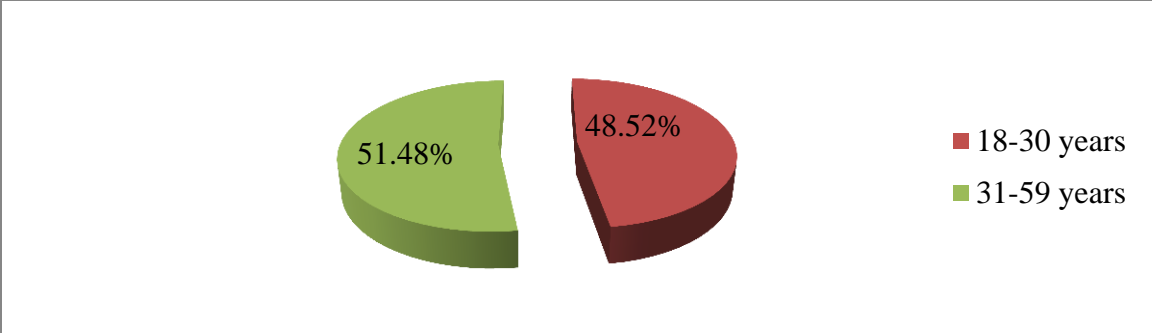
The following is a brief discussion of the respondents' demographic features, which include gender, age, educational attainment, membership type, length of trading as a member at ECX, buyer or seller at ECX, and type of commodity traded at the Ethiopian commodity exchange.



Source: field survey (2023)

Figure 4. 1: Gender of the respondents

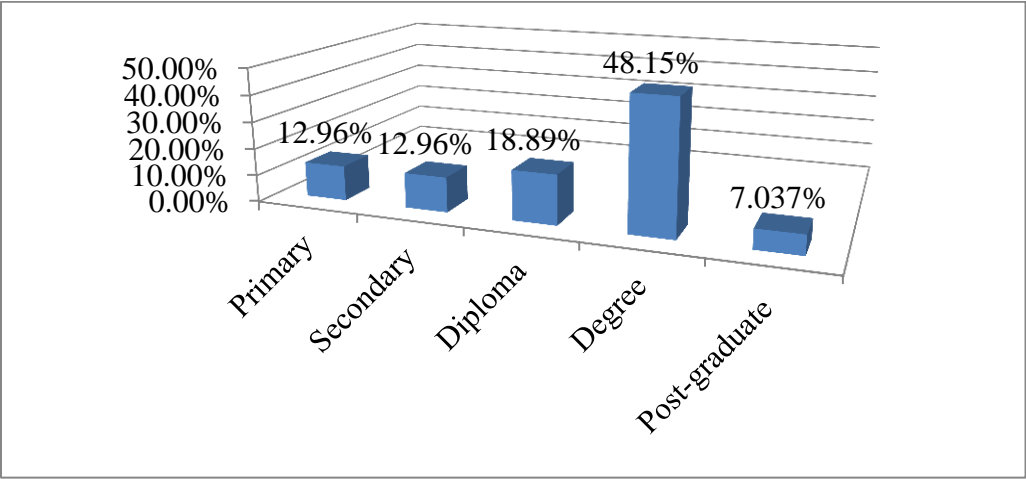
The respondents' demographic variable of gender was shown in Figure 4.1. According to the respondents' responses, 33.33% of the respondents were women, while 66.67% of the respondents were men. The majority of respondents at the Ethiopian commodity exchange were men, as seen in figure 4.1.



Source: field survey (2023)

Figure 4. 2: Age of the respondents in years

The age distribution of responders is shown in Figure 4.2. In this situation, 51.48% of the respondents were between the ages of 31 and 59, while 48.52% of the respondents were found to be between the ages of 18 and 30. The majority of respondents replied that the age range between 31 and 59 years, as depicted in the figure. This suggests that the majority of the respondents were in an age group that enabled them to complete their jobs in a responsible manner.



Source: field survey (2023)

Figure 4. 3: Educational statuses of the respondents

The respondents' level of education is shown in Figure 4.3. 12.96% of those polled had only received their primary education. Also, 12.96% and 18.89% of the respondents, respectively, have a secondary and a diploma education. On the other side, 48.15 percent and 7.03 percent of respondents had degrees and post-graduate respectively.

The study's findings so indicated that the majority of respondents had a bachelor's degree as their highest level of education. This suggests that professionals were working at the Ethiopian commodity exchange to achieve success in the market sector as a whole.

Table 4. 3: Membership type at the Ethiopian commodity exchange

Membership Type		Frequency	Valid Percent
Valid	Regular trader	91	33.7
	Intermediary Trader	121	44.8
	Restricted Trader	35	13.0
	Restricted Intermediary	23	8.5
	Total	270	100.0

Source: field survey (2023)

The membership categories at the Ethiopian commodity market are shown in Table 4.3. In this instance, regular and intermediary traders made up 91 (33.7%) and 121 (44.8%) of the respondents. On the other hand, restricted and restricted intermediary trader members made up 35 (13.1%) and 23 (8.5%) of the respondents, respectively. One can infer from the respondents' responses that the majority of them were intermediate traders.

Table 4. 4: Length of trading as a member at ECX

	N	Minimum	Maximum	Mean	Std. Deviation
How long have been trading as a member at ECX	270	1.00	15.00	5.0074	3.45119

Source: field survey (2023)

The length of respondents' membership at the Ethiopian commodity market is shown in Table 4.4. In this instance, the respondents' average means scores reflect their five years of participation in trading at the Ethiopian commodity exchange.

Table 4. 5: Responsibilities of respondents at ECX

Are you buyer or seller at ECX?		Frequency	Percent
Valid	Buyer	163	60.4
	Seller	107	39.6
	Total	270	100.0

Source: field survey (2023)

The respondents in Table 4.5 were questioned about whether they thought they were buyers or sellers on the Ethiopian commodity exchange. In this regard, 107 (39.6%) respondents were sellers compared to 163 (60.4%) respondents who were purchasers. The majority of respondents to the Ethiopian commodity exchange were purchasers, as seen in table 4, 6. This suggests that they purchased various goods through the market system.

Table 4. 6: Type of commodities traded by respondents

What type of commodity you have traded?		Frequency	Percent
Valid	Coffee	50	13.5
	Oilseeds	100	27.0
	Grains	120	32.4
	Total	270	73.0

Source: field survey (2023)

Table 4.6 displays respondents' opinions on the different types of commodities exchanged. 50 (13.5%) of the respondents mentioned that they traded coffee as a commodity in this regard. Similarly, 100 (27%) and 120 (32.4%) of the respondents said they traded grains and oilseeds, respectively. The finding indicates that the majority of the members traded in cereals like peas, maize, soybeans, red kidney bean, white pea bean and other items.

4.2.2 Dimension of Market Efficiency

4.2.2.1 Clearing and Settlement Service

According to Gegeon (2003), it is essential to have clearing and settlement mechanisms that ensure payment to sellers and lessen counterparty overexposure. Thus, the findings from the respondents are clearly explained and described as follows.

Table 4. 7: Respondents perceptions towards clear and settlement service in the commodity exchange

No	Statements	N	Mean	Std. Deviation
1	ECX assure payment to seller	270	3.71	0.87
2	The clearing and settlement system is equipped with adequate infrastructure	270	3.52	0.99
3	The ECX clearing and settlement system provides timely service.	270	2.54	1.09
4	The ECX clearing system efficiently matches up buy and sell order	270	3.66	1.01

Source: field survey (2023)

The clearing and settlement services at the Ethiopian commodity exchange are described in Table 4.7 of the responses.

Respondents were asked on item 1 about whether they believed the Ethiopian commodity exchange guaranteed payment to sellers or not. Based on this, the respondents' average mean score ($m=3.71$, $Sd=0.87$) indicated that Ethiopian commodity exchange provided a guarantee of payment to the seller. This means that when sellers complete their tasks successfully, the organization pays them.

Also, according to respondents in table 4.7, the infrastructure of the clearing and settlement system is adequate (average mean score: $M=3.52$, $Sd=0.99$). This demonstrated that the clearing and settlement system have the requisite infrastructure to meet organizational expectations.

The respondents were also asked to provide their opinion on the claim that "The ECX clearing and settlement system delivers prompt service." The respondents' average mean score ($M=2.54$, $Sd=1.09$) indicated that the ECX clearing and settlement mechanism wasn't given quick service in response to this. This indicates that the clearing and settlement services haven't thought about how to deliver the required service in a timely manner. According to the study's findings, delays in services were affected for the commodity sector's clearing and settlement functions to be carried out successfully.

In the final question of Table 4.7, respondents were asked whether they believed the Ethiopian commodity exchange clearing system successfully matched up buys and sell orders. The average mean score ($M=3.66$, $Sd=1.01$) of the respondents, which was based on this statement, clearly demonstrated that the Ethiopian commodity exchange clearing systems were effective at matching up buy and sell orders.

In addition to this, the data obtained from qualitative through interview stated briefly as follows.

One of the regular traders in the Ethiopian commodity exchange said that there was an issue with clearing and settlement service at the Ethiopian commodity exchange. This indicates that a delay in clearing and settlement services makes it more difficult to complete activities for a specified period of time. As a result, the key informant confirmed that high transport costs had an impact on the entire market system (KIII, 2023).

4.2.2.2 Transaction Cost

Lowering transaction costs is one of ECX's priorities. Commodity exchange reduces transaction costs by providing services at a cheaper cost than those provided by participants in the commodity sectors. These costs include locating a reliable trans actor, setting the terms and conditions of a contract, obtaining funding to support the transaction, managing the transfer of credit, cash, and goods, and paying parties to adjudicate disputes between contractual counterparties.

So, a commodities market can encourage commerce by reducing the expenses that participants to a potential transaction bear (UNCTAD 2007). The information gathered from the respondents was then briefly discussed as follows.

Table 4.8: Respondents perceptions towards transaction cost in the commodity exchange

No	Statement	N	Mean	Std. Deviation
1	ECX reduces transaction cost by offering cost by lower cost than participants in commodity sector	270	3.69	.86
2	Higher transaction cost affect ECX commodity market efficiency	270	3.50	.98
3	ECX transaction cost affected by information infrastructure	270	3.74	.80
4	ECX transaction cost helps the commodity market liquidity to be more efficient.	270	3.68	.97

Source: field survey (2023)

The perception of respondents concerning transaction costs in the commodities exchange is shown in Table 4.8. According to the respondents' average mean score ($M=3.69$, $Sd=0.86$), ECX didn't lower transaction costs by competing on price with participants in the commodity industry. This suggests that in order to provide the required services, the Ethiopian commodity exchange cut transaction costs.

With an average mean score ($M=3.50$, $Sd=0.98$), item-2 of table 4.8 demonstrated how the ECX coffee market efficiency was impacted by rising transaction costs. This suggests that high transaction costs had an impact on the overall efficiency of the market for commodities. In other words, it shows that high transaction costs make it difficult to exchange the required goods over the long term.

Also, respondents were asked to express their opinion on the claim that "ECX transaction cost is influenced by information infrastructure." Based on this, respondents' average mean scores ($m=3.74$, $Sd=0.80$) indicated that information infrastructure had an impact on transaction costs. This means that when transaction costs are present in the company, the required infrastructure,

such as information technology, is hampered from providing quick service in a short period of time.

The respondents were requested to provide feedback on the final item of table 4.8 on the claim that "ECX transaction cost allows the coffee market liquidity to be more efficient."

Based on this, the respondents' average mean score ($M=3.68$, $Sd=0.97$) indicated that they agreed that Ethiopian commodities exchange transaction costs had improved market liquidity. This indicates that the reduction of transaction costs helped the market as a whole operate more effectively.

So, the information gleaned from the qualitative interview is briefly detailed below.

The intermediary trader, who had been worked ten years of experience in the commodity exchange in Ethiopia, brought up a number of concerns regarding the cost of transactions. He acknowledged that the expense of transactions had an impact on his efforts to provide the organization with a range of agricultural products. As a result, the product that was brought to the commodities exchange in Ethiopia didn't balance at the present rate of exchange. In this instance, transaction costs have increased in comparison to the nation's current situations. At the same time, his expectations for an improvement in the contract between the market participants and the Ethiopian commodity exchange were not met (KII2, 2023).

4.2.2.3 Warehousing Receipt

The use of WRs is frequently associated with structured financing transactions, which ensure that, in the event that a transaction goes as planned, the lender will be automatically reimbursed (the loan is self-liquidating) and that, in the event that a transaction doesn't, the lender will still have access to readily liquidated collateral (Budd 2001). The following is a quick discussion of the responses that were received from the respondents.

Table 4. 9: Respondents perceptions towards warehousing receipt financing in the Ethiopian commodity exchange

No	Statement	N	Mean	Std. Deviation
1	Central depository create electronic warehouse receipt appropriately	270	3.90	.94
2	Central depository void or cancel electronic warehouse receipts	270	3.76	1.05
3	The ECX warehouse receipt provides timely service.	270	2.51	1.57
4	The quality of the warehouse receipt provided by ECX is satisfactory	270	2.53	1.63
5	The ECX warehouse receipt is secured from risky casualties like theft and fire.	270	3.73	1.04

Source: field survey (2023)

The view of warehousing receipts system in the Ethiopian commodity exchange is depicted in Table 4.9. In response to this, the respondents' average mean score ($M=3.90$, $Sd=0.94$) indicated that the central depository was appropriately built in terms of electronic warehouse reception. This suggests that the central depository will employ electronic warehouse receipts seriously.

Also, respondents to item 2 of table 4.9 express their opinions regarding whether or not the central depository should revoke or void electronic warehouse receipts. The average mean score (3.76 , $Sd=1.05$) in this assertion. This statement implies that, in the Ethiopian commodity exchange, the central depositories may, at their discretion, void or revoke computerized warehouse receipts.

The statement "The ECX warehouse receipt delivers prompt service" was asked of the responders. The respondents' mean scores ($M=2.51$, $Sd=1.57$) in this regard made it very evident that the Ethiopian Commodity Exchange warehouse receipt wasn't handled promptly. This suggests that the Ethiopian Commodity Exchange's warehouse receipt system was delayed in being provided.

Similarly, the respondents' average mean score (M=2.53, Sd=1.63) indicated that they weren't satisfied with the organization's warehouse receipt system. Yet, the responders' average mean score (M=3.73, Sd=1.04) clearly indicated that the Ethiopian warehouse receipt was protected from potentially dangerous casualties from theft and fire.

In addition to the quantitative information mentioned above, the information collected from the respondents made it evident that:

One of the restricted grain merchants in the Ethiopian commodity exchange brought up the fact that the members didn't actually have access to warehouse receipt financing. Additionally, he said that the services weren't offered to the members on time as he had anticipated. As a result, receipts were delayed in order to guarantee their accuracy and dependability for the particular time period (KII3, 2023).

4.2.2.4 Trusts in the Commodity Exchange

A commodity exchange operates in accordance with a set of rules or standards that have been created over time. These rules cover the product, the method used to establish its price, the market players, and the contracts tying them all together. These procedures and standards collectively install the system with much-needed trust (Kirubel 2019). Thus, the respondents' findings, which are summarized below, were as follows.

Table 4. 10: Respondents perceptions towards trust in the Ethiopian commodity exchange

No	Statement	N	Mean	Std. Deviation
1	Lack of monitor market abuse and manipulative trading	270	3.79	.84
2	Lack of clear and fair rules and regulation to governing access and participation in markets.	270	3.74	.85
3	Market behaviors of member toward improper trading practice.	270	3.91	.91
4	Discriminatory access to the market information	270	3.77	1.04

Source: field survey (2023)

The respondents' opinions regarding trusts on the Ethiopian commodity exchange are shown in Table 4.10. In this instance, the respondents' mean scores ($M=3.79$, $Sd=0.84$) indicated that they accepted the respondents' response that the organization's failure to monitor market abuse and manipulation trading was an issue. Commodity trade was also plagued by a lack of transparent and equitable norms and regulations governing participation and access to markets. With an average mean score ($M=3.74$, $Sd=0.85$), the respondents largely agreed on this subject.

According to item 3 of the respondents, which was based on table 4.10, market behavior of members regarding unethical trading practices? In this instance, the respondents' average mean score ($M=3.91$, $Sd=0.91$) indicated that they agreed with the statement. In a similar vein, the respondents' mean scores ($M=3.77$, $Sd=1.04$) amply demonstrated that the organization's market exchange was hampered by unequal access to market information.

Moreover, the interview data collected from the restricted trader in the Ethiopian commodity exchange noted the following points.

The key informant reaffirmed that building strong relationships with the Ethiopian commodity exchange requires trust. He continued by saying that a lack of confidence led to prejudice in the marketing system when different agricultural products were traded widely. Hence, in order to create the anticipated revenue and lower risks by implementing proactive measures, it is necessary to ensure high confidence between market participants and the commodities exchange industry (KII4, 2023).

4.2.2.5 Electronic Trading

One of the common exchange markets was online trading. Providing aggregate data, such as price, volume, and news; guiding orders; and coordinating orders are the three main functions of electro trading in this case. The degree of automation frequently ranges from one extreme to the other: in the first, open outcry trading is completely eliminated, and orders are entered and matched through a computer network; in the second, pit traders only get electronic news (Tsang 1999). Therefore, the respondents' response about electronic trading stated briefly as follows.

Table 4. 11: Respondents perceptions towards Electronic trading in the Ethiopian commodity exchange

No	Statement	N	Mean	Std.Deviation
1	Electronic trade is better than floor trade	270	3.73	1.05
2	Floor trade is better than electronic trade	270	2.64	1.30
3	System failure for electronic trade are factors affecting the performance of ECX	270	3.49	1.07
4	Deal entry errors are the factors for the performance of ECX	270	3.56	1.03
5	Documentation failure are factors for the operation of ECX	270	3.68	.84
6	Online trading system will improve the performance of trading	270	3.79	1.08
7	Doing trade or business online is safe	270	3.82	1.04
8	Networked banks are close to ECX	270	3.83	.97
9	Central depository create electronic warehouse receipt appropriately	270	3.78	.98
10	Central depository reconcile records daily	270	3.74	.96
11	Central depository void or cancel electronic warehouse receipts	270	3.44	.87
12	Central depository maintain a register of depository	270	3.75	.87

Source: field survey (2023)

Table 4.11 displays respondents' opinions on commodity exchange electronic trading. The average mean score ($M=3.74$, $Sd=1.05$) indicates that electronic trading was superior to floor trading based on the respondents' responses.

The results of the study demonstrated that, in order to conduct commodities exchange, electronic trading was more important than floor trade. However, the respondents' mean score ($M=2.64$, $Sd=1.30$) did not indicate whether floor trade was superior to electronic trading.

The performance of ECX was impaired by system failure for electronic trade, as evidenced by item 3 of table 4.11, which had an average mean score of ($M=3.49$, $Sd=1.07$). According to respondents' average mean scores, system failure was a challenge that ultimately prevented effective deployment of electronic trading. This has the connotation that dealers are unable to do their business as planned.

Respondents were prompted to express their opinions on item 4 about the claim that "Deal entry errors are the causes for the performance of ECX." (See item 4 in table 4.11). The performance of the Ethiopian commodity market was impacted by transaction deal entry error, according to the respondents' average mean score ($M=3.56$, $Sd=1.03$). In the context of import and export aspect items, this suggests that it is difficult to determine what kind of trade participants engage in commodity activities.

The statement "Documentation failures are factors for the operation of ECX" was also questioned about in the survey. (See item 5 in table 4.11). The respondents' mean score ($M=3.68$, $Sd=0.84$) indicated that they agreed that the operation of the Ethiopian commodity exchange was impacted by documentation failure. This implies that it is impossible to govern a right member, regardless of whether it performs its duties successfully or not. In other words, a documentation failure makes bias and corruption more prevalent while conducting business. According to this, the respondents' mean score ($M=3.79$, $Sd=1.08$) indicated that online trading system increased trading performance. This implies that doing business online allows for time, money, and ease of use savings.

Similar concerns regarding the safety of conducting business or trade online were raised by the respondents. The respondents provided support for this topic with a mean score of ($M=3.82$, $Sd=1.04$). Based on this perspective, one may conclude that doing business online is secure because technology monitors and ensures proper business operations.

Table 4.11 item 8 indicates respondents gave their opinions on the matter, stating that "Networked banks are near to ECX." The average score (M=3.83, Sd=0.97) in this situation demonstrated that network banks were closed to Ethiopian commodity trading. This suggests that the Ethiopian commodity exchange was successful in carrying out its operations and giving members fast service.

The respondents were prompted in Table 4.11 to express their thoughts on the claim that "Central depository prepares electronic warehouse receipt suitably." Based on this claim, respondents gave the central depository an adequate electronic warehouse receipt, as indicated by their mean score (M=3.78, 0.98). This indicates that, in order to provide prompt service as anticipated by respondents, the central depository was enabled to warehouse receipt online.

Additionally, items 10 and 11 in table 4.11 demonstrated that respondents agreed with the claims that the Central Depository reconciled records every day and that electronic warehouse receipts could be voided or cancelled, with average mean scores of M=3.74 and Sd=3.44 and M=3.44 and Sd=0.87, respectively. The respondents' mean score (M=3.75, Sd=0.87) also provided assurance that a register was kept in a central depository.

Also, information gleaned from a conversation with a senior commodity expert from Ethiopia revealed that electronic trading is a crucial technology for delivering marketing systems online. The key informant also said that trading commodities online offers the chance to offer rapid service and cut costs in the commodity exchange. The key informants, however, raised the issue that system failures had an impact on the market for sending and receiving payments between traders and members of the commodity exchange. The Ethiopian commodity exchange worked with Ethiopian telephony and Ethiopian Electric service enterprise to resolve the issues (KII5, 2023).

4.2.2.6 Marketing Information System

In the literature, Sisay (2019) observed that reliable market information is essential for maintaining increasing productivity and raising the standard of living for smallholder farmers. Because of this, a nation's integrated market information system is extremely important for enhancing the efficiency of the commodities exchange. The following is a brief explanation of the respondents' opinions regarding the marketing information system.

Table 4. 12: Respondents perceptions towards marketing information system in the Ethiopian commodity exchange

No	Statement	N	Mean	Std. Deviation
1	I have access to market related information	270	3.95	0.78
2	I quickly understand and interpret the information displayed by ECX.	270	4.01	0.82
3	I am satisfied with the accuracy of market information provided by ECX	270	2.49	1.04
4	I am satisfied with the accessibility of market information provided by ECX	270	2.39	1.18
5	The market provided by ECX is disseminating in real time to all market players	270	2.27	0.94
6	The market information provided by ECX is Relevant	270	4.09	0.84

Source: field survey (2023)

Table 4.12 displays respondents' opinions of the Ethiopian commodity exchange's marketing information system. Based on this, the respondents' mean score ($M=3.95$, $Sd=0.78$) indicated that they had access to information on the market at the Ethiopian commodity exchange. This suggests that commodity members have access to opportunities to obtain the market data they need to carry out their daily tasks.

The respondents were asked in item 2 of table 4.12 to express their opinion regarding the statement "They easily understand and analyze the information displayed by ECX." The average score ($M=4.01$, $Sd=0.82$) in this regard shows that the information provided by the Ethiopian ECX was readily understood and interpreted.

This suggests that the information released by the organization was easily understood and interpreted by the responders. The respondents weren't satisfied with the accuracy of the market information provided by ECX, as indicated by their mean score ($M=2.49$, $Sd=1.04$).

Similarly, the respondents' mean score ($M=2.39$, $Sd=1.18$) indicated that they were dissatisfied with the availability of the market information offered by ECX. This suggests that respondents did not receive the information they anticipated at a certain time.

Table 4.12 of the respondents' responses revealed that item-5 indicated that not all market participants received the ECX-provided market in real time ($M=2.27$, $Sd=0.94$). This suggests that information wasn't presented in order for market participants to comprehend what the Ethiopian commodity exchange was providing information on.

In contrast, respondents were asked in item 6 of table 4.12 to express their opinion regarding the claim that "The market information provided by ECX is Important." Based on this assertion, the respondents' average mean score ($M=4.09$, $Sd=0.84$) indicated that they believed the market information provided by ECX to be relevant. This implied that information provided to market participants was essential for them to carry out their tasks successfully.

The following qualitative data provide additional support for the aforementioned quantitative data.

A prominent expert in digital marketing also stated that a marketing information system was essential for employing information and communication technology to acquire market data. The Ethiopian Commodity Exchange shares information with its trading partners via its website, Facebook page, television, and other media (KII6, 2023).

4.2.2.7 Marketing Efficiency in the Ethiopian Commodity Exchange

There is no one marketing efficiency concept that works for all markets. According to Ratchford et al., "actual or potential losses to individual customers, which originate from poor information about alternatives, are losses to the market that are or can be significant" (1996, p. 168). Below is a quick discussion of the respondents' response in this regard.

Table 4. 13 Respondents perceptions towards marketing efficiency in the Ethiopian commodity exchange

No	Statement	N	Mean	Std. Deviation
1	I am satisfied with the market efficiency of the Ethiopian commodity exchange	270	3.69	.86
2	ECX achieved its vision through dynamic and efficient market	270	3.50	.98
3	Clearing and settlement services influence the market efficiency of Ethiopian commodity exchange	270	3.74	.80
4	Transaction cost affect the market efficiency of Ethiopian commodity exchange	270	3.68	.97
5	Warehouse Receipts influence the market efficiency of Ethiopian commodity exchange	270	3.79	.83
6	Trust is the main factors of market efficiency of Ethiopian commodity exchange	270	3.75	.84
7	Electro trading improve the market efficiency of Ethiopian commodity exchange	270	3.92	.89
8	Market information system enhance market efficiency of Ethiopian commodity exchange	270	3.92	.82

Source: field survey (2023)

The respondents' opinions on the efficiency of marketing at the Ethiopian commodity exchange are shown in Table 4.13. Accordingly, the respondents' average mean score ($M=3.69$, $Sd=0.86$) indicated that they were accepted with the exchange's market efficiency strategy and plan.

The respondents' mean scores ($M=3.50$, $Sd=0.98$) also indicated that they agreed that ECX had succeeded in realizing its goal of transforming the Ethiopian commodity market through a vibrant and effective market. This suggests that a vibrant and effective market environment was used to help the Ethiopian commodity exchange realize its vision.

Also, respondents were asked to express their opinion on the claim that clearing and settlement services have a considerable and favorable impact on the efficiency of the commodity market. (See item-3 in table 4.13.) Based on this claim, respondents' average mean scores ($M=3.74$, $Sd=0.80$) indicated that they agreed that clearing and settlement services significantly and favorably affect the efficiency of the commodity market. According to this point of view, the respondents' mean scores ($M=3.68$, $Sd=0.97$) indicated that transaction costs significantly and favorably affect the efficiency of the commodity market. This implies that a market's ability to achieve its overall objectives depends on whether transaction costs are high or low.

Respondents were asked in item 5 of table 4.13 to describe whether they believed warehouse receipts financing had a large and beneficial impact on the functioning of the commodity market. The respondents' average mean score ($M=3.79$, $Sd=0.83$) supported this issue. Corresponding to this, the respondents' mean score ($M=3.75$, $Sd=0.84$) indicated that they agreed trust has a considerable and advantageous effect on the efficiency of the commodity market. This suggests that for commodities market efficiency to result in the desired outcome among market participants.

Table 4.13's items 7 and 8 demonstrated that market information systems and electronic trading had a large and favorable impact on the efficiency of the commodity market, with an average mean ($M=3.75$, $Sd=0.84$) and ($M=3.92$, $Sd=0.89$) respectively.

The above quantitative data supported by the data collected through interview as follows,

The specialist research and business development working in Ethiopian commodity exchange stated as electronic trading was very vital to provide prompt service for the customers. As his point of view, Electronic trading reduces time and cost to address accessible marketing information for the customers within their internet access. As a result of this, the market efficiency increase so does market related issues conducted through online system (KII7, 2023).

4.3 Inferential Statistics Data Analysis

4.3.1 Correlation Analysis

Correlation coefficient statistics measure the degree to which two sets of numbers are related. In this section, the researcher tried to accomplish the goal of the study through applying Pearson's correlation (r) as it is the most widely used method of measuring the degree of relationship between two variables.

The relationship between two variables will be: a correlation of .10 is described as a small effect size, a correlation of .30 is described as a medium effect size and a correlation .50 is described as a large effect size.

The correlation coefficient (r) ranging from 0.10 to 0.29 may regarded as indicating a low degree of correlation, r ranging from 0.30 to 0.49 may considered as a moderate degree of correlation, and r ranging from 0.50 to 1.00 may be regarded as a high degree of correlation Cohen, (1988).

Table 4. 14: Correlations

		Market efficiency	clearing and settlement service	Transaction cost	Warehousing receipts financing	Trust	Electronic trading	Market information system
Market efficiency	Pearson Correlation	1	.768**	.914**	.302**	.900**	.376**	.458**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000
	N	270	270	270	270	270	270	270
clearing and settlement service	Pearson Correlation	.768**	1	.860**	.203**	.522**	.252**	.383**
	Sig. (2-tailed)	.000		.000	.001	.000	.000	.000
	N	270	270	270	270	270	270	270
Transaction cost	Pearson Correlation	.914**	.860**	1	.234**	.677**	.263**	.382**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000
	N	270	270	270	270	270	270	270
Warehousing receipts financing	Pearson Correlation	.302**	.203**	.234**	1	.295**	.474**	.374**
	Sig. (2-tailed)	.000	.001	.000		.000	.000	.000
	N	270	270	270	270	270	270	270
Trust	Pearson Correlation	.900**	.522**	.677**	.295**	1	.431**	.426**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000
	N	270	270	270	270	270	270	270
Electronic trading	Pearson Correlation	.376**	.252**	.263**	.474**	.431**	1	.441**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000
	N	270	270	270	270	270	270	270
Market information system	Pearson Correlation	.458**	.383**	.382**	.374**	.426**	.441**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	
	N	270	270	270	270	270	270	270

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

Source: field survey (2023)

The correlation between the independent variable and the dependent variables is displayed in Table 4.14. Market efficiency was the dependent variable measured by satisfaction, effectiveness, and influence of various variables, while clearing and settlement service, transaction cost, warehousing receipts system, trust, electronic trading, and market information system were the independent variables.

Based on the correlation coefficient indicated in table 4.14, clearing and settlement service has positive correlated with marketing efficiency ($r=0.768^{**}$). This implies the clearing and settlement service implemented well in the organization entails the increment of marketing efficiency at the Ethiopian commodity exchange vice versa.

According to the correlation results, transaction costs and market efficiency are positively correlated ($r=0.914^{**}$). This means that when the transaction cost increase the marketing efficiency increase vice versa. Therefore, the relation between transaction cost and marketing efficiency was strong.

Similarly, there is a significant link between market efficiency and warehousing receipts system ($r=0.302^{**}$). This suggests that market efficiency would rise due to the warehousing receipts, was provided by all market participants. On the other hand, the anticipated level of market efficiency won't be reached when the warehousing receipt system isn't taken into account in the commodity market.

Trust is the third factor that impacts market efficiency. According to the correlation result, trust and market efficiency are positively/strong correlated at a significant level of 0.01 ($r=0.900^{**}$). This suggests the market participants conduct their operations ethically to improve the commodity's marketing efficiency. Otherwise, engaging in trading activities without trust causes the market's efficiency to decline and increases the likelihood that the anticipated income won't be realized.

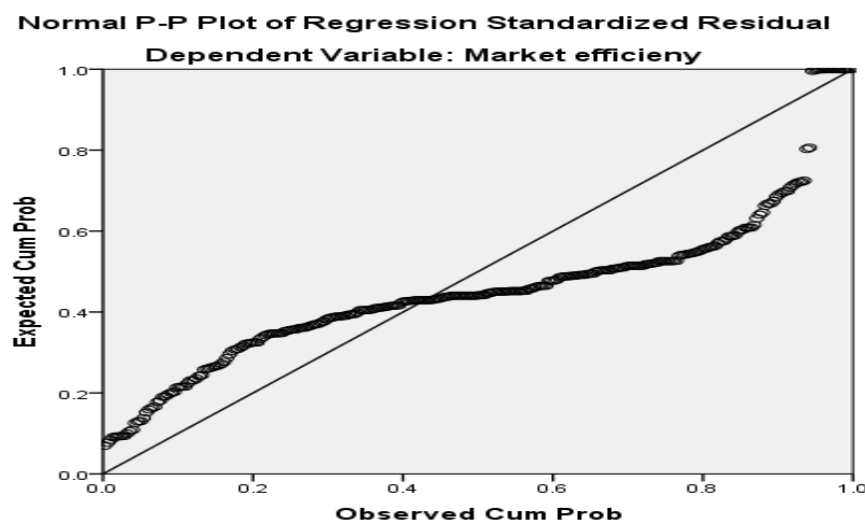
Electronic trading was the other factor in determining the commodity exchange's marketing effectiveness. In this context, the correlation coefficient result revealed that there is a substantial ($p < 0.01$) positive link between market efficiency and electronic trading ($r=0.376^{**}$). This suggests that encouraging online trade activity improves market efficiency over time. By providing clients with quick service as they require, it can save time, costs, and increase customer satisfaction.

The market information system is the final factor that affects how effectively commodities are marketed. In this regard, the results of the correlation showed a positive/strong correlation ($r=0.458^{**}$).between the marketing information system and marketing efficiency at a significant level of 0.01. This suggests that the market participants have access to the right information at the right time to consolidate the marketing efficiency of the Ethiopian commodity exchange.

4.3.2 Regression Analysis Assumption Test

Before applying regression analysis, the researcher tests its assumptions like normality, linearity, multicollinearity assumption and autocorrelation.

Normality test : in order to determine normality graphically, one can use the output of a normal P-P Plot. If the data are normally distributed, the data points will be close to the diagonal line. If the data points stray from the line in an obvious non-linear fashion, the data are not normally distributed. As shown in figure 4.4 the normal P-P plot below, the data is normally distributed.



Source: field survey (2023)

Figure 4. 4 : Normal P-P plots test

In addition to this, it is possible to determine the normality test using Skewness and Kurtosis as indicated in table 4.15.

Table 4. 15: Normality test of the Variables using Skewness and Kurtosis

	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
Market efficiency	270	-1.277	.148	2.390	.295
clearing and settlement service	270	-.628	.148	1.394	.295
Transaction cost	270	-1.049	.148	1.777	.295
Warehousing receipts system	270	-.142	.148	-.588	.295
Trust	270	-1.135	.148	1.228	.295
Electronic trading	270	-.681	.148	1.594	.295
Market information system	270	.524	.148	1.828	.295

Therefore, the absolute value of all variables was less than 2. Beside to this, it can conclude that the data is normally distributed.

Multicollinearity analysis test: The researcher has checked if multicollinearity problem exist or not before running the regression. Multicollinearity refers to the situation in which the independent/predictor variables are highly correlated. When independent variables are multicollinear, there is “overlap” or sharing of predictive power. Multicollinearity can be checked using the tolerance and variance inflation factors (VIF) which are the two Collinearity diagnostics factors Multi collinearity Test.

Table 4. 16: Multi collinearity Test

Model	Collinearity Statistics	
	Tolerance	VIF
clearing and settlement service	.245	4.083
Transaction cost	.185	5.402
Warehousing receipts system	.737	1.358
Trust	.445	2.247
Electronic trading	.636	1.573
Market information system	.682	1.466

Source: field survey (2023)

A. Dependent; Market efficiency

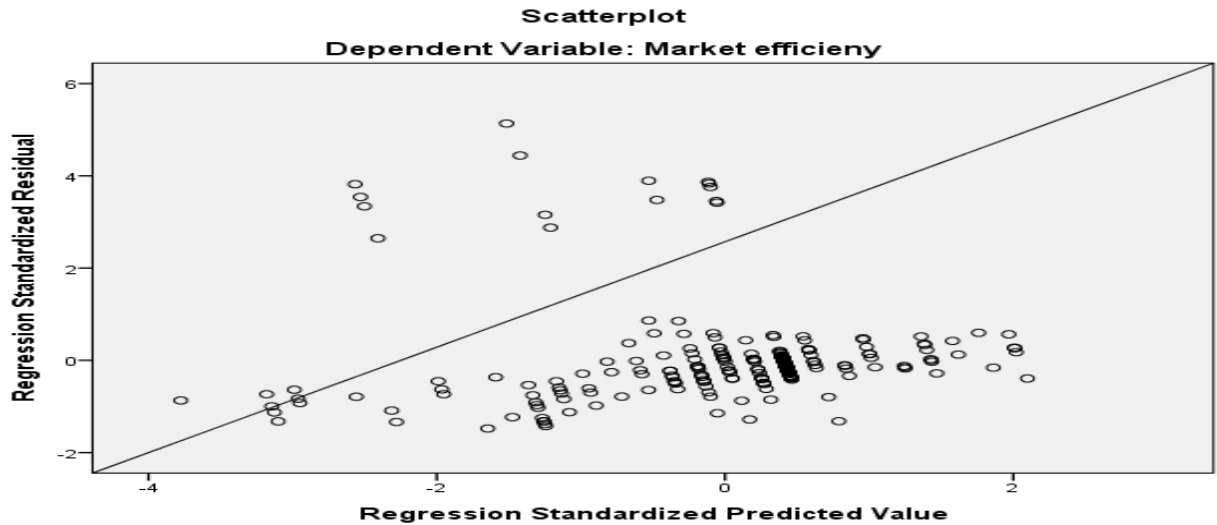
Tolerance is an indicator of how much of the variability of the specified independent variable is not explained by the other independent. If this value is very small (less than 0.10), it indicates that the multiple correlation with other variables is high, suggesting the possibility of multicollinearity.

Accordingly, the above table the tolerance value for all independent variables is greater than 0.1, which implies that there is no multicollinearity problem in connection with tolerance. Variance Inflation Factor (VIF) which calculates the influence of factor should not exceed 1-10, and should ideally be close to one. As per the above table for all independent variables VIF value is less than 10, which implies there is no multicollinearity problem.

Scatter plot analysis test;

Scatter plot analysis test; scatter plot graphs the actual values the data against the values predicted by the model. The scatter plot displays the actual values along the X axis, and displays the predicted values along the Y-axis. It also displays a line that illustrates the perfect prediction, where the predicted value exactly matches the actual value.

The Figure 4.5 shows the patterns in scatter plots of dependent against the independent variables whether they have linear relation and the assumption have met. From the graph below, the straight line shows the expected linear relationship, and the points scattered around that line show how the actual data diverges from the expected. This analysis tells us at a glance how closely a set of results is correlated with a particular input, and how much variation there is from the ideal model.



Source: field survey (2023)

Figure 4.5: Linearity assumption

Autocorrelation: means the relationship between each value of errors in the equation. Or in the other hand, autocorrelation means the self-relationship of errors. In order to determine autocorrelation, Durbin-Watson test was used.

As shown the result of Durbin-Watson test in table 4.17, the value is 0.755. In order to know the autocorrelation of independent and dependent variables it is possible to understand the following assumptions.

Note: Durbin-Watson test = 2 → No autocorrelation

Durbin-Watson test > 2 → Negative autocorrelation

Durbin-Watson test < 2 → positive autocorrelation

Therefore, the result of Durbin-Watson test was 0.755. This indicates there is positive auto correlation among the independent and dependent variables because its value is less than 2.

4.4.3 Interpreter Analysis of Regression Results

Multiple linear regressions are an inferential statistics analysis technique which helps to know which variables is significant impact on market efficiency.

Generally, the model of data analysis technique was indicated as follows

$$Y_i = \beta_0 + \beta_1 \times X_1 + \beta_2 \times X_2 + \beta_3 \times X_3 + \beta_4 \times X_4 + \beta_5 \times X_5 + \beta_6 \times X_7 + E$$

Where Y is the dependent variable of market efficiency

X1, X2, X3, X4, X5 and X6 are the explanatory (independent) variables market information system, clearing and settlement service, warehousing receipts financing, transaction cost, electronic trading and trust.

β_0 is the intercept term- it gives the mean or average effect on Y of all the variables excluded from the equation, although its mechanical interpretation is the average value of Y when the stated independent variables are set equal to zero.

Whereas β_1 , β_2 , β_3 , β_4 , β_5 and β_6 refer to the coefficient of their respective independent variable which measures the changes in the mean value of Y, per unit change in their respective independent variables while E is the Error.

To determine which variables significant impact on the dependent variable or not, it is possible to consider the calculate p-value whether greater than or less than with standard values i.e 0.05/0.01 significant level.

Based on the above assumption, the result of linear regression briefly discussed as follows.

Table 4. 17: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.991a	.982	.982	.08249	.755

a. Predictors: (Constant), Market information system, clearing and settlement service, Warehousing receipts, Transaction cost, Electronic trading, Trust

b. Dependent Variable: Market efficiency

According to Table 4.17, the independent factors account for 98.2% of the variance in the dependent variable (adjusted R² is 98.2% with an estimated standard deviation of 0.08249). (Market efficiency). This shows that the independent variable in the model accounts for 98.2% of the variance in the dependent variable. It also shows that other variables not included in the

model can account for the remaining 2.8% of the variance, indicating the need for additional research to find the other factors that affect the level of market efficiency.

Table 4. 18: ANOVAa

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	100.241	6	16.707	2455.179	.000b
Residual	1.790	263	.007		
Total	102.030	269			

a. Dependent Variable: Market efficiency

b. Predictors: (Constant), Market information system, clearing and settlement service, Warehousing receipts , Transaction cost, Electronic trading, Trust

From table 4.18, F-ratio, which explains whether the results of regression model could have occurred by chance, the F value, is 2455.179 at 0.000 significant levels which show that the model is good as its value is less than 0.05.

Table 4. 19: Coefficients of determination

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.119	.039		3.062	.002
	clearing and settlement service	.046	.016	.046	2.794	.006
	Transaction cost	.469	.017	.514	27.066	.000
	Warehousing receipts	.013	.007	.018	1.904	.058
	Trust	.448	.011	.519	42.414	.000
	Electronic trading	-.014	.011	-.013	-1.279	.202
	Market information system	.022	.010	.022	2.180	.030

Source: field survey (2023)

The causal relation between the independent and dependent variables is displayed in Table 4.19. Market efficiency was the dependent variable, while the independent factors were the market information system, clearing and settlement service, warehousing receipts, transaction cost, electronic trading, and trust.

Consequently, using a standardized Beta Coefficient, it is possible to assess the effectiveness of each predictor (an independent factor impacting the dependent variable). The average change in the dependent variable brought on by a unit change in the independent variable is explained by the regression coefficient.

The more support an independent variable receives from its highest Beta coefficient value, the more crucial a role it plays in forecasting the dependent variable. The clearing and settlement service's p-value in this situation was 0.006. As the significant threshold of 0.01 is reached, this suggests that clearing and settlement have weak impact on market efficiency. This means clearing and settlement service increase by 0.046 then the market efficiency increase by this point. This study supports Sisay's (2019) conclusion that the clearing and settlement service has a major impact on the Ethiopian commodity exchange's marketing efficiency.

Due to the fact that its value is 0.000, the coefficient of determination in Table 4.19 demonstrated that transaction costs have a considerable positive impact on market efficiency at the significant level of 0.01. This suggests that if transaction costs rise, market efficiency will rise as well, and vice versa. Yordanos (2020) found that the transaction cost was at odds with the findings of the present investigation. This indicates that, in Yordano's opinion, transaction costs have no bearing on how effectively the commodity exchange markets its products.

Moreover, the trust p-value was 0.000, which is less than 0.01. Based on this, the study's findings showed that trust affects market efficiency significantly at the level of 0.05/0.01, which is considered to be a substantial level. This indicates that when commodity trust is effectively implemented, marketing effectiveness rises.

The marketing information system was the final independent variable. The coefficient determination resulting from this was 0.030, which is less than 0.05. Research shows that, at the substantial level of 0.01, market information systems had a considerable impact on market efficiency. This suggests that market participants' access to knowledge about the market will increase market efficiency in the commodity exchange in a long-term manner.

In this study, the significance level of warehouse receipts and electronic trading were 0.058 and 0.202 respectively i.e greater than 0.05. This indicates that the two variables haven't a significant effect on marketing efficient in the Ethiopian commodity exchange. The study obtained by Yordanos (2020) pointed out that a warehouse receipt hasn't a significant effect on the market efficiency of commodity. Therefore, this study was consistent with the present study.

The study found that, generally speaking, transaction cost had the greatest B-value, or 0.514. This demonstrates that the primary determinant of marketing efficiency was transaction cost.

4 .4.4 Hypothesis Testing and Interpretation of Results

Table 4. 20: Summary of the overall outcome of the Research Hypotheses

Hypothesis	Result	Reason
H1: Clearing and Settlement Services has a significant effect on the market	H1: accepted H0: Rejected	$\beta = 0.046, p < 0.05$
H2: transaction cost has a significant effect on the market efficiency of ECX	H1: accepted H0: Rejected	$\beta = 0.514, p < 0.05$
H3: Ware house Receipts financing has a significant effect on the market efficiency of ECX	H1: Rejected H0: accepted	$\beta = 0.018, p > 0.05$
H4: Trust has a significant effect on the market efficiency of ECX	H1: accepted H0: Rejected	$\beta = 0.519, p < 0.05$
H5: Electro trading has a significant effect on the market efficiency of ECX	H1: Rejected H0: accepted	$\beta = -0.013, p > 0.05$
H6: Market information system has a significant effect on the market efficiency of ECX	H1: accepted H0: Rejected	$\beta = 0.022, p < 0.05$

Source: survey result (2023)

CHAPTER FIVE

MAJOR FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

This chapter presents a summary of finding, conclusion, and recommendations. After conclusions are made from the major findings, possible recommendations forwarded based on the findings of the study. The study aimed to investigate the determinants of market efficiency of commodity exchange: evidence from Ethiopian commodity exchange. From 283 total sample size in the study, 270 respondents completed the questionnaires whereas with the seven respondents interview were conducted to attain detail information for the study.

5.1 Summary the Major of Findings

Based on the discussion section of the previous chapter, the study's main findings were briefly presented as follows.

One of the demographic factors included in the study was gender. As a result, the majority of respondents were male. The majority of the respondents ranged in age from 31 to 59. This suggests that the majority of the respondents were at an age where they could engage in trade activities responsibly. Most trade participants have degrees in their hands, which allow them to properly perform the commodity exchange in the proper manner. The majority of the respondents were intermediary traders when we looked at their membership types at the Ethiopian commodity market. The majority of the members were buyers who had been trading in the commodity for five years.

According to the findings about the effect of clearing and settlement services on the efficiency of the ECX market, the Ethiopian commodity exchange was guaranteed payment to seller. Similar to this, the clearing and settlement system had the necessary infrastructure to operate the commodity market efficiently. The study's results, however, showed that delivering prompt service, offering good service, and properly matching up buy and sell orders were the issues that hampered the market's efficiency at the Ethiopian commodity exchange.

The study's finding implied that information infrastructure had an impact on transaction cost in the context of the commodity trade. The ECX also helps to increase the efficiency of the commodities market's liquidity by offering costs that are lower than those of other participants in the commodity sector.

Regarding the effect of warehouse receipt system on the efficiency of the market, the finding revealed that the central depository created electronic warehouse receipts in a suitable manner and that these receipts were protected from risky losses like theft and fire. This demonstrates the successful efforts made by the Ethiopian commodity exchange to maintain warehouse receipt finance systems. Yet, the study's findings showed that the quality of ECX's warehouse receipts, their timely delivery, and their customers' happiness with the service were the main issues that hindered the efficiency of the commodities exchange.

Trust in the commodities exchange market was the other objective that this study tried to achieve. According to the findings from the respondents, the Ethiopian commodity exchange's market efficiency was hampered by member behaviors toward improper trading practices, a lack of oversight of market abuse and manipulative trading, discriminatory access to market information, and a lack of transparent and equitable rules and regulations governing participation in and access to markets.

The study's findings regarding the effect of electronic trading on the efficiency of the ECX market revealed that networked banks were close to the Ethiopian commodity exchange in order to conduct trading activities online. At the same time, conducting business or trading online was secure. A central depository kept a record of its depositors, created proper electronic warehouse receipts, and electronic trade was superior to floor trade.

Market information system was the final factor in determining marketing efficiency. Based on the data gathered from the respondents, it was deduced that ECX's implementation of the market information it offered was excellent. It was timely, relevant, and easy to understand and analyze. Similarly, market participants had easy access to information about the market that helped them conduct their commercial activities successfully, but they weren't satisfied with ECX's provision of this information and couldn't actually spread it to all market participants in real time.

5.2 Conclusions

One of the institutions that have executed many trade-related operations is the Ethiopian Commodity Exchange. The study's findings help the factors that determine market efficiency. The market information system, clearing and settlement service, warehousing receipts, transaction costs, electronic trading, and trust were all studied in this context. The clearing and settlement services, transaction costs, trust, and market information system were all identified based on the regression results. The impact of each of the aforementioned factors on the efficiency of the Ethiopian commodity exchange market was significant.

Finding out which factor most significantly influences the market efficiency in the Ethiopian Commodities Exchange was one of the study's goals, and the findings showed that transaction costs were the factor that had the most impact on market efficiency. Although less strongly than the transaction cost dimension, the other dimensions did have an impact on market efficiency. As the independent variables in this study had a positive and substantial link with market efficiency overall, this suggests that the independent variables may have had an impact on market efficiency.

The initial hypothesis for the study was that all six market efficiency factors will have a positive and significant influence on the overall market efficiency of the Ethiopian Commodities Exchange. The results of the investigation revealed that transaction cost is the main factor that has an impact on the Ethiopian Commodities Exchange's market efficiency. The efficiency of the Ethiopian commodities exchange market was unaffected by two independent variables. Electronic trading and warehouse receipt financing are among the factors; however neither has a large impact on the efficiency of the market at the Ethiopian commodity exchange. Eventually, the study came to the conclusion that the four variables had a considerable and favorable impact on the Ethiopian Commodities Exchange's market efficiency, supporting the hypotheses that had been made regarding them.

5.3 Recommendations

Based on the main problems encountered in the commodity exchange, the following points were forwarded to overcome those problems,

Recommendations for Ethiopian Commodity Exchange and Members

- ❖ According to the study's findings, the respondents answered that clearing and settlement service wasn't provided with a time manner. The Ethiopian Commodity Exchange attempts to satisfy its members by providing prompt service as a solution to the issue. The clearing settlement service was also not offering prompt service at the same time. The Ethiopian Commodity Exchange develops information technology to provide quick services in addition to well-organized service standards. The purchase and sell orders were not efficiently matched by the clearing mechanism. The ECX attempts to balance the service for the customer and seller equally without creating differences among the members in an effort to ease the problem.
- ❖ Also, the study found that information infrastructure had an impact on transaction costs. To tackle the networking issue that frequently came up during the distribution of marketing information, the ECX should interact with other supportive institutions like ethio-telecom.
- ❖ Also, the warehouse receipt that ECX gave wasn't of adequate quality. In order to improve the knowledge and abilities of the quality warehouse receipt specialists employed by the exchange, the government and members of the Ethiopian commodity exchange collaborate to find a solution. At the Ethiopian commodity exchange, time service for warehouse receipt has also not been well taken into account. The trade members and the Ethiopian commodity exchange to build information communication technology in order to solve the issue.
- ❖ The study found that one of the factors influencing the efficiency of the Ethiopian commodity market is trust. Market efficiency was hampered in this area by a lack of oversight of market misuse and manipulative trading. The government can address this by setting up effective monitoring and assessment procedures.
- ❖ Also, the ECX has issues with a lack of transparent and equitable rules and regulations governing market access and participation. By the collaboration of all market participants, the organization developed transparent and equitable rules and regulations to solve this issue.

A program to raise awareness will also be supported in order to improve ethical trading practices over time.

- ❖ Discriminatory access to commodities exchange market information has also been identified as a concern in the research area. By giving the ECX members pricing from other nations' commodity markets, you can help solve the issue by giving them comprehensive marketing information about the product's price, quality, and quantity.

Recommendation for Policy Makers

The analysis found that the primary impact of Ethiopian commodity exchange was transaction cost. The policy-makers can develop new strategies and policies to successfully balance the transaction costs between the member and the government. By learning from the experiences of other nations and taking the local circumstances into account, the policy may be developed in comprehensive policies through engaging producers, government bodies and private sectors. In the same way, to address the entire problem encounter in commodity exchange, the policy makers revise the monetary policies to reduce the inflation of the agriculture products and ensure stabile economic growth.

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Appendix I

SCHOOL OF COMMERCE

DEPARTMENT OF MARKETING MANAGEMENT

Questionnaire to be filled by Respondents

Dear Respondents;

The questionnaire is prepared by Masters of Marketing Management graduate student for the purpose of writing thesis on ‘determinants of market efficiency of commodity exchange: evidence from Ethiopian commodity exchange’. Your genuine and timely response is essential for the success of my study. I want to assure you that your privacy for responding to this questionnaire is completely kept confidential. I know that your time is valuable and I hope that you will take the time to complete the questionnaire. Please attempt to answer all the questions and click one in appropriate box that best suits your perspective for each statement.

Thank you in advance for your cooperation!!!

Sincerely yours,

Yalemget Ejigu

E-mail:

I. DEMOGRAPHIC INFORMATIONS

Choose the suitable answer and tick (✓) in the box given for each question.

1. Gender: Male Female
2. Age: 18-30 years 31-59 years 60 years and above
3. Education qualification: Primary Secondary Diploma
Degree Post-graduate others.....
4. Membership Type?
 1. Regular Trader 2. Intermediary Trader 3.Restricted Trader 4.Restricted Intermediary
5. How long have been trading as a member at ECX? _____
6. Are you buyer or seller at ECX? _____
7. What type of commodity you have traded? _____

II. DETERMINANTS OF MARKET EFFICIENCY OF COMMODITY EXCHANGE: EVIDENCE FROM ETHIOPIAN COMMODITY EXCHANGE

Please rate state your level of agreement for each given statement by tick (√) against corresponding lines.

Note: Strongly disagree (1), Disagree (2), Neutral (3), Agree (4) and strongly agree (5).

No	Item	Liker scale				
		1	2	3	4	5
Part I	Clearing and settlement system					
1	ECX assure payment to seller					
2	The clearing and settlement system is equipped with adequate infrastructure					
3	The ECX clearing and settlement system provides timely service.					
4	The ECX clearing system efficiently matches up buy and sell order					
Part II	Transaction cost					
5	ECX reduces transaction cost by offering cost by lower cost than participants in commodity sector					
6	Higher transaction cost affect ECX coffee market efficiency					
7	ECX transaction cost by information infrastructure					
8	ECX transaction cost helps the coffee market liquidity to be more efficient.					

Part III	warehouse Receipts					
9	Central depository create electronic warehouse receipt appropriately					
10	Central depository void or cancel electronic warehouse receipts					
11	The ECX warehouse receipt provides timely service.					
12	The ECX warehouse receipt is secured from risky casualties like theft and fire.					
13	The quality of the warehouse receipt provided by ECX is satisfactory					
Part IV	Trust					
14	Lack of monitor market abuse and manipulative trading					
15	Lack of clear and fair rules and regulation to governing access and participation in markets.					
16	Market behaviors of member toward improper trading practice.					
17	Discriminatory access to the market information					
Part V	Electro trading					
18	Electronic trade is better than floor trade					
19	Floor trade is better than electronic trade					
20	System failure for electronic trade are factors affecting the performance of ECX					
21	Deal entry errors are the factors for the performance of ECX					
22	Documentation failure are factors for the operation of ECX					

23	Online trading system will improve the performance of trading					
24	Doing trade or business online is safe					
25	Networked banks are close to ECX					
26	Central depository create electronic warehouse receipt appropriately					
27	Central depository reconcile records daily					
28	Central depository void or cancel electronic warehouse receipts					
29	Central depository maintain a register of depository					
Part VI	Market Information System					
30	I have access to market related information					
31	I quickly understand and interpret the information displayed by ECX.					
32	I am satisfied with the accuracy of market information provided by ECX					
33	I am satisfied with the accessibility of market information provided by ECX					
34	The market provided by ECX is disseminating in real time to all market players					
35	The market information provided by ECX is Relevant					
Part VII	Market Efficiency					
36	I am satisfied with the market efficiency of the Ethiopian commodity exchange					

37	ECX achieved its vision through dynamic and efficient market					
38	Clearing and settlement services influence the market efficiency of Ethiopian commodity exchange					
39	Transaction cost affect the market efficiency of Ethiopian commodity exchange					
40	Warehouse Receipts influence the market efficiency of Ethiopian commodity exchange					
41	Trust is the main factors of market efficiency of Ethiopian commodity exchange					
42	Electro trading improve the market efficiency of Ethiopian commodity exchange					
43	Market information system enhance market efficiency of Ethiopian commodity exchange					

Sources: Adapted from Kirubel (2019), Sisay (2019), Helina (2018) and Yordanos (2020) and modified to fit the context of the study. Some of the questions are self-developed.

Thank you in advance for your cooperation!!!

Appendix II

Interview Guiding Questions

1. What is your position?
2. Your experience in the Organization-----
3. Your educational background-----
4. In your opinions, how do you evaluate the influence of clearing and settlement services provided by the organization?
5. How the transaction cost is affected marketing efficiency in Ethiopian commodity exchange?
6. How does warehouse Receipts financing influence the market efficiency at ECX?
7. How does a trust influence the marketing efficiency of ECX?
8. In your view, how electronic trading affected the marketing efficiency of ECX? What problems encountered to enhance marketing efficiency of ECX?
9. How market information system is influences the market efficiency of ECX?
10. In your opinion, how to solve problems observed in the organization?

Thank you in advance for your cooperation!!!

አባሪ አንድ

የንግድ ስራ ትምህርት ቤት

የገበያ አስተዳደር የትምህርት ክፍል

ለኢትዮጵያ ምርት ገበያ አባላት የተዘጋጀ መጠየቅ

ውድ የኢትዮጵያ ምርት ገበያ አባላት

ውድ ምላሽ ሰጭዎች፡

ይህ መጠየቅ የተዘጋጀው በአዲስ አበባ ዩኒቨርሲቲ የንግድ ስራ ትምህርት ቤት በገበያ አስተዳደር የሁለተኛ ዲግሪ ሚሚያነት ጥናት ለማከናወን ነው። የጥናቱ ርዕስም 'በኢትዮጵያ ምርት ገበያ የገበያ ብቃት ላይ ያሉ ተግዳሮቶች' በሚል ዙሪያ ያጠነጠነ ነው። እርስዎ የሚሰጡት ታማኝ መረጃ ለዚህ ጥናት መሳካት ከፍተኛ አስተዋፅኦ አለው። በዚህ መጠየቅ ላይ ላረጋግጥልዎ የምፈልገው እርስዎ የሚሰጡት መረጃ ለዚህ ጥናት ብቻ የሚያገልግልና በሚስጥር የሚያዝ ይሆናል።

ስለሆነም ያለዎትን ጊዜ እንደምሻማ በማመን በቂ ጊዜ ወስደው መጠይቁን እንዲሞሉልኝ በአክብሮት እጠይቃለሁ።

በስተመጨረሻም ውድ ጊዜዎን ሰውተው ይህን መጠየቅ ለመሙላት ፍቃደኛ ስለሆኑ በቅድሚያ አመሰግናለሁ።

ከሰላምታ ጋር

ያለምጌጥ እጅጉ

1. የመረጃ ሰጭዎች አጠቃላይ መረጃ

ከዚህ በታች በተሰጠው መጠይቅ መሰረት ትክክለኛውን መልስ በመምረጥ የ (✓) ምልክት በማድረግ ያስቀምጡ፡፡

1. ያታ:-

A. ወንድ

B. ሴት

2. ዕድሜ:

A. ከ18-30 ዓመት

B. ከ31-59 ዓመት

C. 60 ዓመት እና ከዚያ በላይ

3. የትምህርት ደረጃ:

A. የመጀመሪያ ደረጃ

B. ሁለተኛ ደረጃ

C. ዲፕሎማ

D. ዲግሪ

E. ማስተርስ ሌላ.....

4. የኢትዮጵያ ምርት ገበያ አባልነት ዓይነት

A. ተገበያይ መደበኛ አባል

B. አገናኝ መደበኛ አባል

C. ውስን ተገበያይ አባል

D. ውስን አገናኝ አባል

5. በኢትዮጵያ ምርት ገበያ ውስጥ በንግድ አባልነት ምን ያህል ጊዜ ሆኖታል? _____

6. እርስዎ በኢትዮጵያ ምርት ገበያ ውስጥ ገዥ ወይስ ሻጭ ነዎት? _____

7. እርስዎ በምን አይነት የምርት ንግድ ላይ እየተሳተፉ ይገኛሉ? _____

ክፍል ሁለት:- የኢትዮጵያ ምርት ገበያ ብቃት ተግዳሮት ዙሪያ ላይ የተመለከቱ መጠይቆች

ከዚህ በታች በተቀመጡት መጠይቆች መሰረት ያለዎትን የስምምነት ደረጃ በተሰጠው ህዳግ የ (✓) ምልክት በማድረግ ያስቀምጡ፡፡

ማስታወሻ፡- በጣም አልስማማም(1)፣አልስማማም(2)፣ምላሽ የለኝም(3)፣እስማማለሁ(4) እና በጣም እስማማለሁ(5)

ተ.ቁ	መግለጫዎች	መስፈርት				
		1	2	3	4	5
ክፍል 1	የኢትዮጵያ ምርት ገበያ የምርት ርክክብ እና ክፍያ አገልግሎት በተመለከተ					
1	የኢትዮጵያ ምርት ገበያ ለሻጩ የክፍያ ዋስትና ይሰጣል፡፡					
2	የኢትዮጵያ ምርት ገበያ የምርት ርክክብ እና ክፍያ አገልግሎት በሰለጠነ የሰጪ ሐይል እና ቴክኖሎጂ የተሟላ ነው፡፡					
3	የኢትዮጵያ ምርት ገበያ የምርት ርክክብ እና ክፍያ አገልግሎት ሰአቱ ጠብቆ ይከናወናል፡፡					
4	የኢትዮጵያ ምርት ገበያ ያለው የምርት ርክክብ ሁኔታ ገዢ እና ሻጭ ቅደም ተከተል በብቃት ያገናኛሉ፡፡					
ክፍል 2	የግብይት ዋጋን የተመለከተ					
5	የኢትዮጵያ ምርት ገበያ ከምርት ገበያ ተሳታፊዎች ይበልጥ የግብይት ዋጋን ዝቅተኛ ዋጋ በሆነ መልኩ እየተተገበረ ይገኛል፡፡					
6	ከፍተኛ የግብይት ዋጋ የኢትዮጵያን የምርት ገበያ ብቃትን እየጎዳው ይገኛል፡፡					
7	የኢትዮጵያ የግብይት ዋጋ በመረጃ መሰረተ ልማት አማካኝነት ተግዳሮት እየገጠመው ነው፡፡					
8	የኢትዮጵያ የግብይት ዋጋ የገበያ ብቃት እንዲኖር እረድቷል፡፡					
ክፍል 3	የዕቃ መጋዘን ደረሰኝ ስርዓትን በተመለከተ					
9	ማእከላዊው ተቀማጭ ገንዘብ የኤሌክትሮኒክስ የመጋዘን ደረሰኝን በተገቢው መንገድ ይቆርጣል፡፡					
10	የማእከላዊው ማስቀመጫ በኤሌክትሮኒክስ ግብይት የተቆረጡትን የመጋዘን ደረሰኞች ይሰርዛል፡፡					
11	የኢትዮጵያ ምርት ገበያ የመጋዘን ደረሰኝን በሰዓቱ ይሰጣል፡፡					
12	በኢትዮጵያ ምርት ገበያ ያሉት የመጋዘን ደረሰኞች ከስርቆት እና እሳት ቃጠሎ ስጋቶች የተጠበቁ ናቸው፡፡					
ክፍል 4	ተግማኝነትን የተመለከተ					
13	ገበያውን አላግባብ መጠቀምና ማጭበርበርን መቆጣጠር አለመቻል የገበያን ብቃት እየጎዳው ይገኛል፡፡					
14	የገበያ ተደራሽነትን እና ተሳትፎን ለመቆጣጠር ግልጽ ፍትሃዊ ህግ እር ይጌብ ኣለመኖር ይገባል					
15	የአባላት የግብይት አመለካከት ችግር መኖር ትክክለኛ የገበያ ስርዓት እንዳይኖር አስችሏል፡፡					

16	አድሎዊ የገበያ መረጃ አቀራረብ መኖር የገበያ ብቃት ላይ ተግዳሮት ሁኗል።					
ክፍል5	የኤሌክትሮኒክ ንግድን የተመለከተ					
17	የኤሌክትሮኒክ ንግድ ሰዎች በአካል ተገኝተው ከሚያከናውኑት ንግድ የተሻለ ነው።					
18	ሰዎች በአካል ተገኝተው የሚያከናውኑት ንግድ ከኤሌክትሮኒክ ንግድ የተሻለ ነው።					
19	በኤሌክትሮኒክ ንግድ የሚታዩ የሲስተም ችግሮች የኢትዮጵያን ምርት ገበያ የመፈፀም አቅምን እየጎዳው ይገኛል።					
20	የውል ማስመለሻ ስህተቶች መኖር በኢትዮጵያ የምርት ገበያ አፈፃፀም ላይ ችግር እንዲፈጠር ምክንያት ሁኗል።					
21	የሰነድ መጥፋት በኢትዮጵያ ምርት ገበያ አፈፃፀም ላይ ችግር እየፈጠረ ይገኛል።					
22	የአላይን የንግድ ስርዓት የንግድ የመፈፀም አቅም እንዲሻሻል አስተዋፅኦ አድርጓል።					
23	የንግድ ጉዳይን በአላይን ማከናወን ደህንነት					
24	በኔትወርክ የተሳሰሩ ባንኮች ለኢትዮጵያ ምርት ገበያ					
25	የማዕከላዊ የገንዘብ ክምችት የአላይን መጋዘን ደረሰኝ በትክክል እንዲፈጠሩ አስችሏል።					
26	የማዕከላዊ የገንዘብ ክምችት በየቀኑ የሚሰበሰቡ ጉዳዮችን እየመዘገበ ይገኛል።					
27	የማዕከላዊ የገንዘብ ክምችት በኤሌክትሮኒክ መጋዘን የሚቀበላቸውን ነገሮች የማስወገድ ስራ እየሰራ					
28	የማዕከላዊ የገንዘብ ክምችት ተቀማጭ የሚሆኑ ነገሮችን በመመዝገብ ይጠብቃል።					
ክፍል	የገበያ መረጃ ስርዓትን የተመለከተ					
29	ገበያን የተመለከቱ መረጃዎች በደንብ የገኛሉ።					
30	በኢትዮጵያ ምርት ገበያ የሚሰራጨው የገበያ መረጃዎች በቀላሉ ተረድቼ መተንተን መገንዘብ					
31	በኢትዮጵያ ምርት ገበያ የሚሰራጨው የገበያ መረጃ ትክክል ነው ብለው ያምናሉ።					
32	በኢትዮጵያ ምርት ገበያ በሚያቀርበው የገበያ መረጃ					
33	በኢትዮጵያ ምርት ገበያ የሚሰራጨው የገበያ መረጃ በትክክለኛ ጊዜ ለሁሉም የገበያ ተዋናዮች ተደራሽ					
34	በኢትዮጵያ ምርት ገበያ የሚሰጡ የገበያ መረጃ አስፈላጊ ነው ብለው ያምናሉ።					
ክፍል	የገበያ ብቃት በተመለከተ					
35	በኢትዮጵያ ምርት ገበያ ብቃት ስትራቴጂና ዕቅድ					
36	የኢትዮጵያ ምርት ገበያ በዚህ ተለዋዋጭ እና የገበያ ብቃት ራዕዩን እያሳካ ይገኛል።					
37	የኢትዮጵያ ምርት ገበያ ያለው የምርት ርክክብ እና የክፍያ አገልግሎት ብቃት በርግጠኝነት የገበያ ብቃት ይጨምራል።					
38	የኢትዮጵያ ምርት ገበያ ያለው የግብይት ዋጋ በርግጠኝነት የገበያ ብቃት ይጨምራል።					

39	የኢትዮጵያ ምርት ገበያ ያለው የመጋዘን ደረሰኝ ፋይናንስ በርግጠኝነት የገበያ ብቃት ይጨምራል።					
40	የኢትዮጵያ ምርት ገበያ ያለው ታዳማኝነት በርግጠኝነት የገበያ ብቃት ይጨምራል።					
41	የኤሌክትሮኒክስ ንግድ በእርግጠኝነት የገበያ ብቃት					
42	የኢትዮጵያ ምርት ገበያ ያለው የገበያ መረጃን የመስጠት ብቃት በርግጠኝነት የገበያ ብቃት ይጨምራል					

ስለትብብርዎ በጣም አመሰግናለሁ!!!

አባሪ ሁለት

የቃለመጠይቅ ጥያቄዎች

1. እርስዎ ያሉበት የስራ ሃላፊነት.....
2. በተቋሙ ውስጥ ያለዎት የስራ ልምድ.....
3. እርስዎ ያለዎት የትምህርት ደረጃ.....
4. የኢትዮጵያ ምርት ገበያ ያለው የምርት ርክክብ እና የክፍያ አገልግሎት እንዴት ያዩታል?
5. በኢትዮጵያ ምርት ገበያ እየተተገበረ ያለውን የመገባባያ ዋጋ እንዴት ይገመግሙታል?
6. የመጋዘን ደረሰኝ ፋይናንሲንግ የኢትዮጵያን ምርት ገበያ ብቃትን እንዴት ተፅዕኖ ያሳድራል ብለው ያስባሉ?
7. ተዓማኝነት የኢትዮጵያ ምርት ገበያ ብቃት እንዴት ተፅዕኖ ያሳድራል ብለው ያስባሉ?
8. በእርስዎ እይታ የኢ.ሌ.ክትሮኒክስ ግብይት የኢትዮጵያን ምርት ገበያ ብቃትን እንዴት ይጨምራል ብለው ያስባሉ? የሚታዩ ችግሮችስ ምንድን ናቸው ብለው ያስባሉ?
9. የገበያ መረጃ ስርዓት የኢትዮጵያን ምርት ገበያ ብቃትን እንዴት ተፅዕኖ ያሳድራል ብለው ያስባሉ?
10. በእርስዎ እይታ የኢትዮጵያ ምርት ገበያን የገበያ ብቃትን ለመጨመር የሚታዩ መሰረታዊ ችግር ምንድን ናቸው ብለው ያስባሉ?
11. በአጠቃላይ በኢትዮጵያ ምርት ገበያ የግብይት ብቃት ላይ የሚታዩ ችግሮችን ለመፍታት ምን መሰራት አለበት ብለው ያስባሉ?

ስለትብብርዎ በጣም አመሰግናለሁ!!!