ADDIS ABABA UNIVERSITY

SCHOOL OF COMMERCE

DEPARTMENT OF MARKETING MANAGEMENT

MEASURING THE LEVEL OF EFFECIENCY: The case of ECX Electronic Trade Platform

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BY

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Declaration

I Firehiwot Giday, hereby declare that the thesis entitled — measuring the level of efficiency of electronic trade platform*: The case of ECX* submitted by me for the grant of Master's Degree in Marketing Management is my unique work and it has not been displayed for the grant of any other Degree, Recognition, Cooperation or any other comparative titles of any other college or institutions.

Signature _____

Name: Firehiwot Gidey

Date: June 2021

Statement of Certification

This is to certify that Firehiwot Gidey has carried out her thesis work on the topic entitled "measuring the level of efficiency of electronic trade platform*: The case of ECX"* is her original work and is suitable for submission for the award of Master's Degree in Marketing Management.

Signature:_____

` Advisor: Dr. Hailemariam Kebede

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Acronyms and Abbreviation

ADLI	Agricultural Development Lead Industrialization
ABU	Arbitration Tribunal Unite
ASE	Amman Stock Exchange
CBOT	Chicago Board of Trade
CMIU	Compliance Monitoring and Investigation Unit
DEU	Discipline and Enforcement Unit
ECX	Ethiopia Commodity Exchange
ECEA	Ethiopian commodity exchange Authority
ET	Electronic Trading
ETS	Electronic Trading System
ICT	Information and communication technologies
IM	Intermediary member
IVR	Interactive Voice Response
KACE	Kenyan Agricultural Commodity Exchange
LAN	Local Area Network
MCA	Member client agreement
MM	Mixed maize
MW	Mixed Wheat
RRU	Rules and Regulations Unit
SRO	Self-Regulatory Organ
SMS	Short Messaging Service
SW	Soft Wheat
TSE	Tunisian Stock Exchange
UCE	Uganda Commodity Exchange
UPS	Uninterrupted Power Supply
WAN	Wide Area Network
WM	White maize
WSS	Wollega Sesame

Abstract

The Ethiopian Commodity Exchange was established to improve Ethiopian agriculture and change the economy through a vital, efficient and clear marketing system. Properly applied and regulated, commodity exchanges can achieve overall country's economic and developmental goal and strengthen the negotiation power of participants. Hence the overall objective of this study is to *analyze measuring the level of efficiency of electronics trade platform at Ethiopia Commodity Exchange. And the variables that examined were reliability and accuracy of electronic trade system, perceived ease of use, perceived usefulness, compatibility, relative advantage and usage behavior. The researcher were used two source of data to collect information ,a survey questionnaire was prepared to collect a primary data, secondary data from internet, books and documents of the ECX and other sources were also used to enhance the primary data. The researcher distributed to 254 questionnaires. From the total questionnaires distributed, 210 were considered valid for analysis from Ethiopian commodity exchange members and client's selected through random sampling. And the data was analyzed through descriptive analysis, multiple linear regression model and correlation analysis by using of SPSS version 20.The findings show that the majority of the extents of Electronic trade Efficiency have a positive significant influence on commodity exchange. Therefore, study recommended that ECX should give more awareness about reliability and accuracy of market information, perceived ease of use, perceived useful ness, compatibility, relative advantage, and usage behavior.*

Key words: *Reliability and accuracy of market information system, Perceived ease of use, Perceived usefulness, Compatibility, Relative advantage, Usage behavior, ECX, ECX members.*

Chapter One

1. Introduction

1.1. Background of the study

Many commodity exchanges introduced in the 1990s in Asia and Latin America have proven to be sustainable, but in Africa, without western support, success has been more indefinable. Some of the factors to successful commodity exchanges include small market size, weak infrastructure, poor economic sector, lack of a government support, and government intervention to the market. Commodity exchanges were strictly restricted to developed countries, but with the introduction of technology many developing countries in Africa have been interested on establishing one, starting with Zambia and Zimbabwe and followed by Kenya and Uganda. Ethiopian Commodity Exchange started its operation in 2008.

The reason that Ethiopian Commodity Exchange was started to welfare and adopt the way Ethiopia was trading its most useful assets, its commodities (Gabre-Madhin 2006). Ethiopia needed a change from the standard of trading to better modernize trading and production for the sake of people. A primary function of an Exchange is matching buyers and sellers.

Contracts traded on commodity exchanges include futures, options and other products. Trading in these contracts began with floor trading, also called open outcry systems. In open outcry systems, traders bring together in a pit in the exchange and traded commodities by shouting their bids or offers and contracts to others in the pits aloud. There are two types of trading used by traders to trade their products at the exchange which is pit trading and electronic trading. Pit trading also known as floor trading is the trading of stocks or commodities manually in the exchange trading floor. It was the major type of trading until late 1990s. But the emerging of electronics trading of stock and commodities have certainly dropped the popularity of pit trading and currently most of traders are moving to electronic trading system (Gorham and Singh, 2009). The electronic trading platform is the first kind of trading platform launched by ECX enabling market players to participate directly in a trade they are licensed with wherever they are. Previously traders are required to come to the exchange to trade using the outcry system which requires the physical presence of the market player. As of ECX, (2015) Electronic trading allows the market at large by providing online

access to the market where members and their respective clients where ever they locate, in particular, can submit orders and/or view status of their orders. This solves any misunderstanding related to execution of order.

According to the revised rule of the ECX the electronic trading platform is intended to increase access to ECX services, build capacity of different participant groups and increase efficiency. Apart from this it also helps to increase the exchange's reputation in using better technologies (ECX, 2015), but when I was working at Ethiopian commodity exchange I saw customers are complaining about the systems usage, technical and infrastructural problems. So this thesis tries to measuring the level of efficiency electronic trade in Ethiopia commodity exchange

1.2. Statement of the Problem

Know a day's most of the world trades are takes place in electronic system exchanges trades take place in electronic trading, Ethiopia Commodity Exchange (ECX) has started its trading with the introduction of open outcry trading with spot contracts that are contract of buying or selling a commodity traded for immediate payment and delivery on the spot date. The open outcry trading system at the headquarters limits the market growth of the exchange, and also limits the direct participation of members or client's located at the remote parts of the country. It is impossible to provide all trade sessions in one trading floor at ECX headquarters as more commodities are added. While more trading floors can be built, the more economical and justifiable option will be to provide electronic trading platform and allow trading from everyplace. Time flexibility to set longer trading session me helps to maximize the chance for better trading to the commodities is provided by the essential space and time limitation of the previous open outcry system of the Exchange (ECX, 2010). The exchange plans a mechanism to facilitate remote trading through electronic trading system, as stated in its rules (ECX, 2010-Article 5) these market actors can make important contribution to the trading volume and liquidity of the exchange. As members and clients in floor-based exchanging just like the one at ECX are confronting more physical strain, moderate arrange of section and execution, not being able to exchange in different items and exchanges simultaneously, not being able to immediate market information as charts and immediate news on same time, the time for electronic trade is practical. In addition, the

genuine proprietors of the commodities exchanged, known as clients are not having coordinate get to the advertise they don't have coordinate cooperation they are not moreover the choice producers with respect to cost and amount. Additionally expressed issues will be moving forward the prospects of electronic exchanging. The clients and members of the exchange have complained on the transparency and reliability of the electronic system. This kind of problems are significantly solved with the effectiveness and efficiency of electronic trading.

Also, different senior student researcher of Addis Ababa University School of Commerce studied on market efficiency of Ethiopian Commodity Exchange

According to Sisay Endeshaw (2019) developing good infrastructure like information technology electricity storage and logistics that support the exchange will make better market efficiency.

Ana Hussen (2018) states that Market information, Grading and Sampling risk management clearing and settlement price discovery has important and positive influence on the market efficiency of Ethiopian commodity exchange. However, the researcher couldn't find any research has been conducted on electronic trade efficiency of Ethiopia Commodity Exchange

In addition, the researcher selected ECX as a study place mainly for the reason that the researcher place of work and a good understanding of challenges and prospects of the study.

This research paper has attempted to focus about measuring the level of efficiency of electronic trade platform*: The case of ECX*; the researcher investigated about the issue of electronics trade efficiency at the head quarter of ECX.

1.3. Research question

- Main Research Question

What are the measurements of electronic trade platform efficiency of Ethiopia commodity exchange?

- Specific Research Questions
  - ❖ What are the benefits of electronic trade to the exchange in general and the members and clients in particular?
  - ❖ What are the technological and infrastructural challenges of implementing electronic trading at Ethiopia Commodity Exchange?
  - ❖ To what extent does the system is reliable and transparence?
  - ❖ How the system is easy to use to traders?
  - ❖ Does electronic trading system is improving the performance of trading?

1.4. Research Objectives

1.4.1. General Objective

The main objective of this study was to analyze measuring the level of efficiency of electronic trade platform*: The case of ECX*.

1.4.2 Specific objectives

1. To analyze the benefits of electronics trade to the exchange in general and members and clients in particular.
2. To analyze the technological and infrastructural challenges of electronic trading at Ethiopia Commodity Exchange
3. To analyze the reliability and transparency of electronic trading system.
4. To analyze the performance of electronic trading system for trading
5. To analyzes how the system is easy to use to traders

1.5. Significance of the Study

As of Kothari (2004) research has its basic in solving different problems that will change the business. Operational research and market research, along with motivational research, are considered vital and their result contributions, in more than one way, in taking business

decisions. Kothari added research will give knowledge about scientific and *reasoning* and it promote the development of logical habits of thinking and organization.

The ECX (2009) report that ECX start new commercial place established in April 2008 with a radical vision; to transform Ethiopia traditional business through a new market place that would serve all market actors in the commodity chain like farmer, trader processor, exporter and institutional buyer; the ECX value proposition was an orderly, transparent, reliable and efficient market, operating on zero default principle. This research helps to analyzing and interpreting the current operation of commodity exchanges. It also increases the lack of information all have about the performance of commodity exchanges and also policy makers, planners and Ethiopian commodity exchange to make better decisions regarding their service.

1.6. Scope of the Study

The study was delimited to ECX's intermediary and trading members here at Addis Ababa headquarters and clients of these members. The study focused on Efficiency of Electronic trading platform at ECX. The regional trade center was not covered in the research. The study was limited to electronic trade at ECX. , the research also used the quantitative approach and cross-sectional survey design. The study was limited to examining the issues of electronic trade from ECX member and clients' perspectives.

1.7.Limitations of the study

This study was not free from limitations. Limited number of previous researches works concerning commodity exchange in Ethiopia with efficiency of electronic trade contemporary issues in the reading shelves. And this study was not take all the population which is members of the ECX and clients. For the same reason both in sample and area coverage will limited on geographically location also restricted in Addis Ababa. As the research data collection period under consideration was February 2021 to April 2021, it is shortage of product, low trading season at ECX online trading and also due to COVID19 movement restriction and paper contact it was challenging to reach members and clients of ECX which hindered the collection of data.

1.8. Definition of terms

ECX is one of the agricultural exchange market place available in developing countries of Africa. Know a days, Ethiopia is following agricultural development policy which is Agricultural Development Lead Industrialization (ADLI). This government policy helps both farmers and private sectors to produce market-oriented commodities so as to have major contributor to economic growth and poverty in the long run (Paul I, 2011).

Electronics trading platform

An automated screen-based trading system of the exchange where traders make bids and offers, (ECX2014).

Electronic trade

A method of trading commodities executed on the exchange's trade platform (ECX2014)

Electronic trade representative

A member or an Authorized representative of a member who is allowed to access the exchange's Electronics trading platform for trading purpose (ECX2014)

Membership Seat

Membership seat is a buying seat that is also a permanent and transferable right to trade on the exchange members can be any individual or company, that full feels the membership requirements (Eleni et al.2005).

Open Outcry

A system of financial trading that of communicating on an exchange, commodity or futures exchange shouting bids and offers as well as hand signals to convey trading information in the trading pits (www.investopedia.com).

Client

Clients are an individual traded at the exchange on be behalf of a member or from whom the member accepts instructions to trade (www.ecx.com.et).

1.9. **Organization of the Paper**

The study is organized in to five main chapters. The first chapter contains the background of the study, statement of the problem, objectives of the study, the research questions, and the significance of the study, Limitation Scope of the study and organization of the paper are outlined. The second chapter discusses review literature of the study, third chapter concerned the research methodology. The fourth chapter discusses data analysis and finding. Finally, chapter five include the major issues raised in the study and provide summery, conclusion as well as recommendation.

CHAPTER TWO

2. Review of related literature

2.1. Theoretical Literature

2.1.1. Over View of Efficiency of Electronic trade and Commodity Exchange

A commodity market is a market place where that trades in farming rather than manufactured products.. Investors access about major commodity markets worldwide with purely financial transactions increasingly out numbering physical trades in which goods are delivered.

Different commodities and products are traded at the exchange the majority 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).

Commodity exchanges are more efficient platforms for buyers and sellers to connect; primarily to manage their price risks better, but also to improve the marketing of their physical products.

2.1.2. Evolution of Commodity Exchanges

The commodity exchange is a development of the fairs and open-air markets of the Middle Ages. The Chicago Board of Trade, established in 1848, it was the first commodity exchange in the United States and is the largest today.

Well Organized commodity exchanges have extended history. Grain traders in Japan began experimenting with the idea in 1730, and the Chicago Board of Trade (CBOT) and the London Metal Exchange successfully establish their exchange in 1864 and 1877, respectively. For more than a century, commodity exchanges continued largely limited to industrialized nations. However, with a decision by a country's government to allow foreigners to purchase shares in that country's stock market and increasingly affordable information technology since1990, commodity exchanges have expanded around the world. By 2005, non-OECD countries accounted for more than 50 percent of the agricultural futures

and options traded in the world and a majority of the world's functional commodity exchanges are located outside of the North America and Europe (UNCTAD, 2009).Other exchanges established in the 1990s include the Kenyan Agricultural Commodity Exchange(KACE) which no longer support actual trades but exist with western support and the Uganda Commodity Exchange (UCE) which does coordinate trades but not been able to attract sufficient trade volumes to be self-sustaining. Since 2004, more and more countries have been launching exchanges prominent ones include Malawi in 2004, Nigeria in 2006, the Ethiopian Commodity Exchange (ECX) established in 2008 and the new Zambian exchange, ZAMACE, established in 2007.

2.1.3. Commodities Traded in Ethiopia Commodity Exchange

Related to the agricultural nature of the nation in which it is found, the Ethiopia commodity exchange centers on agricultural products. The commodities traded at the Ethiopia commodity exchange are as takes after: Coffee: Ethiopia is the birthplace of coffee, it is entirely suitable that coffee is, traded as a commodity on ECX. In fact, coffee contracts are available at ECX, each having its own particular contract code/, delivery point and contract specification. Numerous of these contracts are, directly related to the territorial diversities that have created over the centuries comprising Ethiopia's history of coffee development: major varieties include Harare, Jimma, Sidama and Yirgacheffe.Corn (Maize): corn, also known as maize, is one of the world's primary agricultural commodities, and its significance within the Horn of Africa is expanding as populace development puts weight on conventional crops. Two corn contracts are traded on MCX: Mixed Maize (contract code: MM) and White Maize (contract code: WM).Haricot Beans: haricot bean contracts on the Ethiopian Commodity Exchange are, split into two main types, Red Kidney Beans and White Pea Beans: Red Kidney Beans: the two contracts available are Processed Red Kidney Beans(contract code: PRKB) and Unprocessed Red Kidney Beans (contract code: URKB).White Pea Beans: again, two contracts are available – Processed White Pea Beans(contract code: PWPB) and Unprocessed White Pea Beans (contract code: UWPB).Sesame: as with coffee, it is likely that Ethiopia is the place where Sesame was first cultivated. This product is still vital to the region's economy, and so contracts for three assortments are advertised on ECX: Gondar (contract code: GSS), Humera (contract code:

HSS) and Wollega (contract code: WSS). Wheat: like maize, wheat is a key foodstuff in Ethiopia and surrounding countries. Three assortments are exchanged on the Ethiopia Product Trade: Hard Wheat (contract code: HW), Soft Wheat (contract code: SW) and Mixed Wheat (contract code: MW) (http://www.ecx.com.et/)

2.1.4. Operation of ECX

Warehouse: - ‘’Ethiopia Commodity Exchange offers a coordinate’s stockroom framework from the receipt of commodities based on industry acknowledged grades and benchmarks for each exchanged product by sort to the extreme conveyance. Commodities are, stored in stockrooms worked by ECX in major excess districts of the nation. At the ECX stockroom, commodities are tested, weighed and reviewed utilizing state-of-the-art innovation reviewing and weighing hardware. ECX warehouses issue an Electronic Goods Received Note and provide the depositor or his/her representative with a signed print copy. The Electronic Goods Received Notes are not negotiable, transferable or represent legal title to the deposited commodity. The depositor has to get Electronic Warehouse Receipt issued by the ECX Central Depository in order to establish legal title to the deposited commodity. The Deposited commodities are stored using global standards of inventory management, which rely on First-In-First-Out principles, rotation, and careful environmental control. ECX Inventory Management system guarantees the quality and quantity of the commodity throughout the pre-determined period of storage. Further, ECX distribution centers are, guarantor at greatest scope to ensure against misfortune and harm of stores. ECX have 21 stockrooms within the nation’’ (http://www.ecx.com.et/)

ECX warehouses provide the following services:

- Sampling, Grading, weighing and certifying of the grain and coffee coming to each warehouse using equipment provided by ECX according to ECX established standards
- Weighing, receiving and issuing Electronic Goods Received Note which matches ECX automated system

- Recording system for incoming and outgoing grain and daily stock position reports Proper handling of the commodity at the warehouse (store layout stacking, bin no, inventory management)
- Reporting system and formats for up-to-date information exchange between ECX and the area warehouses
- Maintain the quality of received products.

Central depository: - ECX maintains a Central Depository or Registry of warehouse receipts, which guarantee product integrity. The Electronic Goods Received Note issued at an ECX warehouse is a precondition for issuance of Electronic Warehouse Receipt by the ECX Central Depository. The ECX Central Depository is the sole substance authorized to and mindful for issuing Electronic Warehouse Receipts, printing copies of receipts, transferring legal title, and canceling receipts. The Electronic Warehouse Receipt issued by the ECX Central Depository represents legal title to the deposited commodity. The Electronic Warehouse Receipt is transferable and negotiable on ECX through the function of the ECX Central Depository. The Central Depository keeps up partitioned accounts for each depositor. ECX is as of now working towards presenting the use of Electronic Warehouse Receipts for the purposes of securing collateral finance or also known as inventory financing in the lose future.

The Exchange Central Depository provides the following services. (http://www.ecx.com.et/)

- Create Electronic Warehouse Receipts;
- Maintain and alter required electronic warehouse receipt data;
- Maintain a register of Depositors;
- Effect settlement of contracts traded on the Exchange by transferring Electronic Warehouse Receipts between holders
- Issue Delivery Notices after transfer of Electronic Warehouse Receipt;
- Void or cancel Electronic Warehouse Receipts;
- Reconcile records daily

Trading: - The Ethiopia Commodity Exchange (ECX) could be a spot trade set up in Addis Ababa, Ethiopia. More than 200 diverse spot contracts are, traded by the ECX members or

their authorized representatives through, open outcry trading system but now it is, replaced by electronics trading. (http://www.ecx.com.et/).

The Trading Floor: - The trading floor is a physical area where open outcry trading takes place. Working amid standard commerce hours, the ECX exchanging floor holds different sessions for executing distinctive product contracts. (http://www.ecx.com.et/)Trades are, made in the pits by bidding or offering a price and quantity of contracts, depending on the intention to buy (bid) or sell (offer).

Trading system: - Transaction orders for sales and purchases in standard lot sizes of standardized commodity grades (referred to as contracts) are, recorded on Order Tickets. The ECX automated back-office system ensures the existence and validity of the Warehouse Receipt backing the sale, the availability of buyer funds in a deposit account, and where applicable the validity of the Member-Client agreement. This automated reconciliation takes just minutes and is key to giving all market players confidence in the market. (http://www.ecx.com.et/).

Market Data: - The ECX Market Data strategy involves required the power of modern information and communication technologies (ICTs) to empower all market actors, including smallholder farmers to access markets more efficiently and profitably. The key advertise dispersal channels at ECX are rural based Market Information Tickers, mobile phone Short Messaging Service (SMS), Interactive Voice Response (IVR) service, Mass media (TV, Radio, and Newspaper) and Website. (http://www.ecx.com.et/) ECX collects, processes, updates and disseminates market information in real-time to all market actors and other market intermediaries through the MIS. Market information includes prices of commodities in different markets, and commodity offers to sell and bids to buy, as well as short extension messages. The application of ICTs is taking the market to the doorstep or farm-gate of the farmer, product merchants, processors, exporters and merchants.

The components of the ECX MIS are:

- Electronic Tickers
- Mobile Phone Short Messaging Service (SMS)
- Interactive Voice Response (IVR) service

- Bulletins – Market Commentary
- Mass media (radio, TV, print)
- Information Center

Market Information System

Market Information System is a very important part of any commodity exchange. Providing appropriate market information has dominant role to sustain increased production and improve the livelihood of smallholder farmers. Hence, having integrated marketing information system in a particular country plays decisive role in enhancing the performance of commodity exchange (Babcock, 1999).

According to Gebremedhin and Goggin (2005) the center include of an exchange, is to move forward market transparency through producing and dispersing information. Through it's possess working, the exchange makes advertise data around the fundamental supply and request conditions within the economy. Thus, opposing to popular perception, commodity exchange does not require an external market information system as a pre-requisite to its proper functioning.

A market information system may be advantage that incorporates the collection on ordinary introduce of data on costs 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 various media to farmers, traders, government officials, policy-makers and others including consumers.

Market information helps potential buyers and sellers to make market decisions and gives them the affirmation that the market is transparent and can handle their market needs. Once the advertise is built up, market information is disseminated by word of mouth, as market user's travel to and from the market to other locations. As the market evolves, market information is also often carried by newspapers that are distributed within the market catchment area; today such information can also be disseminated by radio, TV, telephone links and via the web (Ibid).

Compliance: - The Compliance Division is mindful for defining and upholding the Rules of the Trade and all other important laws influencing the operation of the Trade. To achieve this

broad objective, the Rules of the Trade build up four partitioned units with particular orders. These are: (1) Rules and Regulations; (2) Compliance Monitoring and Investigation; (3) Discipline and Enforcement; and (4) Arbitration Tribunal. The Compliance Division moreover serves the official contact with all neighborhood and worldwide administrative bodies and gives by and large legitimate direct to divisions of the Trade on the right and sound operation of the Trade. (http://www.ecx.com.et/).

Authority Recognition:-The powers and duties of the ECEA expand to acknowledgment and oversight of Trade. Actors (Members and their representatives), recognition and oversight of clearing Institutions (domestic banks or other financial institutions engaged in clearing and settlement of payments). Over sight of the Rules of the Exchange and regulation of Exchange-traded contracts, as well as regulation of the conduct of investment advisors, consulting companies, law practices, accounting and audit professionals, as this conduct relates to ECX business. In expansion, the ECEA has the control to explore wrongdoing and arbitrate cases falling beneath its locale or to allude criminal cases to the suitable court. (http://www.ecx.com.et/)

Being a client: - A Client can be, symbolized through an Intermediary Member (IM) or ordinary Member. A client of an IM has opportunity to purchase and offer all of commodities advertised by the exchange. (http://www.ecx.com.et/).

2.1.5. Six Elements for a successful exchange

There are six fundamental elements required for a successful exchange (Gabre-Madhin 2006):

A trading platform: An exchange needs a framework to coordinate different offers to offer and offers to purchase, whether this is often a framework where buyers and venders are physically show or an electronic framework where exchanging is done remotely. The trading platform must be effective, strong, not as well costly, and fit with clients‟ needs. With propels in data innovation, conventional open objection exchanging is giving way to electronic exchanging. Be that as it may, with or without innovation, each trade needs a exchanging framework that proficiently matches offers and offers.

Brokers: Brokers are imperative portion of an exchange. Brokers, who are formally licensed and insured, act as marketing agents, enabling a wide population of buyer and seller clients to participate in the exchange. The keenness of the brokers on the trade is center to the keenness of the trade itself. With an exchange, the business of brokers redefined from information provision to enabling the process of matching buyers and sellers.

Contract: The exchange as to offer contracts that are product and grade particular, with standard specifications for grade, lot size, delivery, payment, measurement, and dispute resolution, among others. By advertising standardized contracts, the exchange makes it less demanding, cheaper, and less unsafe for obscure accomplices to exchange with each other. However, the contracts need to be ones that the target clients need or are looking for and they need to be well, designed to reflect actual trading practices. For example, a maize contract with a lot size of 1000 tons would be difficult to implement under current conditions in Ethiopia, while a lot size of 5 tons (the equivalent of an Isuzu truck) will draw in many players.

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

Product integrity: Unlike a stock exchange, a commodity exchange includes the exchange of possession of a physical agricultural that must be graded, weighed, stored, handled, and ultimately delivered from one location to another. This greatly increases the complexity of a commodity exchange. Exchange viability depends on whether it trades products of integrity. With grades that are well understood and unadulterated, and guarantees that the sample truly represents the entire lot, that what is in the warehouse is actually there in the quality, quantity, and condition in which it was deposited, and that it will be delivered in that

condition at the completion of the trading transaction. For this to happen, the Exchange must work very closely with warehouse operators, insurers, and transporters.

2.2. Trading System of Commodity Exchanges

A movement towards electronic trading has taken place in recent years. This was drives by technological advances and by the advantages in speed, cost, transparency and functionality that such trade typically offers over the established "open outcry" form of trading, which brings traders together on a trading floor. And in addition, Computer innovation has the potential to extend the productivity, straightforwardness, and liquidity of the product markets by expanding the speed of exchanges and bringing down exchange costs. Electronic trading typically brings a number of other potential points of interest. These incorporate restricting enlightening asymmetries between exchanging interface, permitting possibly longer exchanging hours, and expanding get to markets in any case of one topographical area (Thomas, 2008). It was also explained by Gbremedhin et al (2005) that exchanging on a product trade is like a persistent two-way sell off, in which offers to purchase are going on at the same time with offers to offer. This is possible because the graded product needs no description with a standardized contract and because there is sufficient volume of both buy and sell orders.

2.2.1. Electronic Trading (ET)

Electronic Trading (ET) includes a wide assortment of frameworks, extending from basic arrange transmission administrations to completely fledged exchange execution offices. According to Heuvlman et al. (2001) ET system is a facility that delivers some or all of the following services: electronic order routing (the delivery of orders from users to the execution system), automated trade execution (the transformation of orders into trades), and electronic dissemination of pre-trade (bid/offer quotes and depth) and post trade information (transaction price and volume data). These systems can influence the market's structure and its flow.

Innovation plays three primary parts within the future exchanging 1) providing general information such as price, volume and news, 2) routing orders and 3) matching orders .The extent of the automation generally falls between two extremes: the first would be where pit

traders obtain only electronics news but trade is open outcry, while in the other, the physical trading pit completely eliminated and ordered are entered and matched via a computer network (Tsang1999).

Commodity exchange will be built organizations from the point of grading, certifying quality, trading, issuing warehouse receipts, providing accurate market information to all actors, ensuring payment and delivery and enforcing contracts.

2.2.2. Electronic trade efficiency

The concept of efficiency has been utilized totally different points of view. It has been utilized from consumer's viewpoint, producers' viewpoint, advertise point of view and financial point of view. (Mas-Colellet"al, 1995) stated that the issue of efficiency captured a great deal of the focus of welfare economics. This may for the most part show what is implied by effectiveness when it is utilized in either of the points of view. It can moreover be deducted that effectiveness has something to do with welfare improvement. The use of efficiency in consumers' and producer's perspective refers to maximization of consumer and producer surpluses as a measure of welfare gain by the two economic agents.

2.2.3. Factors that Affect Electronic trade Efficiency

There are diverse variables that influence electronic trade proficiency. The ECX is a national multi -commodity exchange with the aim of providing market integrity, by guaranteeing the product regulation. It will manage a system of daily clearing and settling of contracts. It will enhance market efficiency by operating a trading system where buyers and sellers use standardized contracts. Market transparency will be achieved by disseminating market information in real time to all market players.

2.2.4. Models

Individual reaction to information technology or system have been conducted from a variety of theoretical perspective includes Technology Acceptance Model (TAM) and Theory of Planned Behavior (TPB)

A) **THEORY OF PLANNED BEHAVIOR (TPB):**

Theory of Planned Behavior (TPB) (Azjen, 1985, 1991)) "is an extension of the theory of reasoned action (Azjen and Fishbein, 1980), made necessary by the latter model's inability to deal with behaviors over which individuals have incomplete volitional control". According to TPB, an individual's execution of a certain behavior is decided by his or her aim to perform that behavior (see Figure1). For TPB, state of mind towards the target behavior, subjective standards around locks in within the behavior, and seen behavior control are thought to impact purposeful and web acquiring behavior. An attitude toward a behavior could be a positive or negative assessment of performing that behavior. As a general theory, TPB does not specify the particular beliefs that are associated with any particular behavior, so determining those beliefs is left to the researcher's preference. TPB gives a strong hypothetical premise for testing such a preface, in conjunction with a system for testing whether states of mind are in fact related to aim to lock in in a specific behavior, which itself ought to be related to the real behavior. Based on the hypothesis, convictions around how imperative referent others feel almost Web acquiring the view of vital others, ought to moreover impact aim to form Web buys. At long last, seen behavioral control is educated by convictions approximately the individual's ownership of the openings and resources required to lock in within the behavior (Azjen, 1991)

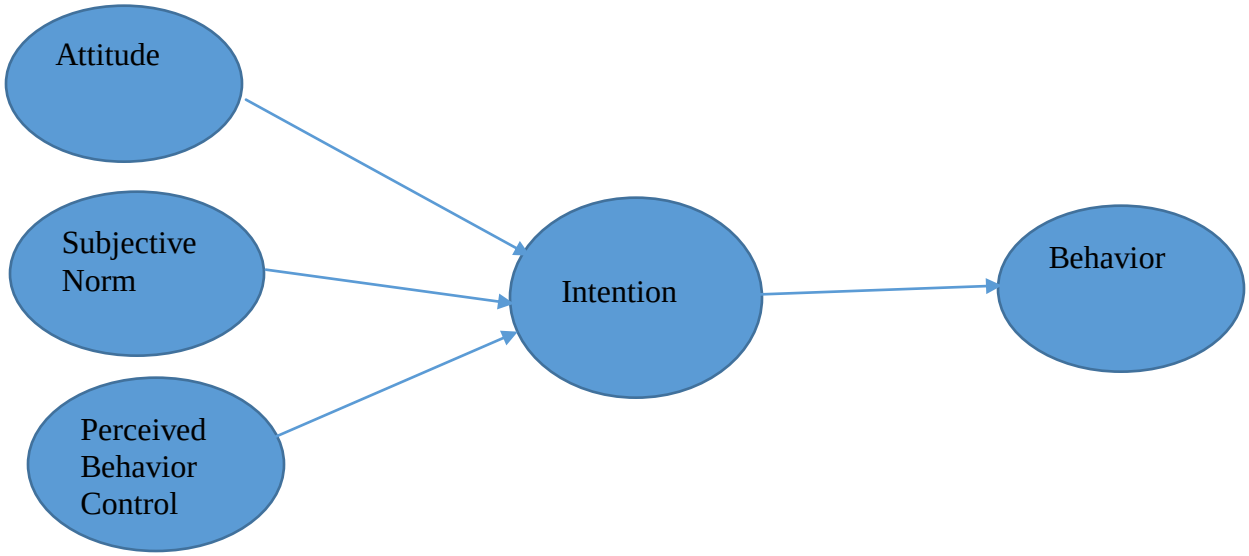

Figure 1: Theory of Planned Behavior (TPB)

Source: Azjen(1991)

- **ATTITUDE AND INTENTION/ BEHAVIOR:**

Attitudes are educated by beliefs required to lock in within the behavior (Azjen, 1991), it is characterized as individual's positive or negative feeling related with performing a particular behavior. A person will hold a favorable state of mind toward a given behavior in the event that he/she accepts that the execution of the behavior will lead to generally positive results.

- **SUBJECTIVE NORMS AND INTENTION:**

Subjective standard is the seen social weight to lock in or not to lock in in a behavior. It is accepted that subjective standard is decided by the full set of open standardizing conviction concerning the desires of vital referents (Ajzen, 1991). Chai and Pavlou (2002) found subjective standards to be altogether related to purposeful in both nations US and Greece. In any case, subjective standard was not related to web acquiring (George, 2002).

- **PERCEIVED BEHAVIOR CONTROL AND INTENTION/BEHAVIOR:**

Perceived behavioral control refers to people's perceptions of their capacity to perform a given behavior. Azjen compares perceived behavioral control to Bandura's concept of perceived self-efficacy (Bandura, 1997). TPB moreover incorporates a coordinate interface between seen behavioral control and behavioral accomplishment. Drawing an analogy to the expectancy- value model of attitude, it is accepted that perceived behavioral control is decided by the full set of available control conviction, i.e., beliefs around the nearness of components which will encourage or obstruct execution of the behavior. To the degree that it is a precise reflection that perceived behavioral control can, alongside deliberate, be utilized to anticipate behavior. Past ponders have found conflicting discoveries as respects to the relationship of seen behavior control and purposeful (Chai and Pavlou, 2004). In most event perceived behavior control isn't a noteworthy indicator of purposeful or behavior

B) TECHNOLOGY ACCEPTANCE MODEL:

Technology acceptance model (Davies 1989) or TAM as it is commonly known, was adapted from the theory of reasoned action. TAM is also defined as user behavior towards innovation. In TAM, Davis (1989) proposes that the impact of outside factors on deliberate is interceded by perceived ease of use (PEU) and perceived usefulness (PU). TAM too recommends that purposeful is specifically related to real usage behavior (Davis, Bagozzi & Warshaw, 1989).

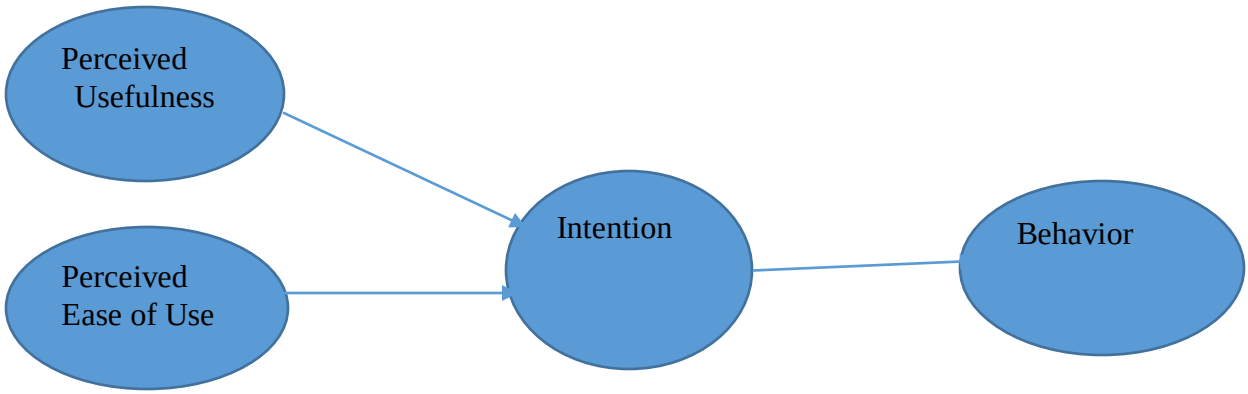

Figure 2: Technology Acceptance Model

Source: Davis (1989)

- **PERCEIVED USEFULNESS AND INTENTION:**

Perceived usefulness is characterized as the degree to which individual accepts that employing a specific system will upgrade his or her work execution. The extreme reason individuals abuse web acquiring is that they discover the frameworks valuable to their keeping money exchanges.

- **PERCEIVED EASE OF USE AND INTENTION:**

Research over the past decade gives prove of the significant impact of seen ease of utilize on utilization purposeful, either directly or by implication through its impact on perceived usefulness (Agarwal and Prasad, 1999; Davis et al., 1989; Jackson et al., 2004; Venkatesh, 1999, 2000; Venkatesh and Davis, 1996, 2000; Venkatesh and Morris, 2000). In arrange to anticipate the "under-used" valuable framework issue, Web acquiring ought to be both simple to memorize and simple to utilize. This suggests that perceived ease of use is anticipated to have a positive impact on client purposeful on web obtaining.

- **INTENTION AND BEHAVIOR:**

Theory of planned behavior (TPB) and Technology acceptance model (TAM) both recommend that a person's behavior is decided by his/her purposeful to perform the behavior which this deliberate is, in turn, a work of his/her attitude toward the behavior and his/her subjective standard. The finest indicator of behavior is deliberate.

2.3. Empirical Literature Review

Lau, Yen, and Chau (2001) studied the adoption of online trading by investors in the Hong Kong Financial market. Common sense of changing in to a new system can be seen from diverse points of view, specialized operational, monetary and social/ organizational. Lau et al. (2001) used a research model based on the decomposed version theory of planned behavior, to study the factors that affect investor's adoption of on-line trading. They used correlation analysis to perform and examine whether the hypothesized traits, factors and conviction structures are related with each other. The result of their examination shows that with respect to the hypothesized demonstrate, there was a solid factual greatness that seen value, seen ease of utilize and compatibility essentially influences the demeanor to words utilizing the proposed framework, inferring that financial specialists will have positive sentiments for utilizing online exchanging on the off chance that it can upgrade their proficiency and viability of setting orders. They concluded that electronic exchanging is likely to move forward the method of setting orders, give an electronic review trial for each exchange, and there can be exchanging around the clock.

According to the consider made by Alemu et al (2010) limited accessibility of universal market information in terms of costs and generation levels, which is reflected in destitute linkage / transmission of cost patterns with the national advertise, is anticipated to be another challenge altogether influencing the competitiveness of the Ethiopian sesame within the international market and this is often anticipated to make demoralization for sesame exporters to lock in within the sesame advertise through ECX. According Robin Thomas (2008) Electronic trading leads to reduced price movement, then it would lead to lower volatility and hence lower risk in the market. In addition, Celeste Aida (2010) found that Internet and telecommunications in the ECX are still quite deficient (sometimes non-existent) to disseminate information to the participants.

Naidu and Rozeff (1994) in their study on Singapore Stock Exchange they discover out diminished auto correlations of returns, which leads them to conclude that showcase effectiveness moves forward after computerization.

Maghyereh & Omet (2005) examine the efficiency of the Jordanian capital market around the date of its computerization. Based on a multi-factor show with time shifting coefficients and the GARCH-M demonstrate, comes about appear that the move to the electronic exchanging framework has effect on the estimating proficiency of the Jordanian capital market.

Iskandrani and Haddad (2012) tested the impact of applying the Electronic Trading System (ETS) which implemented, on market liquidity, and stock prices behavior in Amman Stock Exchange (ASE) before and after its implementation on March, 2000.

Omuchesi, Bosire, and Muiru (2014) investigate the effect of the automation on market efficiency of the Nairobi Securities Exchange (NSE) using monthly market returns from the closing NSE 20-Share index from2002 to 2012. Two study periods were considered pre-automation period (January 2002 to June 2006) and post-automation period (July 2008 to December 2012). The results demonstrate that the introduction of the ATS has no measurably noteworthy impact on market efficiency at the Nairobi Securities Exchange.

Celeste Aida (2010) found that Internet and telecommunications in the ECX are still quite deficient (sometimes non- existent) to disseminate information to the participants.

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

2.4. Conceptual Framework

Building on the going before writing and borrowing thoughts and ideas from Lau, Yen, and Chau, (2001), on adoption of online trading in commodity exchanges; Gebremedhin (2006), on floor-based trading and UNTCAD report (2009) on commodity exchanges, the researchers constructed a model to achieve the objectives of the study. According to Gebremedhin (2006), fundamental components to set up fruitful commodity exchange incorporates having an efficient and strong exchanging stage and practical direction and requirement. A comparative consider by UNCTAD (2009) on commodity exchanges moreover strain the wide run of advancement impacts trades may have on creating nations in terms of cost revelation, chance administration, advancement of product markets and back, advertise internationalization and utilize of IT administrations pushing on cost revelation. Lau et al. (2001) considered the social/organizational viewpoint to distinguish the components that influence investors' appropriation of online exchanging. They recognized that the choice to utilize the online exchanging framework is impacted by the seen convenience, relative advantage, seen ease of utilize, and compatibility

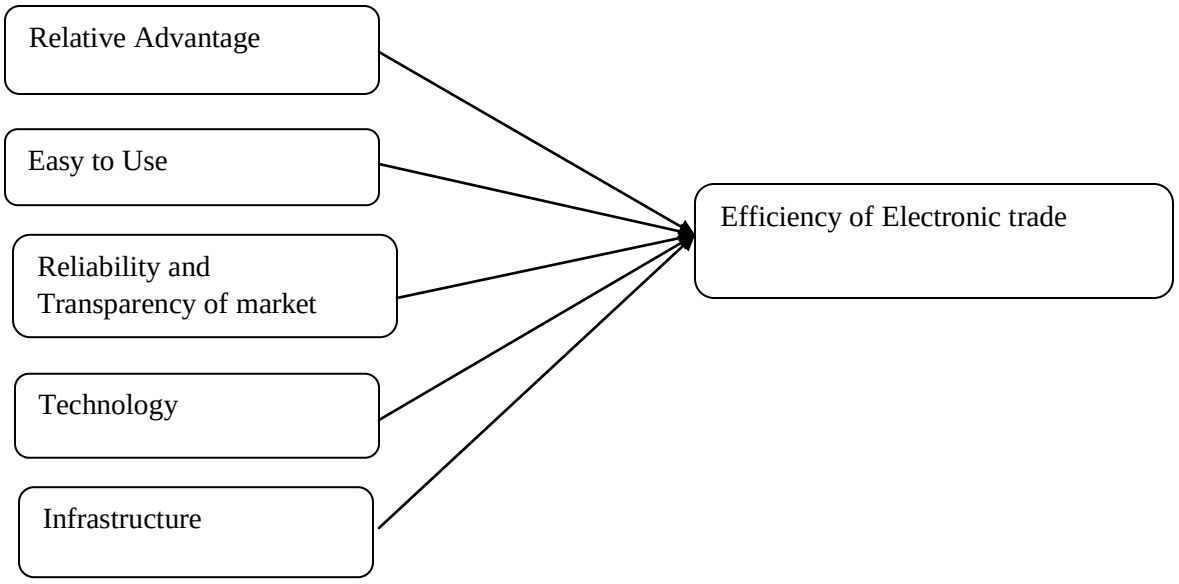

Fig 3. The Proposed research framework

2.4.1. Hypothesis

Relative Advantage: - Perceived Benefit Online trading has recently come to be considered as one of the most effective stock transaction method. Based on a certain extent on reasons offered by two types of perceived benefits stood out, which can be categorized as direct advantage and indirect advantages Direct advantages refer to immediate and tangible benefit that customers would enjoy by using online trading. For example, customer can benefit from lower order handling fees, faster transaction speed and better information transparency. It is hypothesized that Relative Advantage has a ***significant positive influence on*** efficiency of electronic trade ***(H1*)**. A sequence questions were inquired within the survey to degree the effect of Relative Advantage on efficiency of electronic exchange.

Easy to use: - This represents the recognition of the customers/user of electronic exchanging around the system. Noticing online exchanging is the technology-based movement; clients have to be have a perception of ease of utilize. When the framework isn't gone before to be simple, it avoids client not to undertake to utilize it and this has its possess negative suggestion on the ECX electronic trade efficiency. It is hypothesized that Easy to use has a ***significant positive influence on*** efficiency of electronic trade ***(H2*)**.

Reliability and Transparency: - The electronic trading system would increase the entirety of openly available information by direct appearing and effectively reporting cites, profundities, orders, and trades. Exhibit information would be scattered to publicize on-screen characters in veritable time. With electronic exchanging, the framework will basically line the orders and coordinate them employing a coordinating calculation where the costs found would be distributed on the computer screen hence, it is hypothesized that by getting ***Reliability and Transparency, ECX brings a significant positive influence on electronic trade efficiency (H3).***

Technology:-Electronic trading need to be assessed though direct impact on using or not using of the technology thus, it is hypothesized that ***Technology has a significant positive influence on electronic trade efficiency (H4).***

Infrastructure: - Commodity exchanges must get it innovation and the exchanging engineering to guarantee that they construct an internet exchanging foundation that's quick,

dependable, and steady. Infrastructure is one of the basics for introducing electronic trading system. It is hypothesized ***that ECX has a significant positive influence on electronic trade efficiency by providing Good Infrastructure*** (**H5**)

CHAPTER THREE

3. Research methodology

3.1. Research Approach

According to Kothari (2004) Research technique may be a way to systematically illuminate the research issue. It may be caught on as a science of studying how inquire about is done deductively. Within the ponder the different steps that are generally adopted by analyst in considering the investigate issue in conjunction with the rationale behind them. Qualitative methods are research strategies basically managing with numbers and measurable highlights. While subjective strategies permit for littler tests and are more inquisitive about the profundity of the information, quantitative strategies endure bigger tests and make generalization simpler. So the studies were used to quantitative methods of approach on measuring the level of efficiency of electronic trade*: The case of ECX*.

3.2. Research Design

A combination of descriptive and explanatory research method was used in this study. Descriptive method is set out to describe and interpret what is going on. Descriptive research would help to analyze the efficiency of the existing electronics trading practice at ECX. In addition, the study has used explanatory research approach to explore the level of efficiency of electronic trade at Ethiopian commodity exchange.

3.3.Source of Data

To carry out this research work both primary and secondary data source was used. The primary data is a more reliable source in this study which includes the use of structured questionnaire. For the primary data collection this study used survey research method which involves the use of standardized questionnaires to collect data about electronic trade of ECX from members and clients in a systematic manner (Bhattacherjee, 2012). Usually, survey is the most widely used technique in collecting primary data to help researchers to obtain important information about the topic under study (Bhattacherjee, 2012).

The secondary data were collected from Books, journals, ECX manuals and research papers were also used to carry out the study.

3.4. Data type and Collection Methods

To conduct the study productively, the analyst was utilize semi-structured survey as aessential data-gathering instrument. Sets of surveys planned by the analyst to gather the information. The survey has two parts. The primary portion of the questionnaire comprises of individual level fundamental data such as age, level of instruction, work status etc. Portion two comprises of operation and electronic exchanging issues. By and large, the survey contains a wide extend of data on measuring efficiency on electronic trading of Ethiopian commodity trade (ECX). In expansion, in-depth meet was conducted utilizing semi-structured interview with specialists working at ECX.

3.5. Target population and sampling

Sampling is the method of selecting test from the complete population of the study to form measurable inference about that populace. Since of possibility and taken a toll imperatives, it is difficult to study the whole populations. Population is characterized as the total set of units of investigation that are under examination, whereas component is the unit from which the essential information is collected (Davis 2000). The target population for the reason of this study was promoting enrollment (exchanging Individuals and middle person individuals) of ECX. Considering the sensibility of data, budget, time and assets accessibility, the target population was restrain in Addis Ababa. The ECX members incorporate within the test was those commodities on-screen characters such as buyers, dealers and exporters of coffee, sesame, haricot bean, maize, green mug, maize and wheat which are the legitimate individuals of the ECX. Subsequently, the target population of the study will consider 620 clients and 74 ECX individuals.

3.6. Sample size Determination

The sample size of ECX members is 254. The sample size is based on Yamane (1967:886) formula to calculate sample size whose precision level is 0.05. Suitability of the Yamane technique is due to its power to generate a large sample on which reliable analysis can be, conducted. This sample was, calculated based on the 95% confidence level, 5% precision level and 10% non-response rate. The Yamane formula is, denoted as:

n = N/ (1+N (e) 2)

n = 694/1+694(0.05)2

n = 253.74=254

Then 10% of the non-respondent rate was calculatedWhere, n is the sample size, N is the population, and e is the level of precision. Then respondentswere selected at their business premises based on a simple random sampling (lottery method).

3.7.Data Analysis

Data analysis is the method of methodically applying statistical and consistent procedures to portray, outline, and assess information. The analyst was utilized both clear measurements and numerous straight regression analysis strategy to analyze the information gotten from essential sources. The result of Descriptive statistics (mean standard deviation, frequency) is valuable in giving data and identifying normality of information conjointly numerous direct relapse investigation to look at the relationship between subordinate and free factors in expansion Relationship investigation is utilized to degree straight affiliation relationship between factors, their coefficient shows the quality of direct affiliation between two factors and SPSS was utilized to analyze the information.

3.8.Procedures of Data Collection

To gather pertinent information for the study, the analyst taken after the taking after strategy: Some time recently distributing surveys to respondents, the researcher looked for the assent of respondents. Accordingly, the researcher clarified the purpose of the research, why the information was needed and gave assurance that information collected would be kept confidential and would only be used solely for the research.

The questionnaire was organized in standardized Likert scale, and in arrange to fortify the quality of the information meet was utilized for deliberately chosen experts of ECX Authorities

Step 1: Questions that were accepted to address the issues beneath thought were consolidated. The questions were commented by specialists working at ECX for the validity of the questions.

Step 2: The questionnaire was checked on by the advisor, and as per his comment's amendment was done.

Step 3: As a next step, a pilot test was conducted with 10 questionnaires during the progress stage to ensure the internal consistency of the instrument.

Questionnaires were pre-tested on small number of respondents before distributing to all respondents. The questionnaires were distributed to respondents at the Exchange's electronic trading floor. In order to achieve the needed result close follow-up was done for timely response.

With respects to utilization of semi organized interview, purposive examining was utilized as its premise thought of adequate information within the range. In this way, the Chief Data Officer (CIO), Advertise information chief, operation chief was reached. The researcher clarified the questions completely to induce substantial reaction from respondents

3.9. Reliability and Validity

3.9.1. Reliability

Reliability measures the inside consistency of the things in a scale to check the measuring apparatus utilized on the think about was free from blunder so that the estimation instrument yields a dependable result. It moreover demonstrates that the degree to which the things in a survey are related to each other and whether a scale is one- dimensional or multidimensional. One of the foremost commonly utilized is called Cronbach 'alpha. The typical extend of Cronbach 'alpha coefficient esteem ranges between 0- 1 and the higher values reflects a better degree of inner consistency. Hinton et al., (2014) have also suggested four different points of reliability: excellent reliability ranges (0.90 and above), high reliability (0.70- 0.90), high moderate reliability (0.50-0.70) and low reliability (0.50 and below).

The Cronbach' alpha coefficient values for all constructs in the study were greater than the 0.70 so that it can be concluded that the measurements can be applied for further analysis with acceptable reliability test result

3.9.2. Validity

According to John et al. (2007) validity divided in to three categories; namely content validity, criterion validity and construct validity. Content validity measures the extent of the

instrument to provide sufficient coverage of the topic being studied. This measurement can be judgmentally considered to be great on the off chance that the number of populaces is exceedingly agent of the universe. Measure validity alludes to the degree to which an instrument is fully, important, impartial, dependable and accessible to the subject 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 and Fiske 1959).

In this research, as criterion and content validity are not assessed numerically, but can only be subjectively judged by the researcher (Wong and Aspinwall, 2005), the following activities were performed:

- ✓ The questionnaire was subjected to peer audit from colleagues and the administrator. This was pointed to recognize any potential blunders within investigate rebellious hence guaranteeing the result validity. Data was collected from the reliable sources and
- ✓ Survey questions were prepared based on pervious empirical review and literature review to ensure effect validity.

To ensure construct validity, only discriminant validation was made statistically using the exploratory factor analysis although some may use additional validations

3.10. Ethical Consideration

In conducting research, any researcher gives an importance for ethical considerations. While collecting data, the researcher respects the rules and procedures of the organization. Respondents participate voluntarily. The researcher does not use any force to make respondents participate in this study. Participants have the right to stop the interview at any time. The researcher assures that respondents do not face any harm merely by participating in the study. They will not also get direct benefits by participating in the study. However, they may benefit from the findings of this study on measuring the level of efficiency on electronic trading at ECX which is going to be implemented in the study area. The researcher will declare that the information collected from respondents remain confidential and can be used

only for the purpose of study. Here also the researcher maintains anonymity of the identity of the participant. Thus, names are disassociated from responses in the process of coding and recoding the survey data. The researcher will use numbers to ensure anonymity. The researcher will use unbiased, respectful and insightful languages. In interpreting the data, the researcher tries in-depth description in order to clarification biased data and to make the information more accurate.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

The chapter is partitioned into six (6) segments with the primary segment covering findings from the survey. Correlation and regression analysis are talked about within the moment and third segment taken after by speculation testing which is examined at area four. The remaining two segments contain the auxiliary information examination and discourse of comes about.

4.1. Findings from the Survey

This section presented the data screening and validation, sample and response rate, general profile of the respondents and descriptive analysis of the variables.

4.1.1 Sample and Response Rate

A total of 254 questionnaires were distributed for the respondents (74 for Intermediary members and 620 for Regular Trader). Excluding forty-four (44) questionnaires that were not completely filled out by the respondents, 210 questionnaires (63 from Intermediary members and 147 from regular traders) were fully answered and returned which is 82.6% of the total distributed questionnaires.

4.1.2 Data Screening and Validation

a. Data Screening

Data screening is critical since it guarantees the validity of research discoveries. It is additionally vital to check for any mistakes that happened amid information collection and information section some time recently advance examination.

In this study, IBM SPSS 20 was used to process data and frequency distributions were used to check the accuracy of data entry, examine missing data and to check outliers. Normality test was carried out; and develop validity and reliability were moreover tried.

b. Data Accuracy

This first step in the data screen was conducted by comparing each response in the questionnaire with what were entered in the SPSS. This process of proof-reading enabled the

researcher to identify some errors and immediately correct them. Also, the descriptive statistics was conducted to enable further data accuracy assessment and no problem was found. The proof-reading helped in screening some of errors which could bring problem in data analysis in later stages as it indicates that all measures were in a possible range of 1 to 5 and there were data entry errors found like 55 to mean 5.

c. Missing Data Assessment

As indicated by Hair et al (2010), data set may have missing values due to different reasons ,including failure of some respondent to answer some questions, errors during data entry or some respondent refuse to fill in sensitive data. Some missing data were identified in forty-four (44) questionnaires. So, these questionnaires were excluded from the analysis.

d. Reliability Test

Reliability measures the inside consistency of the things in a scale to check the measuring apparatus utilized on the study was free from error so that the estimation instrument yields a dependable result. It moreover demonstrates that the degree to which the things in a questionnaire are related to each other and whether a scale is one- dimensional or multidimensional. One of the most commonly used is called Cronbach' alpha. The normal range of Cronbach' alpha coefficient value ranges between 0- 1 and the higher values reflects a higher degree of internal consistency. Hinton et al., (2014) have also suggested four different points of reliability: excellent reliability ranges (0.90 and above), high reliability (0.70- 0.90), high moderate reliability (0.50- 0.70) and low reliability (0.50 and below). The Cronbach' alpha coefficient values for all constructs in the study were greater than the 0.70 so that it can be concluded that the measurements can be applied for further analysis with acceptable reliability test result as shown in table 4.1below.

Table 1. Reliability Statistics

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.896	.918	19

e. Validity Test

In this research, as criterion and content validity are not surveyed numerically, but can as it were be subjectively judged by the analyst (Wong and Aspinwall, 2005), the taking after exercises were

Performed to ensure the validity:

- The questionnaire was subjected to peer review from colleagues and the supervisor. This was aimed to red flag any potential errors in the research instruments thus ensuring the result 'validity.
- Data was collected from the reliable sources and
- Survey questions were arranged based on previous observational audit and writing audit to guarantee result validity.

4.1.3 General Profile of Respondents

This section aims to presents and analyzes the data regarding to the demographic characteristics of the respondents. In the table below demographic data such as Gender, Age, and educational status, Employment status, Work experience and their Position in the organization are, presented. The purpose of the demographic analysis in this research is to describe the characteristics of the sample respondents accordingly, and the following tables provide the demographic profile of the respondents.

Table 2 Gender of the respondent

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	149	71.0	71.0	71.0
	Female	61	29.0	29.0	100.0
	Total	210	100.0	100.0	

Source: Survey result 2021

Gender of the respondent's: Demographic profiles of the respondents in the sample size were discussed here based on the data obtained from sample respondents. Out of the total respondents questioned during the survey 149(71%) and 61(29 %) were male and female,

respectively. This is due to the fact that during the data collection most of the respondents found were men. This implies that most the respondents in the study area are male.

Table 3 Age of the respondent's

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-30	136	64.8	64.8	64.8
	31-59	72	34.3	34.3	99.0
	33	2	1.0	1.0	100.0
	Total	210	100.0	100.0	

Source: Survey result, 2021

As age of respondents are concerned 136(64.8%) are between 18-30, 72(34.3%) are between 31-59 of age, and 2(1%) are above 60 of age respectively. From this, we can understand that majority of traders are between 18-30 which are young and active.

Table 4 Educational background of respondent

Education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Secondary	3	1.4	1.4	1.4
	Diploma	8	3.8	3.8	5.2
	Degree	195	92.9	92.9	98.1
	Postgraduate or above	4	1.9	1.9	100.0
	Total	210	100.0	100.0	

Source: Survey result, 2021

Concerning educational background of the respondents from the above table, 4(1.9%), 195(92.9%), 8(3.8%) of the respondents are Masters, Degree, Diploma and Certificate

holders respectively. And the rest 3(1.4%) have completed secondary school. This indicates most of the respondents are in degree holders.

Table 5 Occupational Backgrounds of the respondents

Occupation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Government Employee	25	11.9	11.9	11.9
	Private Sector	93	44.3	44.3	56.2
	Merchant	92	43.8	43.8	100.0
	Total	210	100.0	100.0	

Source: Survey result, 2021

Major occupation*:* The results in the above table show that the majority 93(44.3%) of the respondents are employed in private sectors; 92(43.8%) are merchants; and the remaining 25(11.9%) are government employees. Thus the majority of the respondents are private sectors.

4.1.4. Membership of the Exchange

ECX may be a membership-based trade. Any person, private company, public undertaking, or cooperative that meets the membership necessity can be a part of the trade. The membership requirement is detailed in article 4.6 of the Rules of the Ethiopian Commodity Exchange. The fees and the deposit requirements do not encourage, at least myself, that the market it for everyone; it rather looks a market for high class traders.

Table 6 Membership type of the respondents.

Membership Type

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Regular Trader	147	70.0	70.0	70.0
	Intermediary Member	63	30.0	30.0	100.0
	Total	210	100.0	100.0	

Sources; Survey result, 2021

Membership type at ECX, from the total 210 respondents, 63 (30%) were Intermediary members at ECX while the remaining 147(70%) respondents were regular traders in terms of their membership type at ECX. Thus, the majority of the respondents are regular traders.

Table 7 Length of works with in ECX

Length of work with ECX

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-2 years	134	63.8	63.8	63.8
	2-3 years	14	6.7	6.7	70.5
	above 5 years	62	29.5	29.5	100.0
	Total	210	100.0	100.0	

Source: Survey result, 2021

With regard to the experience of trading in commodity exchanges, 62(29.5%) of the respondents have more than 5 years of experience in commodity exchange; 14(6.7%) of the respondents have 2-3 years of experience and the remaining 134(63.8%) of the respondents have 1-2 years. This indicates the majority of the respondents have less than three year's experiences.

Table 8 Knowledge of products trade of respondents

Knowledge of products trades

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Excellent	28	13.3	13.3	13.3
	very good	116	55.2	55.2	68.6
	Good	55	26.2	26.2	94.8
	Satisfactory	11	5.2	5.2	100.0
	Total	210	100.0	100.0	

Source: Survey result, 2021

As it can be seen from the above table, 116(55.2%) of the respondent have very good knowledge; 55(26.2%) of the respondent have good knowledge of product trades; 28(13.3%) of the respondent have excellent knowledge of product trades, and the remaining 11(5.2%) of the respondents have satisfactory knowledge of product trades.

Table 9 Knowledge of ECX rules and regulations

Knowledge of ECX rules and regulations

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Excellent	14	6.7	6.7	6.7
	very good	144	68.6	68.6	75.2
	Good	52	24.8	24.8	100.0
	Total	210	100.0	100.0	

Source: Survey result, 2021

As it can be seen from the above table, 144(68.6%) of the respondent have very good knowledge of ECX rules and regulations; 52(24.8%) of the respondent have good knowledge of ECX rules and regulations; 14(6.7%) of the respondent have excellent knowledge of ECX rules and regulations, and the remaining 11(5.2%) of the respondents have satisfactory knowledge of ECX rules and regulations. This shows that the majority of respondents have a very good knowledge of rules and regulation on ECX.

Table 10 Knowledge of orders and execution rules

Knowledge of orders and execution rules

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Excellent	88	41.9	41.9	41.9
	very good	83	39.5	39.5	81.4
	Good	39	18.6	18.6	100.0
	Total	210	100.0	100.0	

Source: Survey result, 2021

The result indicates from the above table, 88(41.9%) of the respondent have excellent knowledge of orders and execution rules; 83(39.5%) of the respondent have very good knowledge of orders and execution rules; 39(18.6%) of the respondent have good knowledge of orders and execution rules. This shows that the majority of respondents have excellent knowledge of orders and execution rules on ECX.

Table 11 Use of Computer in ECX

Computer use frequency

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Daily	164	78.1	78.1	78.1
	Weekly	46	21.9	21.9	100.0
	Total	210	100.0	100.0	

Source: Survey result, 2021

The result indicates from the above table, the use of computer in ECX, 164(78.1%) of respondents has used in daily, and the remaining 46(21.9%) of the respondent has used in weekly.

Table 12 Computer skills in ECX

Computer Skills

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Excellent	38	18.1	18.1	18.1
	very good	118	56.2	56.2	74.3
	Good	38	18.1	18.1	92.4
	Satisfactory	16	7.6	7.6	100.0
	Total	210	100.0	100.0	

Source: Survey result, 2021

The result indicates from the above table, 118(56.2%) of the respondent have very good computer skills; 38(18.1%) of the respondent have good computer skills as well as 38(18.1%) of the respondent have excellent computer skills; 14(6.7%) of the respondent have excellent knowledge of ECX rules and regulations, and the remaining 16(7.6%) of the respondents have satisfactory computer skills. This shows that the majority of respondents have a very good computer skills in ECX.

Table 13 Computer Certification

Computer Certification

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	65	31.0	31.0	31.0
	No	145	69.0	69.0	100.0
	Total	210	100.0	100.0	

Source: Survey Result, 2021

According to the above table, 65(31%) of respondent have certified in computer, and the majority of respondents 145(69%) have not certified in computers.

Table 14 Internet browsing skills

Internet browsing skills

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Excellent	54	25.7	25.7	25.7
	very good	103	49.0	49.0	74.7
	Good	27	12.9	12.9	87.6
	Satisfactory	26	12.4	12.4	100
	Total	210	100.0	100.0	

Source: Survey result, 2021

The result indicates from the above table, 103(49.0%) of the respondent have very good internet browsing skills; 54(25.7%) of the respondent have excellent internet browsing skills; 27(12.9 %) of the respondent have good internet browsing skills; and the remaining 26(12.4%) of the respondents have satisfactory internet browsing skills. This shows that the majority of respondents have a very good internet browsing skills in ECX.

Table 15 Electronic Communication Skills

Electronic Communication Skills

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Excellent	80	38.1	38.1	38.1
	very good	98	46.7	46.7	84.8
	Good	32	15.2	15.2	100.0
	Total	210	100.0	100.0	

Source: Survey result, 2021

According to the above table, 98(46.7%) of the respondent have very good electronic communication skills; 80(38.1%) of the respondent have excellent electronic communication skills; 32(15.2 %) of the respondent have good electronic communication skills. This shows that the majority of respondents have a very good electronic communication skill in ECX.

Table 16 Interest to be a certified electronic trader

Interest to be a certified electronic trader

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	199	94.8	94.8	94.8
	No	11	5.2	5.2	100.0
	Total	210	100.0	100.0	

Source: Survey result, 2021

According to the above table, 199(94.8%) of the respondent have interest to be a certified electronic trader, and the remaining 11(5.2%) of the respondent have no interest to be a certified electronic trader.

Table 17 English Language Fluency

English Language fluency

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Excellent	56	26.7	26.7	26.7
	very good	79	37.6	37.6	64.3
	Good	59	28.1	28.1	92.4
	Satisfactory	16	7.6	7.6	100.0
	Total	210	100.0	100.0	

Source: Survey result, 2021

The result indicates from the above table, 79(37.6%) of the respondent have very good English language fluency; 59(28.1%) of the respondent have good English language fluency; 56(26.7 %) of the respondent have excellent English language fluency, and the remaining 16(7.6%) of the respondents have satisfactory English language fluency. This shows that the majority of respondents have a very good English language fluency in ECX.

Table 18 Skill in suing online trading Applications

Skill in suing online trading apps

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Excellent	44	21.0	21.0	21.0
	very good	86	41.0	41.0	61.9
	Good	53	25.2	25.2	87.1
	Satisfactory	27	12.9	12.9	100.0
	Total	210	100.0	100.0	

Source: Survey result, 2021

The result indicates from the above table, 86(41%) of the respondent have very good skill in suing online trading applications; 53(25.2%) of the respondent have good skill in suing online trading applications; 44 (21%) of the respondent have excellent skill in suing online trading applications, and the remaining 27(12.9%) of the respondents have satisfactory skill

in suing online trading applications. This shows that the majority of respondents have a very good skill in suing online trading applications in ECX.

Table 19 skill in Fundamental market analysis

Skill in fundamental market analysis

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Excellent	16	7.6	7.6	7.6
	very good	71	33.8	33.8	41.4
	Good	96	45.7	45.7	87.1
	Satisfactory	16	7.6	7.6	94.8
	Poor	11	5.2	5.2	100.0
	Total	210	100.0	100.0	

Source: Survey result, 2021

As it can be seen from the above table, 96(45.7%) of the respondent have good skill in fundamental market analysis; 71(33.8%) of the respondent have very good skill in fundamental market analysis; 16 (7.6%) of the respondent have excellent skill in fundamental market analysis as well as 16(7.6%) of the respondent have satisfactory skill in fundamental market analysis, and the remaining 11(5.2%) of the respondents have poor skill in fundamental market analysis. This shows that the majority of respondents have good skill in fundamental market analysis in ECX.

Table 20 Skill in technical market analysis

Skill in technical market analysis

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	30	14.3	14.3	14.3
	Disagree	43	20.5	20.5	34.8
	Neutral	127	60.5	60.5	95.2
	Agree	10	4.8	4.8	100.0
	Total	210	100.0	100.0	

Source: Survey result, 2021

The result indicates from the above table, 127(60.5%) of the respondent neutral that skill in technical market analysis; 43(20.5%) of the respondent disagree that skill in technical market analysis; 30 (14.3%) of the respondent strongly disagree that skill in technical market analysis, and the remaining 10(4.8%) of the respondents agree that skill in technical market analysis. This shows that the majority of respondents neutral in skill in market analysis in ECX.

Table 21 I know the status of my orders or transactions instantly

I know the status of my orders or transactions instantly

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	56	26.7	26.7	26.7
	Disagree	64	30.5	30.5	57.1
	Neutral	49	23.3	23.3	80.5
	Agree	41	19.5	19.5	100.0
	Total	210	100.0	100.0	

Source: Survey result, 2021

The result indicates from the above table, 64(30.5%) of the respondent disagree that I know the status of my orders or transactions instantly; 56(26.7%) of the respondent strongly disagree that I know the status of my orders or transactions instantly; 49 (23.3%) of the respondent neutral that I know the status of my orders or transactions instantly, and the remaining 41(19.5%) of the respondents agree that I know the status of my orders or transactions instantly. This shows that the majority of respondents disagree that I know the status of my orders or transactions instantly in ECX.

Table 22 Market information displayed is timely

The market information displayed is timely

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	73	34.8	34.8	34.8
	Disagree	81	38.6	38.6	73.3
	Neutral	40	19.0	19.0	92.4
	Agree	16	7.6	7.6	100.0
	Total	210	100.0	100.0	

Source: Survey result, 2021

According to from the above table, 81(38.6%) of the respondent disagree that market information displayed is timely; 73(34.8%) of the respondent strongly disagree that market information displayed is timely; 40 (19%) of the respondent neutral that market information displayed is timely, and the remaining 16(7.6%) of the respondents agree market information displayed is timely. This shows that the majority of respondents disagree that market information displayed is timely in ECX.

Table 23 Recording of the executed trades is accurate

The recording of the executed trades is accurate

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	46	21.9	21.9	21.9
	Disagree	123	58.6	58.6	80.5
	Neutral	25	11.9	11.9	92.4
	Agree	16	7.6	7.6	100.0
	Total	210	100.0	100.0	

Source: Survey result, 2021

The result indicates from the above table, 123(58.6%) of the respondent disagree that the recording of the executed trades is accurate; 46(21.9%) of the respondent strongly disagree that the recording of the executed trades is accurate; 25 (11.9%) of the respondent neutral that the recording of the executed trades is accurate**,** and the remaining 16(7.6%) of the respondents agree that recording of the executed trades is accurate. This shows that the majority of respondents disagree that the recording of the executed trades is accurate in ECX.

Table 24 Knowledge and skill in using price charts

Knowledge and skill in using Price Charts

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Excellent	36	17.1	17.1	17.1
	very good	102	48.6	48.6	65.7
	Good	26	12.4	12.4	78.1
	Satisfactory	30	14.3	14.3	92.4
	Poor	16	7.6	7.6	100.0
	Total	210	100.0	100.0	

Source: Survey result, 2021

The result indicates from the above table, 102(48.6%) of the respondent have very good knowledge and skill in using price charts; 36(17.1%) of the respondent have excellent knowledge and skill in using price charts; 30 (14.3%) of the respondent have satisfactory knowledge and skill in using price charts ; 26(12.4%) of the respondent have good knowledge and skill in using price charts; and the remaining 16(7.6%) of the respondents have poor knowledge and skill in using price charts. This shows that the majority of respondents have very good knowledge and skill in using price charts in ECX.

Table 25 Knowledge and skill in using price/volume relationships

Knowledge and skill in using Price/Volume relationships

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	very good	120	57.1	57.1	57.1
	Good	58	27.6	27.6	84.8
	Satisfactory	16	7.6	7.6	92.4
	Poor	16	7.6	7.6	100.0
	Total	210	100.0	100.0	

Source: Survey result, 2021

The result indicates from the above table, 120(57.1%) of the respondent have very good knowledge and skill in using price /volume relationships; 58(27.6%) of the respondent have good knowledge and skill in using price/volume relationships; 16 (7.6%) of the respondent have satisfactory knowledge and skill in using price /volume relationships as well as; 16(7.6%) of the respondents have poor knowledge and skill in using price/volume relationships. This shows that the majority of respondents have very good knowledge and skill in using price /volume relationships in ECX.

Table 26 Knowledge and skill in using price patterns

Knowledge and skill in using Price patterns

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	very good	85	40.5	40.5	40.5
	Good	93	44.3	44.3	84.8
	Satisfactory	16	7.6	7.6	92.4
	Poor	16	7.6	7.6	100.0
	Total	210	100.0	100.0	

Source: Survey result, 2021

The result indicates from the above table, 93(44.3%) of the respondent have good knowledge and skill in using price patterns; 85(40.5%) of the respondent have very good knowledge and skill in using price patterns; 16 (7.6%) of the respondent have satisfactory knowledge and skill in using price patterns as well as; 16(7.6%) of the respondents have poor knowledge and skill in using price patterns. This shows that the majority of respondents have good knowledge and skill in using price patterns in ECX.

Table 27 Knowledge and skill in using Price trend lines

Knowledge and skill in using Price trend lines

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	very good	84	40.0	40.0	40.0
	Good	43	20.5	20.5	60.5
	Satisfactory	67	31.9	31.9	92.4
	Poor	16	7.6	7.6	100.0
	Total	210	100.0	100.0	

Source: Survey result, 2021

According to from the above table, 84(40%) of the respondent have very good knowledge and skill in using price trend lines; 43(20.5%) of the respondent have good knowledge and skill in using price trend lines; 67 (31.9%) of the respondent have satisfactory knowledge and skill in using price trend line and, the remaining 16(7.6%) of the respondents have poor knowledge and skill in using price trend line. This shows that the majority of respondents have very good knowledge and skill in using price trend lines in ECX.

Table 28 Commodities Traded

Commodities Traded

		Responses		
		N	Percent	Percent of Cases
Commodities Traded[a]	Coffee	113	28.4%	53.8%
	Sesame	161	40.5%	76.7%
	Pea Beans	92	23.1%	43.8%
	Others	32	8.0%	15.2%
Total		398	100.0%	189.5%

a. Dichotomy group tabulated at value 1.

Source: Survey result, 2021

The result indicates from the above table, 161(40.5%) of respondents has been traded in sesame; 113(28.4%) of respondents has been traded in coffee; 92(23.1) of respondents has been traded in pea beans and, the remaining 32(8.0%) of respondents has been traded in others. The majority commodities traded in ECX has sesame.

Table 29 MS Office Applications Used

MS Office apps used

		Responses		
		N	Percent	Percent of Cases
MS Office Apps response frequencr[a]	Word	162	29.2%	77.1%
	Excel	148	26.7%	70.5%
	Power point	118	21.3%	56.2%
	Access	111	20.0%	52.9%
	None	16	2.9%	7.6%
Total		555	100.0%	264.3%

a. Dichotomy group tabulated at value 1.

Source: Survey result, 2021

The result indicates the above table, 162(29.2%) of respondents used in Microsoft word application; 148(26.7%) of respondents used in Microsoft excel application; 118(21.3%) of respondents used in Power point application; 111(20.0%) of respondents used in micro soft access and.the remaining 16(2.9%) of respondents does not used in MS office applications in ECX. The majority of respondents used in Microsoft word application.

Table 30 Online Application Usage

Online Apps usage

		Responses		Percent of Cases
		N	Percent	
Online Apps Usage Frequency[a]	Online Trade Apps	127	42.6%	60.5%
	Online Payment App	85	28.5%	40.5%
	Other	86	28.9%	41.0%
Total		298	100.0%	141.9%

a. Dichotomy group tabulated at value 1.

Source: Survey result, 2021

As the above tables indicated that, 127(42.6%) of respondents used online applications, 85(28.5%) of respondents used in online payment applications and the remaining 86(28.9%) used in other online applications.

4.1.5. Mean and Standard Deviation

In arrange to analyze the respondent's generally electronic trade Efficiency of commodity trade, add up to of 19 questions were gathered into the six measurements of electronic efficiency which are: Reliability &accuracy of market information, perceived ease of use, perceived usefulness, compatibility, Relative advantage and usage behavior**.** In order to compare the respondent's electronic trade efficiency, descriptive statistics of mean and standard deviation are used. The mean indicates to what extent the sample group averagely agrees or disagrees with the different statements. The higher the mean the more the respondents agree with the statement while the lower the mean the more the respondents disagree with the statement. In addition, standard deviation shows the variability of an observed response.

4.1.6. Descriptive Analysis of Variables

Descriptive statistics was engaged to test the mean & standard deviation of the responses of respondents with regards to the roles of ECX. Descriptive Statistics was used to present quantitative descriptions in a manageable form; each descriptive statistic reduces lots of data into a simpler summary (Gelman, 2006). The mean scores have been computed for all the variables by similarly weighting the cruel scores of all the things beneath each measurement. The cruel esteem gives the thought approximately the central inclination of the values of a variable. Standard deviation is to donate the thought around the scattering of the values of a variable from its cruel esteem. The result about of the clear investigation are appeared within the table below.

Table 31 Descriptive statistics of variables

Item Statistics

Online trading systems	Mean	Std. Deviation	N
I believe that the online trading system will not be cumbersome to use.	3.94	1.001	210
I believe that it will be easy to get the system to do what you want to do.	4.40	.666	210
I think learning to operate or master the system will have no difficulty to me.	4.40	.666	210
I believe that using the electronic trading system will improve my performance in trading	4.40	.801	210
I believe that using the online trading system will enhance my effectiveness in trade.	4.40	.801	210
I believe that using the electronic trading system will increase the profitability of my company.	4.40	.801	210
I believe that doing trade (business) on electronic is safe	3.01	1.002	210
I believe that there will be good infrastructure for doing online trading.	3.94	1.001	210
I believe putting order for buying or selling through the online trading system will give me more advantage than the existing floor trading.	3.46	.563	210
I believe it will be good to change the existing method of placing orders by clients with online order placing system.	3.46	.563	210
I believe the online trading system will create a better access to market actors.	3.46	.563	210
I believe the online trading system will allow me to react to market changes more quickly.	4.40	.666	210
I believe that I will be part of the future if the online trading system is developed.	4.40	.666	210
ECX's reliable and accurate market information help me increase my electronic trade efficiency.	4.37	.798	210
My electronic trade performance has improved because ECX's trade system is easy to use.	3.93	.360	210
The usefulness of the electronic trade system has increase by electronic trade efficiency.	4.37	.798	210
The compatibility of ECX's electronic trade system has positively impacted by electronic trade efficiency.	3.93	.360	210
Because of the relative advantage of the electronic trade system, my trade efficiency has increased.	4.87	.720	210
Electronic trade will increase my trade efficiency.	4.43	.669	210

Source: House hold survey, 2021

According to from above table, the role measurements were taken as independent variables. The Mean score values of ECX‘s roles/functions ranged between 4.87 (mean score value relative advantage of the electronic trade system) with standard deviation of 0.720 and 3.01 (mean score value of trade (business) 0nline is safe and grading with standard deviation of 1.002).These scores were also the minimum and maximum mean score values of the ECX’s online electronic trading system.by considering the above table, the mean score of online trading system of easy to get the system, learning to operate the system, performance in online trading, effectiveness in online trading, increase profitability using online system, online trading system react to quickly market change(with the same mean=4.40 and different standard deviations).

- **Perceived Ease Use**

The study too attempted to see on the points of view of traders towards electronic trading. The perspectives of traders influence their usage behavior and offer assistance the Trade in knowing the expectations of dealers and get ready itself for the future.

- **Perceived Usefulness**

Perceived usefulness was also part of the study. This perspective measures the perception that electronic trading system could improve their performance in trading. As one expert said during the interview, electronic trading system can stated one of the benefits of using electronic trading is lowering transaction cost which is also substantiated by the literature. Electronic trading systems would be less costly to operate and may, therefore, offer lower bid –ask spreads. The electronic trading system would help to lower operating costs which include the direct transactions costs or commissions and the indirect costs or a lack of market depth. And this trading system is also good to the Exchange as it requires less labor and time.

- **Compatibility**

Compatibility is the degree to which is development is seen as being reliable with the existing values, needs and past involvement (Rogers, 2003).

The other perception under the compatibility perspective is the perception that assigning orders with the electronic trading system will be better than the current system.

❖ **Relative Advantage**

Relative advantage according to Rogers (2003) in the degree to which an innovation is perceived as better than the idea it succeeds. This perspective was also part of the study by measuring the respondents' perceptions.

Table 32 Summary of descriptive Statistics by mean and Standard deviation

Descriptive Statistics

	Mean	Std. Deviation	N
Reliability and Accuracy of market information	4.25	.748	210
Perceived ease of use	3.93	.360	210
Perceived Usefulness	2.20	.530	210
Compatibility	3.94	1.001	210
Relative Advantage	3.46	.563	210
Usage Behavior	4.40	.666	210
Electronic Trade Efficiency	4.32	.531	210

Source: Survey result, 2021

Based on the mean comparison of the independent variables shown in the above table, it can be seen that user behavior is ranked first followed by electronic trade efficiency. Reliability and accuracy of market information, Compatibility, Perceived ease of use, Relative advantage, & Perceived usefulness hold ranks from 3 to 8 respectively, the least value the mean which indicate that less effect on the electronic trade efficiency with this mean result of analysis, each independent variables impact on the electronic trade efficiency of dependent variable.

The Compatibility and Reliability and Accuracy of market information indicated the highest Std. Deviation of 1.001 and 0.748 which indicate that Compatibility and Reliability and Accuracy of market information has greater effect on the electronic trade efficiency, followed by usage behavior=0.66, relative advantage =0.563 and perceived usefulness= 0.530 the least value of the Std. Deviation which indicate that less effect on the electronic

trade efficiency. With this Std. Deviation of result analysis, each independent variables impact on the electronic trade efficiency of dependent variable.

4.2. Inferential Statistics

4.2.1 Correlation Analysis

Correlation shows the strength and direction of relationship between variables. The linear relationship between variables can be measured by correlation coefficient (r), which is commonly called *Pearson product moment correlation*. Person's "r" mainly measures the data from the interval or ratio level and used to measure based on the deviation from the mean. Table 4.34 shows the measures of association and descriptive adjectives between the predictor variables.

- **Sig (2-Tailed) value:** According to Pedhazur (1982), this esteem tells that whether there's a factually critical correlation between two variables or not. If the Sig (2-Tailed) value is greater than 0.05, the researcher can conclude that there is no statistically significant correlation between two variables. That means, increases or decreases in one variable do not meaningfully relate to increases or decreases in the second variable. If the Sig (2 Tailed) value is less than or equal to 0.05, the researcher can accomplish that there is a statistically significant correlation between two variables. That means, increases or decreases in one variable do considerably relate to increase or decreases in the second variable.

Table 33 Measures of Associations and Descriptive Adjectives

Measure of Association	Descriptive Adjective
> 0.00 to 0.20 ; < -0.00 to – 0.20	Very weak or very low
> 0.20 to 0.40; < -0.20 to – 0.40	Weak or low
> 0.40 to 0.60; < -0.40 to – 0.60	Moderate
> 0.60 to 0.80; < -0.60 to – 0.80	Strong or high
> 0.80 to 1.0; < -0.80 to – 1.0	Very high or very strong

Hence, the correlation output of the dependent and independent variables is interpreted based on table 4.35

Table 34 correlation Analysis

Correlations

		Reliability and Accuracy of market information	Perceived ease of use	Perceived Usefulness	Compatibility	Relative Advantage	Usage Behaviour	Electronic Trade Efficiency
Reliability and Accuracy of market information	Pearson Correlation	1	.477**	.167*	.949**	-.538**	.971**	.608**
	Sig. (2-tailed)		.000	.015	.000	.000	.000	.000
	N	210	210	210	210	210	210	210
Perceived ease of use	Pearson Correlation	.477**	1	-.092	.175*	.484**	.672**	.988**
	Sig. (2-tailed)	.000		.184	.011	.000	.000	.000
	N	210	210	210	210	210	210	210
Perceived Usefulness	Pearson Correlation	.167*	-.092	1	.220**	-.255**	.116	-.054
	Sig. (2-tailed)	.015	.184		.001	.000	.094	.439
	N	210	210	210	210	210	210	210
Compatibility	Pearson Correlation	.949**	.175*	.220**	1	-.777**	.847**	.326**
	Sig. (2-tailed)	.000	.011	.001		.000	.000	.000
	N	210	210	210	210	210	210	210
Relative Advantage	Pearson Correlation	-.538**	.484**	-.255**	-.777**	1	-.323**	.342**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000
	N	210	210	210	210	210	210	210
Usage Behaviour	Pearson Correlation	.971**	.672**	.116	.847**	-.323**	1	.779**
	Sig. (2-tailed)	.000	.000	.094	.000	.000		.000
	N	210	210	210	210	210	210	210
Electronic Trade Efficiency	Pearson Correlation	.608**	.988**	-.054	.326**	.342**	.779**	1
	Sig. (2-tailed)	.000	.000	.439	.000	.000	.000	
	N	210	210	210	210	210	210	210

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

*. Correlation is significant at the 0.05 level (2-tailed).

Based on the survey result, the correlation between perceived ease of use and electronic trade efficiency is positive and they are significantly correlated at (R = .477**), (P< 0.01).

From the above table magnitude of correlation, the relationship between the two variables is moderate. Similarly, the correlation between relative advantage and electronic trade efficiency is positive and they are significantly correlated at (R =-0.538**), (P< 0.01) which reveals moderate relationship between the two variables. The correlation between compatibility and electronic trade efficiency is positive and they are significantly correlated at (R =.949**), (P< 0.01) which reveals very high relationship between the two variables. Usage behavior is found to be very high correlated with reliability accuracy of market information with R value of .971**, (P<0.01).

From the survey result the correlation between perceived usefulness and electronic trade efficiency is positive and they are significantly correlated at (R =.167*), (P<0.05) which reveals very week. Accordingly, the relationship between the two variables is a very weak relationship. Strong and statistically significant positive correlation is found between electronic trade efficiency and reliability and accuracy of market information with (R =.608**), (P< 0.01) as it is revealed by SPSS output of the survey data.

In general, the correlation of seven implementation factors with electronic trade efficiency is analyzed with the help of SPSS. Usage behavior and compatibility are found to have positive and very high correlation with electronics trade efficiency. Perceived ease of use, relative advantage has moderate and electronics trade efficiency. Perceived usefulness has very weak relationship with the dependent variable electronics trade efficiency.

4.3. Regression Analysis

Regression analysis could be a measure for the relationship between variables. Direct regression estimates the coefficients of the direct condition, including one or more free factors that best anticipate the esteem of the subordinate variable (Field, 2009).

4.3.1. Assumption Tests of Regression Analysis

As recommended by Hair et al (2010) meeting the assumptions of regression analysis is necessary to confirm that the obtained data truly represented the sample and that researcher has obtained the best results (Hair et al., 2010). Accordingly, multi-collinearity, linearity and assumptions were tested.

A. Multi-collinearity

Collinearity (or multi-collinearity) is the undesirable situation when one independent variable is a linear function of other independent variables (Gelman, 2006). In this research multi collinearity was checked with tolerance and variance inflation factor (VIF) statistics. Andy (2006) suggested that a tolerance value less than 0.1 almost certainly indicates a serious collinearity problem. In this study, all of the independent variables were found to have a tolerance of greater than 0.1 and a VIF value of less than 10 which indicate that multi-collinearity was not an issue in this study Therefore, regression analysis was appropriate for this particular study.

Table 35 Multi Collinearity Test

Variables Entered/Removed

Model	Variables Entered	Variables Removed	Method
1	Usage Behavior, Perceived Usefulness, Relative Advantage	.	Enter

a. Dependent Variable: Electronic Trade Efficiency
b. Tolerance = .000 limit reached.

B. Linearity

The linearity of the relationship between the dependent and independent variable represents the degree to which the change in the dependent variable is associated with the independent variable (Hair et al., 2010). Conventional regression analysis would underestimate the relationship when nonlinear relationships are present, i.e., R2 underestimates the variance explained overall and the betas underestimate the importance of the variables involved in the non-linear relationship (Malhotra and Briks, 2007). The mean values of the outcome variable for each increment of the predictor(s) lie along a straight line. In plain English this means that it is assumed that the relationship the researcher is modeling is a linear one. If the researcher models anon-linear relationship using a linear model then this obviously limits the generalizability of the findings (Field, 2007). In the correlation analysis, the entire above correlation matrix shows that all independent variables are positively and either moderately

or strongly correlated with the dependent variable. Therefore, there were linearity of the relationship between the dependent and independent

C. Normality

Normality is a measure of data communication with normal distribution curve (Pallant, 2016). Skewness and kurtosis can be used to assess the normality of data. While skewness measure the degree of symmetry about the mean, kurtosis measure the distribution of data about the peak of the distribution. Likewise, when large scores fall under left side it indicates positive skewness but negative skewness shows that large scores lie on the right tail as compared to left tail. While, on the other hand, positive kurtosis means the normal distribution is too peak and negative kurtosis indicated by flat distribution. In addition, for perfect normal distribution both skewness and kurtosis have zero value, apart from that it shows departing from normality (Kline, 2011). Although there is no clear definition about what is regarded to be a best measure of departure from normality, rule of thumb have been suggested by different researchers. Hair et al. (2010) for example suggested that, kurtosis values should not exceed ±3 and skewness values should fall within the range of ±1. On the other hand, George & Mallery (2010) suggested that for normality of distribution to exist, the results of Skewness and Kurtosis must found between ±2.

4.3.2. Multiple Linear Regression Analysis

Multiple linear regressions was conducted in order to determine the explanatory power of the independent variables (perceived benefit, perceived ease of use, trust and attitude) to identify the relationship and to determine the most dominant variables that influenced dependent variable (electronic trade efficiency). The significance level of 0.05 with 95% confidence interval was used. The reason for using multiple regression analysis was to assess the role/impact of the role variables of ECX on the electronic trade efficiency. The model summary of the regression analysis is presented in table 36below

Table 36 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.739[a]	.546	.525	.50410	. 1.913

The above regression model presented how much of the variance in the measure of export performance is explained by the underlying ECX's role variables.

R – Indicates the value of the multiple correlation coefficient between the predictors and the outcome, with a range from 0 to 1, a larger value indicating a larger correlation and 1 representing an equation that perfectly predict the observed value (Pedhazur, 1982). From the model summery (R = 0.739) indicates that the linear combination of the Six independent variables (Reliability &accuracy of the system, perceived ease of use, perceived usefulness, compatibility, Relative advantage and usage behavior) strongly predicted the dependent variable (Electronic trade Efficiency).

R Square (R2) – indicates the proportion of variance that can be explained in the dependent variable by the linear combination of the independent variables. In another word R2 is a measure of how much of the variability in the outcome is accounted for by the predictors. The values of R2 also range from 0 to 1 (Pedhazur, 1982). The linear combination of the predictor variables i.e. Reliability &accuracy of market information, perceived ease of use, perceived usefulness, compatibility, Relative advantage and usage behavior 54.6% of the variance in Electronic trade Efficiency and the remaining 45.4 % is explained by extraneous variables, which have not been included in this regression model. According to Mooi and Sarstedt (2011), in cross-sectional designs, values of around 0.30 are common while for exploratory research, using cross-sectional data; values of 0.10 are typical.

Adjusted R Square (R2) – The adjusted R2 gives some idea of how well the model generalizes and its value to be the same, or very close to the value of R2. That means it adjusts the value of R2 to more accurately represent the population under study (Pedhazur, 1982). The difference for the final model is small (in fact the difference between R2 and Adjusted R2 is (.546− 0.525 = 0.021) which is about 2.1%. This means that if the model

were derived from the population rather than a sample it would account for approximately 2.1% less variance in the outcome.

Durbin-Watson- the Durbin–Watson statistic expresses that whether the assumption of independent errors is acceptable or not. As the conservative rule suggested that, values less than 1 or greater than 3 should definitely raise alarm bells (Field, 2009). So that the desirable result is when the value is closer to 2, and for this data the value is 1.913, which is so close to 2 that the assumption has almost certainly been met.

4.4. Hypothesis Testing and Interpretation of Results

Based on the result of found under regression analysis table can be made whether the independent variables are significant or not on electronic trade efficiency of ECX.

Table 37 Summary of the overall outcome of the Research Hypotheses

Hypotheses	**Independent Variable**	**Dependent Variable**	**Sig.**	**Significant or insignificant**	**H accepted or rejected**
H1; Rliability & Accuracy of Market Information of Commodity exchanges has a positive & significant effect on electronic trade efficiency of ECX.	Rliability & Accuracy of Market Information	Electronic trade efficiency	.000	**insignificant**	**Rejected**
H2; Usage behavior has a positive& significant effect on electronic trade efficiency of ECX.	Usage behavior	Electronic trade efficiency	.000	**significant**	**Supported**
H3; Perceived ease to use &Compatibility have a positive & significant effect on market efficiency of ECX.	Compatibility &ease to use	Electronic trade efficiency	.000	**insignificant**	**Rejected**
H4; Relative Advantage has a positive & significant effect on market efficiency of ECX.	Relative Advantage	Electronic trade efficiency	.000	**significant**	**supported**
H5; Usage Behavior has a positive & significant effect on market efficiency of ECX.	Perceived usefulness	Electronic trade efficiency	.000	**significant**	**Supported**

Source: Survey result, 2021

According to Table 41, the standardized coefficients for the five independent variables Reliability &Accuracy of Market Information, Perceived ease of use, Compatibility, Relative Advantage, Perceived usefulness, Usage behavior, 1.33,1.33,1.33,0.663,1.33,0.993 and them

Significance levels are sig.000, sig.000, sig.000, sig.000 and sig 1.000 respectively.

The two independent variable such as, Relative advantage and usage behavior standardized coefficients .000 and .000 which is less than 0.05 respectively. This, indicates that a significant relationship between the independent variables and the dependent variable. Independent variable such as relative usage behavior standardized coefficient 1.000 are insignificant to dependent variable due to the result greater than 0.005. Since, coefficients of the predictor variables were accepted statistically significant at less than5% the hypotheses related to two variables and the other predictor variables were greater than 5% the most contributing independent variable in the prediction of the dependent variable. Thus, the strength of each forecaster (independent variable) contributing the criterion (dependent variable) can be investigated via standardized Beta coefficient. The regression coefficient describes the average amount of change in the dependent variable that is caused by a unit change in the independent variable. The larger value of Beta coefficient an independent variable has, brings the more support to the independent variable as the more important determinant in predicting the dependent variable.

4.5. **ANOVA Model Fit**

The regression model overall fit can be examined with the help of ANOVA. Accordingly, table 4.38 of this study shows that the value of R and R2 found from the model summary is statistically significant at (F=58.892), (P<0.001) and it can be said that there is a relationship between electronic trade efficiency and the predictors.

Table 38 ANOVA

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	58.892	3	19.631	5890107376115525.000	.000[b]
	Residual	.000	206	.000		
	Total	58.892	209			

a. Dependent Variable: Electronic Trade Efficiency

b. Predictors: (Constant), Usage Behavior, Perceived Usefulness, Relative Advantage

4.6. **Beta Coefficient**

4.6.1. **Standardized Beta Coefficient**

The standardized coefficients are the coefficients which can clarify the relative significance of illustrative factors. These coefficients are gotten from relapse examination after all the informative factors are standardized.

As it can be seen from table 4.39 below, the standardized coefficient of usage behavior is the largest *value followed by relative advantage*.

The larger the standardized coefficient, the higher is the relative effect of the factors to the electronic trade efficiency. The significance tests of the 6 explanatory variables indicate that 2 of the explanatory variables are significant with p-value (P>0.05) for predicting electronic trade efficiency. The rest 4 factors have a p-value >0 .05 (P<∂), and these factors are not statistically significant to predict electronic trade efficiency

Table 39 Beta Coefficient

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-1.333	.000		-27028059.903	.000
Perceived Usefulness	9.083E-16	.000	.000	.000	1.000
Relative Advantage	.625	.000	.663	81115110.232	.000
Usage Behaviour	.792	.000	.993	124814097.447	.000

a. Dependent Variable: Electronic Trade Efficiency

4.6.2. **Unstandardized Beta Coefficient ()**

As it is defined in chapter three, the unstandardized coefficients (1 up to 7) are the coefficients of the predictable regression model. Hence, by including the error term (ε), the model for electronic trade efficiency can be written as;

= 0 + 1 1 + 2 2 + 3 3 + ⋯+ 8 8 +

Y = -1.333 + 9.083X1 + .625X2 + 0.7927X3

The intercept (0) is the point on the vertical axis where the regression line crosses the Y axis. The value of 0 is 0.387 which means the expected value of electronic trade efficiency is -1.333 when all the six variables assume zero value.

Among the six factors, 2 of them are found to be statistically significant implementation factors and significant predictors of the dependent variable which is electronic trade efficiency. These are relative advantage and usage behavior. The beta coefficients of these factors indicate that an increase in the implementation factors has result in the increase in the performance of electronic trade efficiency.

Table 40 Residuals Statistics

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	1.50	4.50	4.32	.531	210
Residual	.000	.000	.000	.000	210
Std. Predicted Value	-5.308	.344	.000	1.000	210
Std. Residual	.000	.000	.000	.000	210

a. Dependent Variable: Electronic Trade Efficiency

Source: Survey result. 2021

4.7. Results of Interview

Interviewees were asked have you evaluated the capacity of traders? All interviewees suggested that, In terms of capacity of traders, it is important to first assess the potential of the market. But in their opinion, in the current context of trade transaction, it is not possible to measure the competence of the trader's capacity. Because they thought that even if there is a balance between demand and supply, it will create an opportunity to explore their potential. However, in the current situation or in the absence of Liquidity, This is because competency is measured by a set minimum standard. And, as a general rule, there is still a limit to the number of people who can reach the highest levels. This is not a matter of training; it is a matter of improving their consciousness.

According to the experts at the Exchange, the major benefits sought can be classified in to two: Short term and long term prospects. Most of these benefits and challenges are analyzed with regard to the market actors, the specific short term and long term benefits that ECX can capitalize from online trading are discussed below.

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

Expansion potential: Electronic trading will provide ECX ample opportunities to scale up its operations by way of enhancing its capacity to introduce new instruments, to launch new contracts, and to adapt to new models. Regional Integration: As the exchange transforms from the floor-trading model to the electronic trading model, it will begin its journey toward regional integration. The increase in volume provides the Exchange with increased revenue, which in turn will allow it to further strengthen its product offerings by forming partnerships with more exchanges.

The other challenge noted by the experts of the Exchange was related to the IT infrastructure within the Exchange. The reliance on technology will significantly increase. This requires strengthening and building multi-layered redundancy and robust processes to ensure business continuity at all mission critical levels of the operation. With lack of qualified professionals in the market and technology glitches, and infrastructural problems, past record of 100% up time of ECX trading platform may not be achievable with the online trading system. Interviewees also noted other operational challenges that would be encountered if the Exchange is going to have an electronic trading platform. From the interview

4.8. Discussion

In this section, the major findings will be summarized and result about of this investigate will be further expounded.

By Looking at the demographic profile of the respondents, the Ethiopian Commodity Exchange members are highly dominated by male. When looking into the gender profile of the respondents, it was found that male customers dominate their female counterparts.

The second parameter of the demographic profile of respondents in this study uncovers that Ethiopian Product Trade individuals are too concentrated inside the youthful age category populace between the age categories of 18-30.

With regards to the membership type more than half of the respondents (93.8%) stated that they are intermediary members. The reaming small proportions of respondents are trading members 6.2%. When having a look into what the respondents replied on the questionnaires, although they gave a more or less positive feedback for all the electronic trade efficiency dimensions,

The relationship between ECX E-Trading (as measured by the constructs of Trust, Attitude, Perceived Benefit, Risk and Ease of use) was investigated using standard multiple regression were carried out to examine the extent of the four predictors of the Online trading (perceived benefit, perceived ease of use, trust and attitude).Among the four variables, Perceived usefulness (Beta=.000, P<.05), relative advantage (Beta=.663; P<.05) and usage behavior (Beta=.993; P<.05) are making statistically significant unique contribution to increase the efficiency of electronic trade.

According to study findings, the correlation analysis proved Direct strong positive correlation between the online trading constructs and the ECX operational practice except that perceived ease of use and relative advantage has moderate correlation and the Regression analysis showed that the extent to which the four independent variables (Perceived benefit, Perceived ease of use, Trust, Attitude) predicts to be 47% of the variance which was statistically significant and influence on electronic trade efficiency of Ethiopian Commodity Exchange respondents.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1. Summary

The main objective of this study is to analyze measuring the level of efficiency of electronics trade platform at Ethiopia Commodity Exchange that the institution promised and working toward. Out of the total of 254 questionnaires distributed, 210 of them collected and processed as it is found to be sufficient to capture the required information.

In order to do this, six determinants of electronic trade efficiency variables are used. These variables are Reliability and accuracy of market information, Perceived ease of use, Perceived usefulness, Compact ability, Relative Advantage and Usage Behavior.

The finding indicates that these six independent variables are found to have a positive correlation
with electronic trade efficiency that revealed from the Pearson's Correlation Coefficient. The coefficients of the variables indicated that these variables have different magnitudes of correlation with each other too. As the finding reveals that compatibility, usage behavior and have the highest and strong positive relation whereas perceived ease of use, relative advantage, Reliability and accuracy of market information, relatively recorded moderate.

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

A sample size was selected using simple random technique and based on the theoretical framework and objectives of the study.

Twenty nine items were provided in a 5 point Likert scale to the respondents. The gathered data were analyzed by means of descriptive and inferential statistics using SPSS version 21 software.

The findings of the descriptive analysis indicate that majority of the ECX respondent are males and they are on the age group of 18-30.

5.2. Conclusions

ECX is fully employed the electronic platform. As it is an internet base trading and attention should be given to the power supply and the constant provision of the internet.

The trading contract is well acceptable by respondent it require update with the change in the business world.

From the general profile of respondents, it can be concluded that ECX as an Exchange that is anticipated to take after suit of its worldwide forerunners, has capacity related problems with its dealers. This result can be taken as one of the reasons that the Exchange electronics exchanging is wasteful. Additionally, it can moreover be concluded that there is absence of qualified traders for the electronic trading system that's anticipated to be the effect exchanging within the future. From the reliability and transparency of electronics system analysis dimension it can be implied that Ethiopia commodity exchange displaying reliable market information that is accurately recorded by its staff on time during each session. It can also be concluded that the traders dependence on the market information recorded, displayed, and disseminated is high, but also most respondents do not agree with the notion that the Exchange has a transparent price discovery mechanism.

The general skills that are related to online trading were also analyzed in the study. From the study findings it can be concluded that there is capacity gap in using computers and computer related functions that are the basics for trading using online trading system. The online trading skills and competency of members and clients was also analyzed. Findings revealed that respondents experience in using online related electronic trading, electronic payment applications and functions has the least mean score with poor results. On top of this, respondents' level of knowledge in the fundamental and technical skills is very low. There is also a skill gap among traders which can create an imbalance in the fairness of the online trading platform.

The other issues which were part of the study were the perceptions of members and clients to words a different means of trading which is online trading. From the findings it can be concluded that the traders perceive the electronic trading system will be easy to learn and make appropriate decision within the required time limit. From the perceived

usefulness perspective it is concluded that traders are benefited with improved performance, effectiveness and increase their profitability with using the online trading system. And also the electronic trading system will significantly increase the trading performance of the exchange.

From the findings on the relative advantage perception, it is concluded that traders perceive that they will have better market access, with changed order placing mechanisms. This perception is also useful to ECX that help in getting true price discovery and electronic trade efficiency.

From the finding in usage behavior perceptions, it can be concluded that members and clients have a strong belief that they will be part of the success of electronic trading platform in the future. And as the Exchange will be able to provide accurate, current, relevant and sufficient data in the trading screens, traders can easily react to changes more quickly.

The research also studied the infrastructure capability for trading using online trading systems.

Few respondents accept that there will be great infrastructure for trading. From this and discoveries of the meet, it can be concluded that foundation problem especially with System disappointment, telecom administrations may be a huge concern for the dealers and the Exchange.

It is also concluded that if the electronic trading system is more efficient the Exchange will benefit with better transparency in the market, new commodities can easily be added in to the system, and the Exchange will have better market integrity.

5.3. Recommendations

- In order to be reliable and transparent the exchange ought to create and utilize most recent ICT advances for advertise reconnaissance concepts strategies that seem offer assistance them distinguish showcase control behaviors in advance and construct the brief of advertise within the reconnaissance system in specific and within the by and large showcase in common. But moreover in expansion to brief message benefit (SMS) the Trade ought to too think of social media like Wire etc. to all partners to assist dealers make educated choices and adjust their control of negotiation.
- In order to permit individuals and clients of the exchange they ought to be well mindful of the basic and specialized apparatuses in expansion to the rules and directions. The Trade and ECXA should donate trainings on the elemental and specialized aptitudes should also be given to all advertise performing artists in arrange to make a generally adjusted state of knowledge
- Regarding the infrastructural issues confronted, the Exchange ought to utilize alternative implies to downtime related to control blackouts and to essentially decrease the downtime related with telecom blackout by introducing excess network choices counting settled line broadband and remote associations. The same approach ought to be utilized to maintain a strategic distance from framework disappointments at nearby region organize (LAN), neighborhood IT resource level and the central information center areas. And in arrange to ensure control the use of continuous control supply (UPS) and generators is exceedingly recommended.
- Furthermore, as seen in the findings the capacity problems of members is unquestionable and needs attention and highest priority. Exhaustive class room based awareness programs and continuous training and capacity building programs should be designed to members and clients.
- Developing elements of physical infrastructure that support commodity exchange and market development including information and communications technology, electricity, storage and logistics to develop good electronic trade efficiency.

- The information communication technology (ICT) office of the ECX was not giving palatable benefit. Hence, ECX ought to to grow their ICT office in advanced way and reaches/address to their part participants**.**

5.4. Areas for Further Research

This study has mainly focused on analyze measuring the level of efficiency of electronics trade platform at Ethiopia Commodity Exchange. Nevertheless, the findings should be interpreted carefully, as there were a number of drawbacks which also represent the electronic trade efficiency for further research electronic trade efficiency determinants include reliability and accuracy of market information, perceived ease of use, perceived usefulness, compatibility, relative advantage, and usage behavior. If there are other determinates that the researchers did not take in to account in this study, thus the future researcher could conduct a study on the same title by considering other determinant factors. Moreover, future research may investigate determinates of electronic trade efficiency of Ethiopian commodity exchange.

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APPENDIX I: QUESTIONNAIRE

Addis Abeba University School of Commerce

Department of Marketing Managment

Dear participants:

General introduction: My name is Firehiwot Gidey. I am MA student at Addis Ababa university school of commerce and I am doing my thesis research entitled, "Measuring the Level of efficiency of Electronic Trade in Ethiopia commodity exchange". This Questioner is designed to gather data from ECX. The aim of this survey is to identify and measure the efficiency of Electronic Trade at ECX. Your genuine, frank, timely response is vital for the success of my study. I want assure you that your privacy for responding to this questionnaire is completely kept in secret. 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 for your kind cooperation and precious.

Section I. General information

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

1. Gender: Male □ Female □
2. Age: 18-30 years □ 31-59 years □ 60 years and above □
3. Education qualification: Primary (≤ Grade 8) □
   Secondary (9 – 12th Grade) □ Diploma □
   Degree □ Post-graduate or above □
4. Occupation: Government employee □ Private sector □ Merchant□
   others……
5. Indicate your Membership Type 1. Regular Trader 2. Intermediary member 3. Client

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

   □ Coffee □ Sesame □ Pea beans □ other

7. How long have you been working with ECX?

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

   Between 4-5 years □ Above 5 years

Section II General Knowledge about ECX

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

   □ Excellent □ Very good □ Good □ Satisfactory □ Poor

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

   □ Excellent □ Very good □ Good □ Satisfactory □ Poor

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

   □ Excellent □ Very good □ Good □ Satisfactory □ Poor

Section III. General skills

1. Please indicate how often do you use the computer

   □ Daily □ Weekly □ Occasionally □ Never

2. Please indicate your computer skills

   □ Excellent □ Very good □ Good □ Satisfactory □ Poor

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

   □Yes □ No

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

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

5. Please indicate your Internet browsing skills

   □ Excellent □ Very good □ Good □ Satisfactory □ Poor

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

□ Excellent □ Very good □ Good □ Satisfactory □ Poor

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

□ Yes □ No

8. Please indicate your English language fluency

□ Excellent □ Very good □ Good □ Satisfactory □ Poor

Online Trading Skill and Competency Clusters

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

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

10. Please indicate your skills in using online trading applications.

□ Excellent □ Very good □ Good □ Satisfactory □ Poor

11. Please indicate your skills in fundamental market analysis.

□ Excellent □ Very good □ Good □ Satisfactory □ Poor

12. Please indicate your skills in technical market analysis

□ Excellent □ Very good □ Good □ Satisfactory □ Poor

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

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

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

Perceived Ease of Use Variables	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
18. I believe that the online trading system will not be cumbersome to use.					
19. I believe that it will be easy to get the system to do what you want to do.					
20. I think learning to operate or master the system will have no difficulty to me.					
Perceived Usefulness Variables	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
21. I believe that using the online trading system will improve my performance in trading.					

22. I believe that using the online trading system will enhance my effectiveness in trade.					
23. I believe that using the online trading system will increase the profitability of my company.					
24. I believe that doing trade (business) online is safe.					
Compatibility Variables	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
25. I believe that there will be good infrastructure for doing online trading.					
Relative Advantage Variables	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
26. I believe putting order for buying or selling through the online trading system will give me more advantage than the existing floor trading.					
27. I believe it will be good to change the existing method of placing orders by clients with online order placing system.					
28. I believe the online trading system will create a better access to market actors.					
Usage Behavior Variables	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
29. I believe the online trading system will allow me to react to market changes more quickly.					
30. I believe that I will be part of the future if the online trading system is developed.					

APPENDIX II: INTERVIEW QUESTIONS

Addis Ababa University School of Commerce

Masters of Marketing Management

Check List for in-depth Interview Questions for ECX Officials

Dear Respondent,

The objective of this interview is to gather and analyze relevant and in-depth information that will provide insights about the Efficiency of Electronic in the Ethiopia Commodity Exchange. This study is undertaken as a partial requirement for the completion of Masters in Marketing Management

1) What commodities/contracts are traded online?
2) Have you evaluated the capacity of traders?
3) What are the potential benefits of online trading to the exchange?
4) What do you think will be the big challenges of online trading system?
5) Is it feasible for the Ethiopia Commodity Exchange to implement online trading system?
6) Is there any infrastructural problems of the exchange?
7) Does electronic trading system is improving the performance of trading