

Indira Gandhi National Open University school  
of Continuing Education Department of Rural  
Development

OPPORTUNITIES, CHALLENGES AND PERSPECTIVES OF  
COMMODITY EXCHANGE FOR SMALL HOLDER FARMERS:  
The case of Ethiopia Commodity Exchange

Submitted to IGNOU- St. Mary University

MERON ENDALE

Enrolment No: 1216805

Tel-251-913-296-891

E-mail: meronendale@ymail.com

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Addis Ababa, Ethiopia

## **Declaration**

I hereby declare that the Dissertation entitled “**Opportunities, Challenges and Perspectives of Commodity Exchange for small holder farmers: The case of Ethiopia Commodity Exchange**”, Submitted by me for the partial fulfillment of the Requirement for the Degree of Master of Arts in Rural Development (MARD) to Indira Gandhi National Open University (IGNOU) is my own original work and has not been submitted earlier to IGNOU or to any other Institution for the Fulfillment of the requirement of any course of study. I also declare that no chapter of this manuscript in whole or in part is lifted and incorporated in this report from earlier works.

**Place:** Addis Ababa

**Date:** May 15, 2014

**Signature:**

**Enrolment No:** ID1216805

**Name-** Meron Endale Hailu

**Address- Mobile-** 0913296891

**Email-** [meronendale@ymail.com](mailto:meronendale@ymail.com)

## **Certificate**

This is to certify that Meron Endale, student of Master of Art in Rural Development from Indira Gandhi National Open University (IGNOU), New Delhi, has been working under my supervision and guidance for this project work. Her project work entitled “**Opportunities, Challenges and Perspectives of Commodity Exchange for small holder farmers: The case of Ethiopia Commodity Exchange**”, which she is submitting, is genuine and original work.

**Place:** Addis Ababa, Ethiopia

**Date:** May 15, 2014

**Signature:**

**Name:** MulugetaTaye, Associate Professor

**Address:** Tel: 0911345728

**Email-** [mulutaye45@gmail.com](mailto:mulutaye45@gmail.com)

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## **Acronyms**

ECX- Ethiopia Commodity Exchange

ECA- Economic Commission of Africa

GDP- Gross Domestic Product

NBE- National Bank of Ethiopia

IFPRI-International Food Policy Research Institute

UNCTAD- United Nation Conference on Trade and Development

FAO- Food and Agriculture organization

Lot - is a standard term used:

For Washed coffee, it is 30bags, one bag is 60kgs, that means 1 lot for washed coffee=1,800.00kgs

For unwashed coffee, it is 30bags, one bag is 85kgs, that means 1 lot for unwashed coffee=2,550.00kgs

For grains (non-coffee), it is 50bags (or 50quintals), one bag is 100kgs, that means 1 lot for grains (or non - coffee) =5000kgs.

## **ABSTRACT**

The paper examines the opportunities of Ethiopia Commodity Exchange for small holder farmers, challenges faced by small holder farmers in using the service of the exchange and its perspectives. The data was collected from 100 small holder farmers found under cooperative unions and dispersed small holder farmers. The data collected has been analyzed using qualitative and descriptive techniques. The main findings of the paper indicates the opportunity of ECX in reducing transaction cost is significantly low for dispersed small holder farmers as compare to those found under cooperative unions. The benefits of storage facilities, price risk management and standard and grading are also better exploited opportunities by farmers under cooperative union. The advantage of ECX in improving price transparency and price discovery is relatively better accessible service for dispersed farmers in relative to the other services. The findings of the study indicates the obstacles in using ECX service are language barrier, minimum lot size set by ECX, pre-requisite procedures to be client, literacy level of farmers and infrastructure problem. The perspectives of the exchange in improving the service to small holder farmers are electronic trading which enable market users remotely from the exchange sites and the introduction of Mung Bean as new trading commodity.













































# CHAPTER ONE- INTRODUCTION

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## 1.1 Background

Agriculture is the backbone of Africa's economy. About 70 percent of Africans and approximately 80 percent of the continent's poor live in rural areas and depends mainly on agriculture for their livelihoods. The sector accounts for about 20 percent of Africa's GDP, 60 percent of its labor force and 20 percent of the total merchandise exports (ECA, 2005). Agriculture is the main source of income for 90 percent of rural population in Africa. Despite rapid urbanization proceeding at the annual rate of 4.9 percent over the past decades, the sector remains the highest employer in Africa (ECA, 2011).

In fact, East Africa is frequently affected by food shortages even though the region, as a whole, has a huge potential and capacity to produce enough food for regional consumption and a large surplus for export to the world market. Among the factors leading to such a state of affairs are the issues of inadequate food exchange/trade between times and/or places of abundant harvest on the one hand, and those with deficit on the other, while high variability in production is caused by high variability of weather, which is becoming worse due to climate change (ECA, 2005).

Agriculture is central to most of Africa's rural population as it is not just only a major source of food supply, but also of household income. Some reports indicate that- eighty percent of the population is currently employed in the agriculture sector (Samuel, 2006). However, the production is done predominantly by smallholders, often cultivating less than 2 ha and is largely

rain-fed. Indeed, in these agriculture-based economies, smallholder farming accounts for about seventy-five percent of agricultural production and over seventy-five percent of employment (ECA, 2011). In areas with high population densities, smallholder farmers usually cultivate less than one hectare of land, which may increase up to 10 ha or more in sparsely populated semi-arid areas, sometimes in combination with livestock of up to 10 animals (Adeleke, Abdul and Zuzana, 2010). Investment in expanding the productive capacity of smallholder farmers in East Africa is therefore a vital component in building sustainable development in the context of food security. However, there are a multitude of factors that are prohibiting growth in the sector, the main being the inadequate infrastructure (Samuel, 2006).

Ethiopia is a country of smallholder agriculture. In the 2000 cropping season, 87.4 % of rural households operated less than 2 hectares; whereas 64.5 % of them cultivated farms less than one hectare; while 40.6 % operated land sizes of 0.5 hectare and less. Such small farms are fragmented on average into 2.3 plots (Samuel, 2006). The average farm size can generate only about 50% of the minimum income required for the average farm household to lead a life out of poverty, if current levels of farm productivity and price structures remain constant. A study by Adeleke, Abdul and Zuzana (2010) shows that landholding is one of the factors that constrains farm income and the level of household food security. Households with relatively small farm size are generally poor in cash income, have less access to credit and vulnerable for poverty.

According to NBE (2012), Ethiopia's economy is growing double digit, since the last eight years. In 2010/11, real GDP growth was 11.4 percent moderately higher than the 10 percent



growth a year earlier. This rapid and broad based economic growth places Ethiopia among the top performing African and other developing Asian countries. During the fiscal year 2012, agriculture grew by 9.0 percent due to improved productivity, good weather conditions and conducive policy environment. NBE report further states, Agricultural sector in Ethiopia contributes up to 41.1 % of GDP and 82 % of export and employs 80% of the country's labor force. At present the economy is dominated by low-productivity of agriculture on potentially highly productive resources and the majority of the people live in rural areas (John and Paul, 2010). Adeleke, Abdul and Zuzana (2010) found out, Ethiopia has still not realized its adequate economic potential, as the country has the lowest per capita GDP in this group and one of the lowest on the continent.

The continued growth of Agricultural sector is crucial for the country to achieve its food security, job creation, poverty reduction, and human and economic development goals, particularly in low-income countries (Lulit, 2012). Equipping Ethiopian farmers with information on the types of agricultural products they can grow and the price they can sell their products can help improve livelihood of farmers (Mesay, 2007). Faster agricultural growth has put countries on the path of a much broader transformation process: rising farm incomes; raising demand for industrial goods; lowering food prices, curbing inflation and inducing non-farm growth, and creating an additional demand for workers (Adeleke, Abdul and Zuzana, 2010).

The Government of Ethiopia is committed to rapid growth of agriculture as a means of accelerating the economic transformation and reducing poverty. Moreover, the Ethiopia's

government goal is to alleviate poverty via accelerated and sustained economic growth with primary policy of Agriculture Development Led Industrialization (ADLI). The current, five-year Growth and Transformation Plan (GTP) outlines targets that include the need to double the agricultural production by 2015(Lulit, 2012). If Ethiopia follows a normal pattern of high growth (agricultural growth at 6 percent per year), in 20 years the real size of the agricultural sector will have increased more than three-fold, but its share of GDP will have declined from 43 to 26 percent areas (John and Paul, 2010).

Despite its role as the major sector to the economy regarding export earnings, agricultural sector is characterized by its backward technology and dominance of small holder farmers with subsistence mode of production due to inefficient market as one of the reasons (John and Paul, 2010). Therefore in order to achieve a sustainable and structural transformation of its agriculture and rural economy, i.e. a process that involves a move from highly diversified subsistence modes of production towards more market oriented production systems. This integration will be facilitated by greater specialization, exchange and by the harnessing of economies of scale (ECA, 2011). Since commodity production and trade are the primary means of livelihood for millions of households, commodity sector development is essential for poverty alleviation and overall economic development (IFPRI, 2010). The development of agricultural commodity exchanges in Africa has become an increasingly popular strategy for addressing problems of African food markets; faced with both price volatility and high marketing costs, many see commodity exchanges as an alternative way to manage risks and increase efficiency in a liberalized market environment (Nicholas and Jayne, 2011).

The idea of establishing the Ethiopian Commodity Exchange was initiated in order to improve markets function in such a way as to reward quality, reduce transaction costs of market participation thus increasing returns to market activity, enable quick capital turnaround thus increasing market volumes, and reduce risk of market participation, then markets will serve the needs of buyers and sellers and contribute to the well-being of all who participate in the market economy. ECX's model is the first of its kind in Africa with its end-to-end integrated system of central trading, warehousing, product grade certification, clearing, settlement, delivery, and market information dissemination (Issac, 2011).

## **1.2 Statement of the Problem**

An estimated 75% of the world's poverty is in rural areas, and a large part of them are engaged to some extent in commodity production. Over the past few decades, the market for agricultural commodities has shown a pattern of long-term fall in prices and short-term price instability (Issac, 2009). UNCTAD (2009), documents the fact that “three fourths of the 1.2 billion people living on less than \$1 a day live and work in rural areas, about half of the world's hungry people are from smallholder farming communities, another 20 per cent are rural landless and about 10 per cent live in communities whose livelihoods depend on herding, fishing or forest resources”. It has been further noted that “improving the productivity of small-scale farmers has a ripple effect that spreads benefits throughout poor rural communities, boosting the incomes of the rural population as a whole, including landless laborers who make up a large part of the population of the poor and hungry in many countries” (FAO, 2008).

Therefore, the objective of increasing farm productivity cannot be achieved without major improvements in the functioning of African agricultural marketing systems. As a result, the

development of agricultural commodity exchanges in Africa has become an increasingly popular strategy for addressing some of the problems plaguing African food markets, including poorly developed risk management systems, high transaction costs, and limited price discovery (IFPRI, 2010). Addressing the sources of market failure is a fundamental long-run solution to Agricultural markets' inefficiency and price risk (Rashid & Jayne, 2010)

Eleni and Ian (2005) noted, Ethiopia's agricultural markets are characterized by high transaction costs resulting in only one-third of the output reaching the market. These costs, distinct from physical marketing costs, are costs related to conducting or coordinating market transactions between actors, such as the costs of searching for and screening a trading partner, the costs of obtaining information on prices, qualities and quantities of goods, the costs of negotiating a contract, the costs of monitoring contract performance, and the costs of enforcing contracts (Ndulu, 2008). Most of the Ethiopian farmers do not receive the right profit due to inaccurate information about market price, middle men, low bargaining power, low product grading, and quality standards. Thus, marketing costs amount to some 40 to 60 percent of the final price, of which some 70 percent is due to transport Small scale farmers, who produce 95 percent of Ethiopia's output, come to nearest market with little information and are at the mercy of merchants they know and are unable to negotiate better prices or reduce their market risk (ECX, 2008). This has resulted in loss of motivation for the farmers to produce surplus which leads to low household income and the export earnings of the country (Issac, 2011). Buyers and sellers tend to trade only with those they know to avoid the risk of being cheated. Trade is done on the basis of visual inspection because there is no assurance of product quantity and quality, which drives up marketing costs, leading to high consumer prices.

Furthermore, poor road and rail networks, inadequately sized farms, poor storage facilities, lack of credit, failure to enact land reform measures, failure to update traditional farming skills, inadequate farming research budgets, failure to use standard weights and measures, isolation and atomization of farming communities, and a poor and often inequitable marketing system consisting of long chains of informal traders and trading companies has contributed as a hinder for the growth of agriculture sector growth (Peter, 2011). Lack of proper marketing isn't the only problem, but also financial facilities and services (Lulit, 2005).

As a result, in order to attain Agricultural Development Led Industrialization goal of the country, there should be surplus market oriented production as well as efficient and effective marketing system that will enable farmers or other producers to gain the actual profit from what they produce (ECX, 2008). Urgent need to move beyond 'getting prices right' and towards 'getting markets' is needed, so as to address market failures arising from imperfect information, contract enforcement and property rights right' (Gabre-Madhin&Mezgebou, 2006). Ethiopian Commodity Exchange is established through proclamation number 550/99 in order to eliminate market related problems and to facilitate, transparent, efficient and innovative marketing system to protect the interests of both producers and consumers (Issac, 2011). In order to ensure positive and long lasting relationship across different market actors, the existence of efficient, transparent all inclusive market plat form including commercial farmers, small holder farmers, processor's, agents and traders is needed. Small holders generally have inadequate capital resources- including physical and financial resources, but also intellectual capital resources such as experience, education and extension- that limit their abilities to diversify production portfolios

(Ayalew, 2013). The key long-standing challenge of the smallholder farmers is low productivity from the lack of access to markets and credit (Adeleke, Abdul and Zuzana, 2010).

The paper intends to identify, analyze and assess the impacts made by Ethiopia commodity exchanges on economic growth, development, and poverty reduction, with a focus on the agricultural sector and particularly on small holder farmers. Despite the available literatures on market deficiencies in Ethiopia, no prior literature was conducted on opportunities of ECX for small holder farmer, encounters of small holder farmers in using the service and perspectives of the exchange to improve the existing service.

### **1.3 Objective of the study**

The overall objective of this study is to determine the effectiveness of Ethiopia commodity exchanges as a means of improving small holder farmers linkages to markets, and the advantages in terms of new opportunities; market information, grades and standards, contract enforcement, regulation, price discovery, efficient production, and marketing; and challenges faced by the farmers as obstacle for not taking the advantage of benefit and its perspectives in improving the current service.

The specific objective of this paper is:

- To assess the benefits of Ethiopia commodity exchange for small holder farmers in reducing transaction costs, price transparency and price discovery; and other new opportunities that arise as a result of the establishment the exchange.

- To identify challenges faced by small holder farmers in using the service of the exchange and constraints that hinder the exchange from further expansion.
- To examine the perspectives of Ethiopia Commodity Exchange in improving the service of the exchange to small holder farmers.

#### **1.4 Significance of the study**

There is very limited number of studies that has been made on this specific area of study in Ethiopia. The study will enlighten and contribute its part in filling the knowledge gap in light of the opportunities that has arisen as a result of the establishment of Ethiopia commodity exchange. Furthermore, to build awareness of the solutions that commodity exchanges provide, tackles faced by the small holder farmers in using the service of the exchange and constraints embedding the pro-growth, pro-development symbiosis within exchange and in the economy as a whole. In general, the research intends to generate data about opportunities, challenges and perspectives of Ethiopia commodity exchange for small holder farmers and their role in poverty reduction. Hence, different stakeholders such as current and potential members, clients, exchange administrators, researches, policy makers and implementing bodies are expected to be users of the outcome of this research for their respective decision-making with this regard. Moreover, the study is expected to advance the knowledge about the contribution of Africa commodity exchange and can be used as reference to the academic world by enhancing the available knowledge in this area. It may also provide baseline information for further research regarding commodity exchanges in Africa.

## **1.5 Research Design & Methodology**

### **1.5.1 Description of the study Areas**

The study areas, LumeAdama cooperative union, Southern Region Farmers' cooperative Federation Ltd and Tigray Multipurpose Marketing Federation Ltd are purposely selected cooperatives and regional study areas because of their diversified location and the presence of diversified small holder farmers' cultivation which are believed to be helpful to better address the objective of the study. Therefore, the sample small holder farmers that have been taken varied based on their regional location and product specialization. Southern Region Farmers' cooperative Federation Ltd is located around Hawassa city in the Southern Nations, Nationalities and Peoples' Region of Ethiopia. The city is located 270km south of Addis Ababa. The region is known for its production of coffee. Tigray Multipurpose Marketing Federation Ltd is located in Northern Ethiopia Humera City, in Tigray Region of Ethiopia which is well-known for its sesame production. Humera city is found 977km north of Addis Ababa. LumeAdama cooperative union is located around Mojo city in the Oromia Region which recognized for its White pea bean production. Mojo city is located 70.3km south of Addis Ababa.

### **1.5.2 Sampling Design**

A combination of probability and non-probability sampling techniques has been employed to carry out data collection. A stratified random sampling, in which coffee, sesame and white pea bean as a three strata has been employed. The grand total volume of mandatory traded commodities since the establishment of ECX April, 2008 up to recent budget closing month July, 2013 is 635,397.27 lots (a standard unit of measurement). The percentage share of the cooperative union out of the grand total is 1% i.e. 6983.23 lots. The percentage share of each



mandatory traded commodity out of the total volume (6983.23 lots), that the cooperative unions traded during this period, is 69%, 17% and 14% for coffee, sesame and white pea beans respectively. A total of 100 small holder farmers were participated in this study. Therefore the sample size vary, in which they are in proportion to the size of each stratum i.e. 69, 17 and 14 samples for coffee, sesame and white pea beans respectively. The non- probabilistic purposive sampling technique was employed to collect data from small holder farmers under cooperative unions and dispersed small holder farmers. Hence 80% of the samples are collected from small holder farmers under cooperative union and the rest 20% samples are collected from dispersed smallholder farmers. LumeAdama cooperative union, Southern Region Farmers' cooperative Federation Ltd and Tigray Multipurpose Marketing Federation Ltd, are selected cooperatives and area of study in which the sample are taken.

### **1.5.3 Data collection Tools**

The researcher is currently working in Ethiopia Commodity Exchange for more than one year and half at the position of Clearing House Assistant and Membership Assistant. Hence, the researcher has adequate knowledge and better availability of data on the area of Ethiopia commodity exchange and its participants. The study was relied on primary and secondary sources. The method followed throughout this paper is quantitative and descriptive in nature. The primary data is conducted using questionnaires and interviews. Both closed and open ended questions were administered. The interview is conducted from the staff of the ECX and other concerned parties using unstructured form of interview questions. The major sources of secondary data include researches, publications and literatures organized on commodity exchange.

## **1.6 Scope of the study**

The study is limited to smallholder farmers who are currently using the service of Ethiopia Commodity Exchange and producing commodities which are mandatory traded i.e. coffee, white pea bean and sesame. Due to financial, time as well as resource constraints, the study was limited to and conducted on smallholder farmers' communities under the area of Southern Region Farmers' cooperative Federation Ltd, LumeAdama cooperative union and Tigray Multipurpose Marketing Federation Ltd, which are located in Hawasa, Mojo and Humera cities respectively. The sample for dispersed small holder farmers collected from the areas which are adjoining to the above cities.

## **1.7 Organization of the study**

The study is organized in to five chapters. Chapter one consists of the background, problem statement, objectives, significance, methodology and scope of the study. Chapter two discusses review of theoretical and empirical literature on Ethiopia commodity exchange and small holder farmers in Ethiopia. Methodology and description of the study is presented in chapter three. Chapter four discusses the finding of the study and empirical analysis. The last chapter presents conclusion and recommendations.

# CHAPTER TWO-LITRATURE REVIEW

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## **2.1 Theoretical Analysis**

### **2.1.1 Conceptual and Theoretical definition of Commodity Exchange**

Commodity Exchange is defined as a platform for organized trade between multiple buyers and sellers, or for facilitating transactions between commodity producers and finance providers (AU, 2005). At its simplest, a commodity exchange is essentially a way of organizing trade between buyers and sellers on the basis of formalized rules and procedures known and agreed upon by all market participants and self-enforced by the members of the exchange themselves who defend the integrity of the market. The core principle of an exchange is to create incentives for self-enforcement by its members, the private market actors, although an exchange also depends on the regulatory and legal environment provided by the state (Eleni, 2006).

Ian (2011) explained that commodity exchange is an open and organized marketplace where ownership titles to standardized quantities or volumes of specific commodities (usually agricultural) are traded by its members for their clients. According to AU (2005), the trade is characterized in two major aspects: the first characteristic is the exchange provides a fairly comprehensive framework of disciplines within which trade takes place: not only does it provide a trading forum, but it also sets the rules and criteria to which those using the market have to conform. Buyers and sellers do not intervene directly on markets, but rather through brokers, who, among other things, act as gatekeepers to the system by screening their clients. The second characteristic is that there is some form of specialization and standardization in the commodities that are sold through the exchange.

## **2.1.2 Basic Functions of Commodity Exchange**

Commodity exchanges provide three basic functions: price transparency (everyone has access to a neutral reference price); price discovery (demand and supply developments are easily reflected in price levels); and reduced transaction costs (it is easier to find buyers or supply through a centralized market place) (AU, 2005). The purposes served by a commodities exchange depend in part on the nature of the specific contracts that are traded (IFPRI, 2010).

Exchanges normally help to define better quality standards, speed up the process of product standardization, and improve the discipline in the market place. Exchanges create incentives for market participants to produce commodities that meet exchange specifications, and behave according to exchange rules. The main functions of a commodity exchange as stated on AU (2005) are briefly presented as follow:

- Firstly, one of the normal functions of exchanges is to provide security to the transactions that take place on its trading platform, which makes it much easier for buyers in one country to enter in to a commercial relation with a previously unknown seller in another country.
- Secondly, it enables buyers to discover new regional and international markets: the supply and demand for African commodities will become visible for all, and the exchange platform should then enable actual transactions to take place.
- Thirdly, it makes prices more transparent, signaling to traders' opportunities for profitable price arbitrage through regional trade and allowing farmers to better chose their cropping patterns to meet market demand.

- Fourthly, an exchange will normally invest in physical market infrastructure. For example grading facilities, information systems and warehousing structures all of which will facilitate long-distance trade.
- Fifthly, regionally integrated Commodity Exchange facilitates market information i.e. poorly informed farmers and traders can get transparent market information price.
- Sixthly, they can reduce wastage in commodity trade. They can lead improved access of producers, traders and distributors to commodity finance. As a result, they can reduce market inefficiencies between regions or from one season to the other.

### **2.1.3 Types of contract in commodity exchange**

**Spot Exchange** - The exchange would function as a platform for physical trade for immediate or nearby delivery (within 30 days or less). The normal model would be for buyers and sellers to appoint brokers who act on their behalf. The main advantages of such exchange trade for its users are that they trade with a larger market and can thus expect easier transactions and better prices; and that trade takes place within a regulated environment.

**Forward Contracts** – The most simple and primitive type of derivative contract is a forward contract. It is a contract to buy a thing or security at a prefixed future date. The feature that makes it different from a spot contract is the delivery period. In the spot contract, the delivery is immediate to the contract where as in the case of forwards; it is deferred to a later pre agreed date. The typical usage of a forward would be something like this: a processor has a confirmed order of delivery of a product 3 months hence. The processing will begin in two months' time. There is a price risk here: if the raw material faces a price rise, the business has to write a loss.

**Future Contracts** - Futures have their origin from forwards. They are more standardized forms of forward contracts and mostly through an organized setup such as an Exchange. A futures contract is a contract between two parties to exchange assets or services at a specified time in the future at a price agreed upon at the time of the contract. In most conventionally traded futures contracts, one party agrees to deliver a commodity or security at some time in the future, in return for an agreement from the other party to pay an agreed upon price on delivery. The former is the seller of the futures contract, while the latter is the buyer.

### **2.1.4 Smallholder farmers in Ethiopia**

Ethiopia is a country located in the Horn of Africa. It is bordered by Eritrea to the north, Djibouti and Somalia to the east, Sudan and South Sudan to the west, and Kenya to the south. With over 85,000,000 inhabitants, Ethiopia is the most populous landlocked country in the world and the second-most populated nation on the African continent. It occupies a total area of 1,100,000 square kilometers (420,000 sq mi).

Ethiopia continued to maintain the double digit growth rate which averaged 11.4 percent over the last eight years. In the fiscal year 2010/11, real GDP growth was 11.4 percent moderately higher than the previous year's growth of 10.4 percent. This high economic growth, which is broad based, placed Ethiopia among the top performing African and other developing Asian countries. Accordingly, Ethiopia's real per capita GDP rose to USD 392 from USD 377 a year earlier. The resilience of the Ethiopian economy is projected to continue through 2011/12 and show 11.0 percent growth compared to 5.5 percent for Sub-Saharan Africa and 4.4 percent for the entire world (NBE,2012).

Table 2.1: Sectoral Contribution to GDP and GDP Growth

Items		Fiscal Year						
		2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
Sector	Agriculture	39,728	44,062	48,225	51,843	55,141	59,348	64,698
	Industry	11,402	12,561	13,757	15,150	16,616	18,374	21,178
	Services	33,312	37,747	43,534	50,519	57,576	65,084	73,368
Total		84,443	94,371	105,517	117,514	129,333	142,807	159,244
<i>Less FISM</i>		639	896	1,018	1,323	1,489	1,619	1,780
Real GDP		83,804	93,474	104,499	116,190	127,844	141,187	157,464
Growth in Real GDP		12.6	11.5	11.8	11.2	10	10.4	11.4
Real GDP per capita		1,334.0	1,441.0	1,553.0	1,664.0	1,764.0	1,933.0	1,946.4
Share in GDP (in percent)	Agriculture	47.4	47.1	46.1	44.6	43.1	42.0	41.1
	Industry	13.6	13.4	13.2	13.0	13.0	13.0	13.4
	Services	39.7	40.4	41.7	43.5	45.0	46.1	46.1
Growth in Real GDP per capita		9.0	8.0	7.8	7.1	6.0	9.6	8.5
Agriculture	Absolute Growth	13.5	10.9	9.4	7.5	6.4	7.6	9.0
	Contribution to GDP growth	6.4	5.1	4.4	3.3	2.7	3.2	4.69
	Contribution in percent	50.8	44.5	36.9	29.9	27.6	30.8	41.1
Industry	Absolute Growth	9.4	10.2	9.5	10.0	9.9	10.6	15.0
	Contribution to GDP growth	1.3	1.4	1.3	1.3	1.3	1.4	1.53
	Contribution in percent	10.1	11.8	10.7	11.7	12.9	13.3	13.4
Services	Absolute Growth	12.8	13.3	15.3	16.0	14.0	13.0	12.5
	Contribution to GDP growth	5.1	5.4	6.4	7.0	6.3	6.0	5.26
	Contribution in percent	40.1	46.6	54.2	62.5	63.4	57.6	45.6

Source: NBE Bulletin report of 2012

Smallholder agriculture continues to play a key role in African agriculture. In East Africa through case studies of Kenya, Ethiopia, Uganda and Tanzania, these agriculture-based economies, smallholder farming accounts for about 75 percent of agricultural production and over 75 percent of employment. However, contributions of smallholder farming, and agriculture in general, to the region's recent rapid growth during 2005 - 08 have remained limited.

Stimulating the agricultural sector, and in particular smallholder agriculture, is a precondition for achieving high and sustainable growth, poverty reduction and food security in East Africa.

Despite its enormous potential, however, the performance of agriculture (including smallholders) has so far been disappointing. Ethiopia, for example, suffers from structural food insecurity largely due to poor exchange of food across regions and may remain so for the foreseeable future. The government and international community intervene in Ethiopia through provision of food aid.

African smallholder farmers can be categorized on the basis of: (i) the agro-ecological zones in which they operate; (ii) the type and composition of their farm portfolio and landholding; or (iii) on the basis of annual revenue they generate from farming activities. According to Adeleke, Abdul and Zuzana, (2010), in areas with high population densities, smallholder farmers usually cultivate less than one hectare of land, which may increase up to 10 ha or more in sparsely populated semi-arid areas, sometimes in combination with livestock of up to 10 animals. Most smallholder operations occur in farming systems with the family as the center of planning, decision-making and implementation, operating within a network of relations at the community level. In this study, smallholder farmers, defined on the basis of land and livestock holdings, cultivate less than 2 hectares of land and own only a few heads of livestock.

Ethiopia is a country of smallholder agriculture. In the 2000 cropping season, 87.4 % of rural households operated less than 2 hectares; whereas 64.5 % of them cultivated farms less than one hectare; while 40.6 % operated land sizes of 0.5 hectare and less (Samuel, 2006). Recent growth acceleration in Ethiopia and a few successful sub-sectors in other studied countries notwithstanding, contributions of smallholder farming, and agriculture in general, to the region's recent rapid growth during 2005 - 08 have remained limited. The sector has so far failed to provide the basis for development, including through industrialization, in spite of a series of reform attempts undertaken in the country (Adeleke, Abdul and Zuzana, 2010).



### **2.1.5 Factors affecting smallholders market participation**

In most African countries the agricultural marketing systems are characterized by high food distribution margins and seasonal price variability. For instance, a spatial margin is quite high 23% in Ethiopia. Agricultural markets in most African countries, they offer a means to address others, such as reducing transaction costs, improving storage and easing access to trade finance. Transaction costs are very high in agricultural markets in Africa. Small-scale farmers typically face proportionally the steepest transaction costs if they look to participate in markets (UNCTAD, 2009). Lack of formal quality/grading standards creates uncertainty about the quality and quantity attributes of goods being traded, hence the need for physical sampling, which raises the cost of transacting. Further, most traders are not involved in seasonal storage or speculation but operate on small volumes over short distances, storing their goods for less than a month. This means that the stabilizing function that traders play in other markets through temporal and spatial arbitrage is severely limited in African agricultural markets (UNCTAD, 2007).

UNCTAD (2007) further noted lack of efficient storage facilities is one of the factors which limit temporal arbitrage and contribute to high seasonal price variability. Storage management capacity is also highly variable in many countries and lacks of formal grading standards make it difficult to assure storability of the produce as well as its valuation, thereby making collateralization of commodities very difficult. Lack of inventory credit limits the capacity of traders to store while similarly discouraging producers from holding inventories, as they are compelled to sell the bulk of their output immediately after harvest, when prices are very low, primarily to meet the cash needs of farm households. Lenders tend to be reluctant to provide inventory finance partly because of lack of transparent systems of price discovery as well as institutions and instruments for managing price risk.

## **Small holder farmers under Cooperative Union**

Cooperatives have well recognized immense development potential in overall socio-economic and other aspects of societal life. Farmers create farm supply and marketing cooperatives to help them maximize their net profit. This requires both effective marketing of their products for better prices as well as keeping input costs as low as possible. The farmers recognized that they are usually more efficient and knowledgeable as producers than as purchases. By selling and buying in large volumes they can also usually achieve better prices (Tilahun, 2010) Furthermore Cooperatives help in transaction advantage and mobilizing members' effort and resources. They ensure flexibility and adaptability to changing market situation.

Highly organized Cooperative Unions are licensed to export directly without trading through ECX. However, the cooperatives use ECX service of grade standardization to sell at the international market. Small holder farmers under these cooperative unions are better off even before the establishment of ECX, since they can sell to the international market without private exporters' involvement. Even though it is not mandatory to trade through ECX, these cooperative unions trade through ECX to sell their byproducts or buy commodities to export. On the other hand, Cooperative unions with low financial and resource capacity use ECX to sell their products to exporters and wholesalers as either client or member of ECX.

Currently there are 15 trading and intermediary member cooperative unions trading in ECX which accounts 4.6% of sit share. In the near future 18 cooperatives will be added in order to raise the share of cooperative unions to 10% and encourage their participation by selling membership seats at relatively fair price. As it is indicated in the below figure, 95% of the commodity is produced by small holder farmers and only 18% of the total commodity produced

supplied through cooperative union, the rest will be supplied by wholesalers. Peter (2011) report that of Ethiopia's 28 million farmers, 26,000 are organized in co-ops and/or associations, representing 18 per cent.

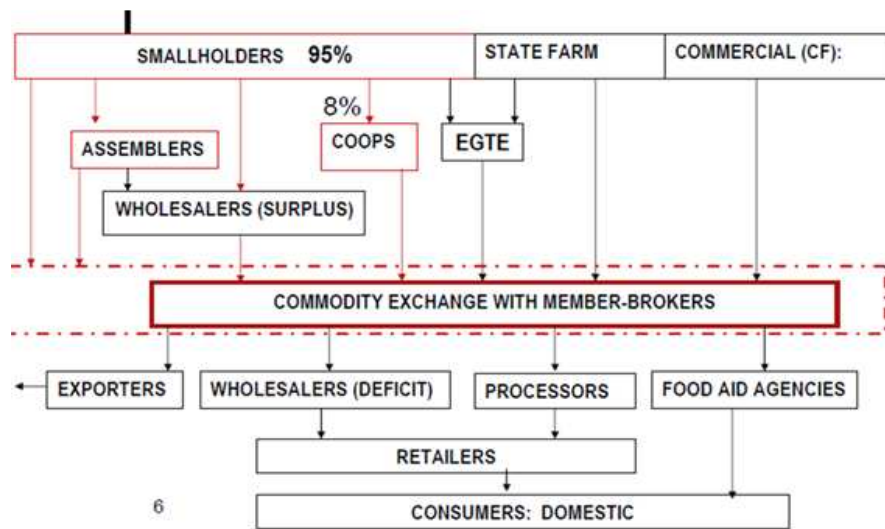


Figure 2.1: Forward and backward Market channel through ECX, Source: ECX

### **2.1.6 Organizational structure of Ethiopia Commodity Exchange**

The Ethiopia Commodity Exchange (ECX) is a new initiative for Ethiopia and the first of its kind in Africa. ECX is the most recent Spot/Cash exchange in Africa, which began live trading on April 24th 2008. The vision of ECX is to revolutionize Ethiopia's tradition bound agriculture through creating a new marketplace that serves all market actors, from farmers to traders to processors to exporters to consumers. The ECX is a unique partnership of market actors, the Members of the Exchange, and its main promoter, the Government of Ethiopia.

ECX is run by a board representing farmer cooperatives, the state-owned grain trading enterprise and trading members. ECX creates opportunities for unparalleled growth in the commodity sector and linked industries, such as transport and logistics, banking and financial services, and

others. The trading platform involves the use of open outcry but an electronic trading system is being developed and is expected to be launched in the near future. Coffee is the main commodity traded by ECX but Maize, Wheat, Sesame and Beans are also listed for trading. (UNCTAD, 2007).

ECX assures all commodity market players the security they need in the market through providing a secure and reliable End-to-End system for handling, grading, and storing commodities, matching offers and bids for commodity transactions, and a risk-free payment and goods delivery system to settle transactions, while serving all fairly and efficiently.

ECX operating through open outcry or manual system has been the means by which exchanges conduct open and competitive trading. The system involves a method of communication between brokers and their supporting professional staff shouting and using hand signals to transfer information about buying or selling orders on the trading floor (also called a pit). There are three bodies governing the ECX: (i) the Ethiopian Commodity Exchange Authority (ECEA) as a state regulatory body, (ii) the Exchange, and (iii) the national association of market actors. The ECEA is a public institution, which approves and regulates contracts, membership, trading, clearing, and other ECX rules. It safeguards the interests of society. Its specific objectives are to promote innovation, access to market information by all market participants and fair competition among markets and market participants; to deter and prevent price manipulation or any other disruption of market integrity; to ensure the financial integrity of all transactions and the avoidance of systemic risk; and to protect all market participants from fraudulent or other abusive trading practices and misuses of customer assets. The ECEA is accountable to the Prime Minister (Dawit and Gerdien, 2010).

## **Membership**

ECX members are the core actors of the Exchange. A membership seat is a permanent and transferable right to trade on the Exchange. Members can be any individual, company, public enterprise, or cooperative that meets the membership requirements. Owners of membership seats, or Members, are required to follow the Rules of the Exchange and thus maintain the integrity of the ECX marketplace. Members are liable for the transactions they conduct through ECX.

There are two classes of membership:

- Trading Member (TM) trades only his or her own account
- Intermediary Member (IM) trades either on his or her own account or on behalf of Clients

Members may also appoint Authorized Representatives to trade or otherwise act on their behalf.

An Authorized Representative is an individual employed as an agent or is staff of a Member.

There are 347 members currently trading in ECX. About 12,634 clients are working under these members. The type of business these members are doing and the type of commodity the clients' trades are classified as follows:

Table 2.2: Type and number of members engaged in ECX

<b><u>Type of business the members engaged</u></b>	<b><u>No of members</u></b>
Supplier	104
Exporter	155

Wholesaler	17
Grain	58
Processor	6
Total	347

Table 2.3: Number of clients and type of commodity traded

<u>Type of commodity</u>	<u>No. of clients</u>
Coffee	5,474
Sesame	6,004
Maize	34
Pea beans	1,122
Total	12,634

Source: ECX - Membership Data Base

A Client can be represented through an Intermediary Member (IM) or Limited Intermediary Member. A client of an IM has the opportunity to buy and sell all of commodities offered by the exchange. Clients have the right to submit to the Exchange Arbitration Tribunal any claims, controversies or disputes initiated by the intermediary member on the invalidation, performance termination, or cancellation of the trade contract.

The involvement of brokers helps assure delivery of the commodity sold by ensuring that appropriate procedures are initiated for transferring title to the underlying commodity to the buyer. They also guarantee payment to the seller by ensuring that buyers provide adequate funds in accessible accounts for settlement of deals.

**Membership requirements-** If it is a member in addition to the membership seat price, the price for which it won the seat auction; it pays an annual membership maintenance fee of 8625 including the vat. In addition, for Trading members-200,000 birr and for Intermediary members 300,000 birr is deposited in accordance with his class of membership as Security Guaranty Fund (SGF is money deposited in the Exchange's bank account in cash or CPO as safety in case of failure to pay the payment) and Net worth of minimum one million Ethiopian birr is required in order to become Intermediary member. If it is a client, then all these costs are negotiable between the client and ECX member and will need to be put in the client-member agreement. Other requirements in order to become either a client or member are business license, Commercial registration certificate and competency letter approved by the Ministry of agriculture office.

### **Warehouse Operation**

ECX offers an integrated warehouse system from the receipt of commodities on the basis of industry accepted grades and standards for each traded commodity by type to the ultimate delivery 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 ECX coffee laboratory is the first in Africa to be certified that it has met the rigorous quality standards of the Specialty Coffee Association of America (SCAA). This internationally sought to further enhance Ethiopia's standing in the international The SCAA Lab Inspection & Certification Program exists to promote SCAA's mission to recognize,

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



Table 2.4: Warehouse Capacity by Warehouse Site (in Bags)

	Warehouse Sit	EFY 2004(2011/2012		EFY 2005(2012/2013)		Commodity Type		Distance From Addis Ababa
		No of warehouses	Total Storage Capacity volume	No of warehouses	Total Storage Capacity volume	Coffee	Grain	KM
1	Addis Ababa(Saris)	4	300,000	4	300,000	x	x	-
2	Dire Dawa	2	58,000	2	58,000	x		515
3	Hawassa	4	238,000	4	185,000	x		273
4	Jimma	3	169,000	2	228,000	x		346
5	Dilla	2	178,000	3	125,000	x		390
6	Bedelle	2	60,000	1	50,000	x		580
7	Gimbi	3	300,000	1	300,000	x		450
8	Adama	4	138,800	4	135,000	x		90
9	Nekemte	2	100,000	3	150,000		x	330

10	Bure	5	224,000	5	215,000		x	410
11	Humera	11	460,600	12	479,000		x	988
12	Gondar	7	187,000	7	255,000		x	738
13	Metema	4	250,000	3	250,000		x	888
14	Assossa	1	50,000	1	50,000	x		685
15	Soddo	1	72,000	1	60,000	x		329
16	Bonga	2	95,000	2	85,000	x		450
17	Kombolcha	1	100,000	1	100,000	x		384
18	Total	58	2,980,400	56	3,025,000			

Source: ECX

### **Trading Operation**

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.

## **Market Data**

The ECX Market Data strategy involves harnessing 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 market dissemination 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 ([www.ecx.com.et](http://www.ecx.com.et)).

Tickers -ECX envisages disseminating its market information during on and off trading hours to 200 strategically selected regional market sites across Ethiopia. The ECX Electronic Displays are transmitting real time (under 4 seconds) prices of all commodities traded on its platform. Currently, the electronic displays are operational in 21 locations Such as 6 Coffee sites: Addis Ababa, Nazareth, Shashemene, Awassa, Nekempte, Jimma, Dire Dawa, Harar, Gonder, Bahir Dar, Dessie and Mekelle. ECX plans to rollout 200 tickers by end of 2002 E.C of which, 40 new tickers in critical market sites by the end of this year.

The Mobile Phone SMS - SMS is text messages sent and received with mobile phones. ECX is harnessing this technology to disseminate market information and intelligence. ECX is the process of developing an SMS market information via Ethiopia's mobile phone service provider. The SMS system will allow anyone from anywhere in the country where the mobile phone network exists can in easy steps access market prices, commodity related news headlines, weather forecasts, and other relevant market information.

The IVR System -The ECX Interactive Voice Response (IVR) system is a fully automated telephone based system that will allow stakeholders to access price information 24 hours a day, 7

days a week. Once it goes live, the IVR system may be accessed using mobile / wireless / fixed line telephone network which makes critical market price information within the reach of stakeholders located in all parts of the country. The IVR system features a voice menu that disseminates real-time and historical (up to 7 days) price information in Amharic, Oromiffa, Tigrigna, and English languages.

The Website -The ECX website (www.ecx.com.et) provides real time market data on all commodities traded. It also provides historical data, research, news, graphs, contract specifications and other key information. Media (TV, Radio, and Newspaper):

ECX is disseminating market information on daily basis via radio, television and newspaper. Prices are disseminated in Amharic, Oromifa, Somali and English languages.

Table 2.5: Market information disseminating channels

<b>Media</b>	<b>Disseminating Time</b>
ETV	Daily at 8:15pm
Ethiopia National Radio	Daily at 1:00pm and 8:00pm
Sheger FM 102.1Radio	Daily at 6:00pm
Addis Zemen Newspaper	Every Wednesday
Ethiopia Herald Newspaper	Every Wednesday
Fortune Newspaper	Every Sunday

Capital Newspaper	Every Sunday
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Source: ECX

### Market Intelligence

•Market Bulletin - ECX provides a summary of price comparisons with local and international prices; analysis and market developments via its weekly market bulletin. The analysis includes graphs, commentary and research on international markets and commodities traded on its platform.

•Market Hotline - ECX provides real time market information and updated international market prices for ECX members via a dedicated telephone line.

•Info Center - ECX info center provides a variety of market information such as, daily domestic and international prices, market trends, production and weather forecast, market related news and events, etc.

### Compliance

The Compliance Division is responsible for formulating and enforcing the Rules of the Exchange and all other relevant laws affecting the operation of the Exchange. To achieve this broad objective, the Rules of the Exchange establish four separate units with specific mandates. These are: (1) Rules and Regulations; (2) Compliance Monitoring and Investigation; (3) Discipline and Enforcement; and (4) Arbitration Tribunal. The Compliance Division also serves the official liaison with all local and international regulatory bodies and provides overall legal counsel to divisions of the Exchange on the proper and sound operation of the Exchange.

## **Clearing House**

ECX's zero default, fast and efficient Clearing and Settlement department assumes Central Counter Party (CCP) risk for all members trades. It establishes the net obligations of each member, informs the members of their daily net obligations and transfers cash funds and commodity ownership among members.

Currently, there are 11 banks working in collaboration with ECX; these are Commercial Bank of Ethiopia (CBE), Dashen Bank S.C, Awash International Bank S.C, United Bank S.C, NIB International Bank S.C., Wegagen Bank S.C., Bank of Abyssinia S.C., Oromia International Bank S.C., Lion International Bank S.C., Construction & Business Bank S.C. and Cooperative Bank of Oromia S.C.

### **2.1.7 Mandatory Traded Commodities in ECX**

Coffee, Sesame and pea-beans should only be traded through ECX in order Export. Nevertheless, highly organized and financially strong cooperative union can directly export without trading through ECX.

**COFFEE-** Coffee, Ethiopia's largest export crop, is the backbone of the Ethiopian economy. Ethiopia is probably the oldest exporter of coffee in the world. In 2005 it was the sixth largest coffee producer after Brazil, Colombia, Vietnam, Indonesia and India, and the seventh largest exporter worldwide. It is the largest coffee producer and exporter in Africa. Historically coffee accounted for over 60 per cent of Ethiopia's total export revenues (Nicolas, 2007).

Two coffee species *Coffea Arabica* and *Coffea Robusta* or *canephora* are currently used for commercial purposes. *Coffea Arabica* contributes about over 90% of the world production and

also this is the species Ethiopia uses as commodity for international and local market. Arabica coffee still grows wild in the forests of the south-western part of Ethiopia, which remains an important source of genetic resources of the world coffee industry.

Coffee has been growing in Ethiopia for thousands of years, in the forests of southeastern Ethiopia. Typically, coffee is grown at mid-altitude – between 1,300 and 1,500 meters – but it can adapt to conditions above or below that range. The coffee berries are typically picked by hand. The flesh of the berry is removed before the berry is fermented. After it has been dried and sorted, the coffee is roasted prior to being consumed – most frequently as a beverage, but also as an ingredient in other foodstuffs. Ethiopia processes dominantly through sun drying and wet processing method using fermentation process.

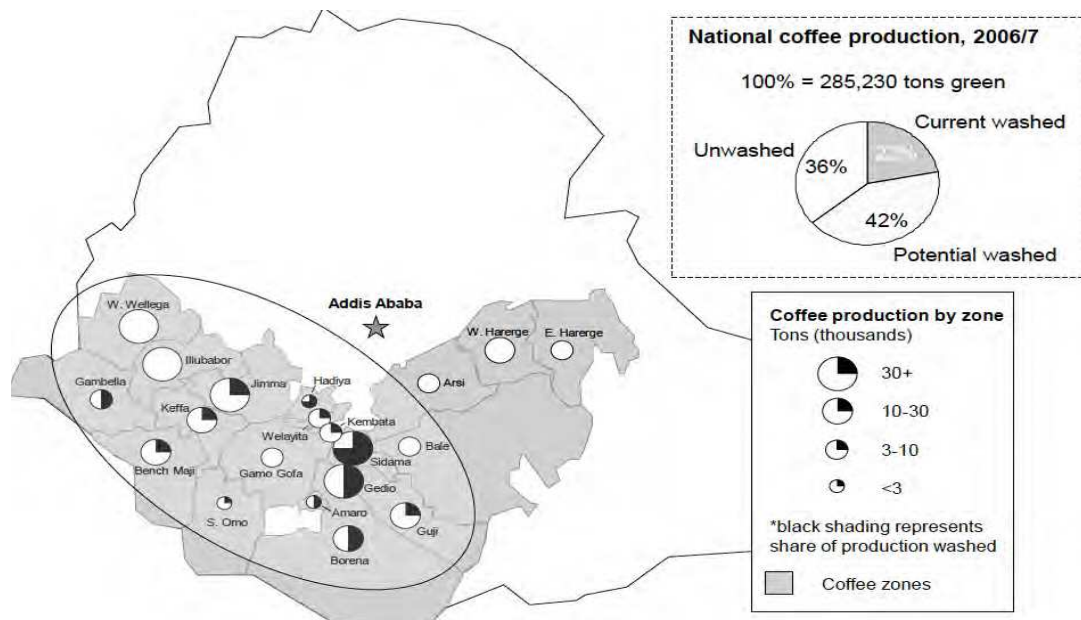


Figure 2.2 - Coffee Growing Areas in Ethiopia and Approximate Production Volume. Source:

ECX

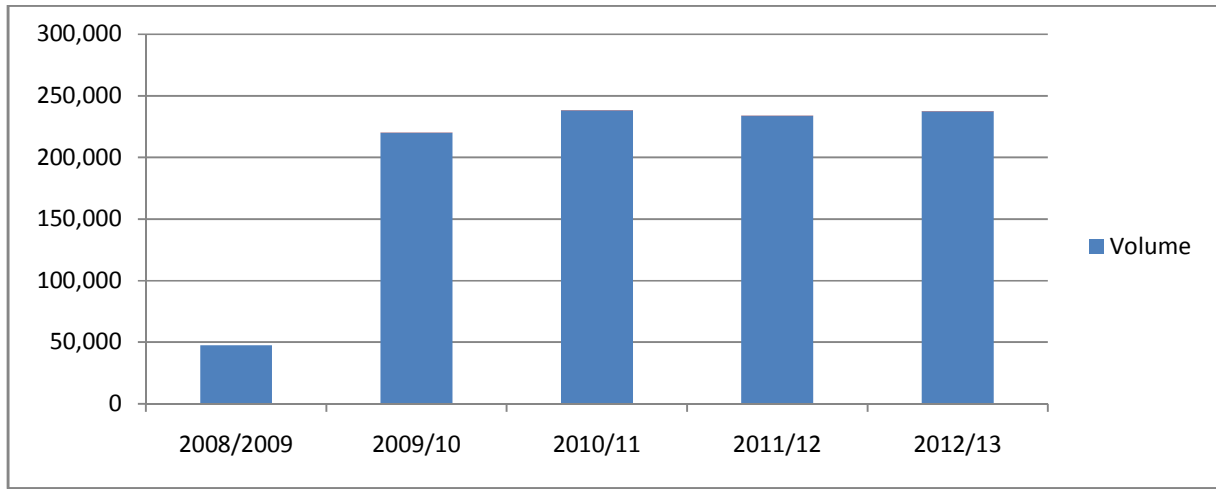


Figure 2.3: The volume of coffee traded in ECX in ton; Source: ECX (2013)

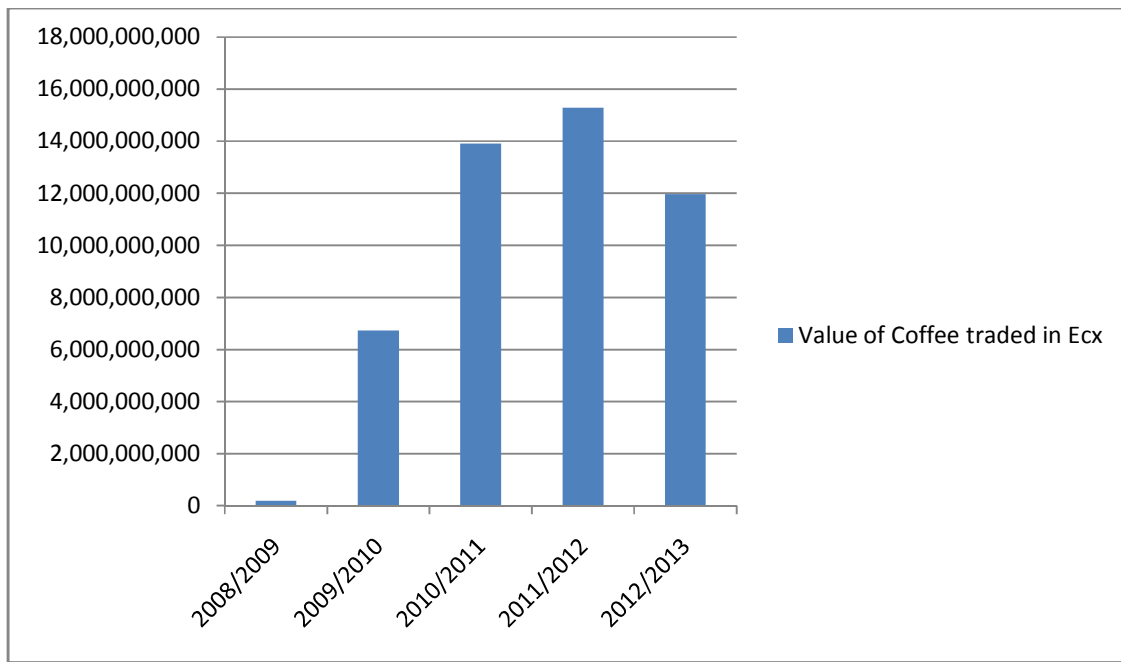


Figure 2.4: The value of coffee traded in ECX in Birr; Source: ECX (2013)

**PEA BEANS**- White pea beans are grown in Ethiopia during two seasons, the short rainy season in the spring and the longer rainy season in the summer. It is not locally consumed crop; more



than 90% of the harvest is sold for export market. Many small holder farmers are engaged in this crop production.

White pea beans produced in many parts of Ethiopia. Oromia, SNNP, and Amhara are the main production areas. Other regions are also producing significant amount. Through different white pea beans varieties are distributed for farmers for higher yield and improved quality, the product mainly classifies on its shape and size. Round and flat shapes are the main category of white pea beans. But each category also has further classification based on its size. The size of white pea beans classified as A, B and C. Class A white pea beans size ranges from 4.0 mm to 8.0 mm. Class B is above 8.0 mm and class C is below 4.0 mm.



Fig. 2.5 Haricot Bean

Several varieties of them are consumed in SNNPR, Eastern Hararge, and Western Ethiopia usually mixed with other cereals. Pea beans are used boiled, fried, or in the form of soups. It is also milled or grounded to make stews. In recent years the white pea beans have got major share in the countries pulse export.

Currently, almost all white pea bean products pass through ECX before they reach to exporters. Therefore the quality of this product depends on the standard requirements of ECX. The quality of white pea beans is collection of features and characteristics of a product that contribute to its ability to meet given requirements. These requirements are clearly stated in the contract document.

Table 2.6: The Trade Performance of Pea Bean, Volume in Tons and Value in Dollar

	<b>Volume</b>	<b>Value</b>
<b>2010/11</b>	<b>40,594</b>	<b>23,384,831.46</b>
<b>2011/12</b>	<b>63,929</b>	<b>31,319,814.35</b>
<b>2012/13</b>	<b>82,683</b>	<b>88,425,713.99</b>

Source: ECX Database (2013)

## **SESAME**

Sesame cultivates in many parts of Ethiopia. Oromia, Amhara&Tigray, are the main production areas. SNNP, Gambela, Benishangul and other regions are also producing significant amount. The product classified mainly on color, whitish and reddish colors are the main colors. It is also observed black color sesame in some areas. This black color sesame cannot find at the market. Producers are using this sesame for their own edible oil production.

Whitish sesame also has two categories; Humera/Gonder and wollega type sesame. Humera/Gonder sesames are cultivated at Tigray&Amhara region of north Gonder. Humera/Gonder sesame is brighter in color and its oil content varies from 43-48% by weight. All

other sesames except the above areas are classified as Wollega type. It is not as whitish as Humera/Gonder type and its oil content is 48-52% by weight. Currently, all sesame seed products pass through ECX they reach to exporters. The quality of sesame is collection of features and characteristics of a product that contribute to its ability to meet given ECX requirements. These requirements are stated in the sesame contract document.



Figure 2.6 sesame seed

Table 2.7: The Trade Performance of Sesame, Volume in Tons and Value in Dollar

Year	Value	Volume
2008/09	105	180,306.23
2009/2010	405	580,941.64
2010/2011	224,819	311,446,629.21
2011/2012	302,716	351,250,176.59

2012/2013	215,229	300,898,431.56
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Source: ECX Database (2013)

## **2.2 Empirical Analysis**

### **2.2.1 Empirical Analysis on specific African Countries**

There has been growing interest in promoting commodity exchanges in Africa since the early 1990s when agricultural marketing systems were liberalized. Ghana, Nigeria, Kenya, South Africa, Uganda, Zambia and Zimbabwe are among African countries where agricultural commodity exchanges were established in the 1990s as part of reforms to modernize and improve the performance of agricultural commodity marketing systems after a general scaling back of the pervasive interventions by the state in supply of farm inputs, provision of agricultural credit and produce marketing systems (UNCTAD, 2007). The only successful African commodity exchange that has been created during that time is in South Africa. Three regional initiatives in West Africa also had no success. In general, more than twenty initiatives have failed in the past ten years or so (although some initiatives are still ongoing and it is perhaps too early for a definitive judgment) (AU, 2005).

As stated on Nichols and Jayne (2011), the three primary constraints to the development of vibrant commodity exchanges in the region are: (i) market size; (ii) weak infrastructure and underdeveloped financial services; and (iii) lack of supportive legal and regulatory frameworks.

#### **2.2.1.1 Zambia Commodity Exchange (ZAMACE)**

The Zambian agricultural commodities exchange was established in 2007. Its main traded item has been wheat, followed by maize and soya beans. The study prepared by Nichols and Jayne

(2011) which aims at finding constraints to the development of Zambia Commodity Exchange (ZAMACE) concludes the following six factors impede the volume traded on the ZAMACE exchange. First, Zambia's commodity markets are characterized by a high degree of risk and uncertainty associated with contract non-compliance, shirking, and opportunistic behaviors by some actors. Second, there are very few true commodity brokers in Zambia due to weak incentives to invest in the creation of brokerage firms. There is ambiguity that whether the broker truly acting as a broker or trying to get the highest price for the farmer, or is he actually trying to buy low from the farmer in order to maximize profits. The third factor is that thinly traded markets increase the cost of participation relative to traditional trading systems. The fourth central factor is related to market participant's perceptions that because of market thinness, individual actions on the exchange can move prices. The fifth factor concerns the financial sector has "no confidence" in the exchanges; as a result banks have not actively participated in the exchange as brokers or encouraged their clients to use the exchange when selling or procuring commodities. The sixth factor is the ad hoc and unpredictable nature of government intervention in commodity markets. The Zambian government frequently imposes trade bans, changes in import tariff rates, and the release and/or accumulation of stocks at prices very different from the market, all of which have major effects on market prices. As a result of the above reasons ZAMACE hadn't attract sufficient market size, both in terms of volume of trade and number of participants.

### **2.2.1.2 Uganda Commodity Exchange (UCE)**

Uganda Commodity Exchange Limited (UCE) is a corporate entity registered in 1998 through the initiative of private sector players with four founding shareholders namely, the Ugandan Cooperative Alliance, Ugandan Coffee Trade Federation, National Farmers' Association and

Commercial Farmers Association. The UCE became operational in 2002. The commodities currently traded at the exchange are coffee, sesame, maize, beans, soya beans, and rice with quantity specification of minimum 10 tons per lot for every commodity. The commodity exchange is linked to the Warehouse Receipt System and UCE has been delegated the regulatory function of warehouse receipts. Standards are being developed to ensure that farmers produce what the market requires to avoid wastage that currently characterizes production of rural producers (Dawit and Gerdien, 2010).

### **2.2.1.3 Zimbabwe Agricultural Commodities Exchange (ZIMACE)**

The Zimbabwe Agricultural Commodities Exchange (ZIMACE) was established in 1994 and its member-shareholders were mainly producer associations, millers, major grain traders and the state owned Grain Marketing Board (GMB). It was run as a private operation funded by fees from members and commissions. The main commodities traded were maize, wheat and soybeans. Daily trading sessions were held on the floor of the exchange, using open outcry and trading was through appointed brokers. Standard ZIMACE warehouse receipts issued for deposited commodities and formed the basis of trading on the exchange. By 2001, the value of contracts traded by ZIMACE was about US\$500 million – the success primarily due to the integrity of the underlying systems that guaranteed delivery and payment. Apart from JSE/SAFEX, the ZIMACE was the most successful spot/cash agricultural commodity exchange in Africa until 2004 when the Government of Zimbabwe introduced strict controls in the grain trade and consequently banned it (UNCTAD, 2007).

#### **2.2.1.4 Kenya Agricultural Commodity Exchange (KACE)**

The Kenya Agricultural Commodity Exchange (KACE) is a private sector firm that has been in operation in Kenya since 1994. KACE has been an important private sector initiative that has made significant contributions to agricultural marketing in the country, and to smallholder farmers in particular in two ways: linking producers and buyers of agricultural commodities, and provision of market information for commercial actors within the subsector.

Mukhebi (2004) in his study implied the major challenges KACE faces consist of poor quality of produce that farmers deliver combined with the fact that most small-scale farmers find it difficult to deliver in bulk which is ideal for an exchange; most of the commodities in Kenya are heavily regulated by boards and are grown and marketed in an environment of struggling cooperatives, which are inefficient, mismanaged and have cumbersome internal bureaucracies; fragmented markets, government intervention and significant infrastructural deficiencies are mentioned. As a result trade through KACE has always been minimal. To overcome the stated challenges, KACE is supporting smallholder farmers to organize themselves into marketing associations in order to cost-effectively access market and information services provided by the exchange.

UNCTAD (2007) states KACE major achievements have been in collecting and disseminating market information as well as operating an electronic bulletin board through which sellers and buyers “advertise” commodities they intend to sell or buy. KACE has not instituted any standards pertaining to grades and minimum lot sizes and has no designated warehouses as licensed delivery locations.

### **2.2.1.5 South Africa Futures Exchange (SAFEX)**

The South African Futures Exchange (SAFEX) was established as a financial futures exchange in 1988 after South Africa's financial liberalization in the 1980s. The Agricultural Markets Division (AMD) was established in 1995 as a separate division of SAFEX (UNCTAD, 2009). SAFEX was, and remains, the only active commodity futures market not just in South Africa but on the entire African continent. The standard lot sizes per contracts are 100 tones of maize, and 50 tones of wheat and sunflower seeds and 25 tones of soybeans. On the average, SAFEX trades futures and options contracts representing about 200,000 tones of maize per day. Currently JSE/SAFEX disseminates all its price information at no cost. This includes end-of-day files, and delayed prices from the trading system every 15 minutes, as well as all price-history and physical-delivery information. Industry representatives have suggested that almost all farmers are aware of JSE/SAFEX prices, as they are used as the basis for pricing in physical contracts. Indeed, because contracts are deliverable on a daily basis, the JSE/SAFEX near-month price is also used as the effective spot rate in the South African grain market (UNCTAD, 2007).

### **2.2.1.6 Ghana Commodity Exchange (GCX)**

Between the late 1990s and early 2000s, there was initiative to establish commodity exchanges and related market institutions in Ghana. The promoters of Accra commodity exchange were unable to actively engage other stakeholders in promoting the exchange which failed to take off and did not record in any formal trade in commodities. It is not surprising that the initiative were unsuccessful because the promoters were unable to set up the basic prerequisites for an exchange. They did not install transparent trading systems, had no registered brokers, lacked robust rules and procedures for contract enforcement as well as dispute resolution and did not



institute a trusted clearing and settlement system. Furthermore, they lacked a credible delivery system. Hence, they can be described as exchanges only in name as they lacked the essential institutional infrastructure to facilitate exchange-based transactions and therefore attract market player (UNCTAD, 2007).

### **2.2.1.7 Abuja Securities and Commodity Exchange (ASCE)**

The Abuja Securities and Commodity Exchange (ASCE) was originally incorporated as a Stock Exchange on June 17, 1998. It was converted into a commodity exchange in August 2001. The ASCE is wholly owned by the Federal Government of Nigeria as a parasternal under the Ministry of Commerce. It has three categories of members, namely: Ordinary members, Trading members and Institutional trading members. The ownership and management of ASCE are completely separated from the rights of members. According to UNCTAD (2007) report the ASCE operates within a clearly-defined regulatory framework involving oversight of the exchange and its trading members by the Nigeria Securities and Exchange Commission (NSEC). It has basic institutional infrastructure including an electronic trading platform, a bank-based clearing and settlement system and dispute resolution system which appeared to have worked well with no major complaints from market actors.

### **2.2.2 Empirical Analysis on ECX**

There is limited number of research made regarding ECX. The study tried to review some of available research studies in this area.

According to Peter (2011), in his research to determine the effectiveness of newly developed commodity exchange in Zambia, Kenya, Uganda, Malawi and Ethiopia, the system has failed to

achieve the objective to address the primary goal of improving market system in the other four countries with the exception of Ethiopia. The study further states ECX is developed very differently from the systems in the other four countries, for instance the mandatory commodity component is considered as one of the reasons for the success of the Exchange.

In reviewing factors affecting smallholder coffee farmer's participation in ECX, Ayalew (2013) noted, in adequate access to basic infrastructural facilities and services such as road, electric power and telecommunication service has limited smallholders from maximizing the service provided by the exchange. The study further states their participation is limited by factors that emanate from their nature and dynamics of the modern market platform establishment by the exchange, such as strong competition for membership seat, settlement guarantee fund, net worth capital requirement and trading fees and charges of ECX.

# CHAPTER THREE- Research Design and Methodology

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## **3.1 Description of the Study Area**

For this study purpose, smallholder farmers, is defined on the basis of land and livestock holdings, cultivating from 2 up to 10 hectares of land. The selected cooperatives and regional study areas are believed to be helpful to better address the objective of the study because of their diversified location and presence of diversified small holder farmers' cultivation. There are 15 trading and intermediary member cooperative unions currently trading in ECX. From this, three cooperative unions were selected for the study purpose. The sample small holder farmers that were taken varied based on their regional location and product specialization.

Southern Region Farmers' cooperative Federation Ltd is located around Hawassa city in the Southern Nations, Nationalities and Peoples' Region of Ethiopia. Hawassa is found on southern Ethiopia, on the shores of Lake Awasa in the Great Rift Valley. Located 270 km south of Addis Ababa via DebreZeit, 130 km east of Sodo, 75 km north of Dilla and 1125 km north of Nairobi, Hawasa is the capital of the Southern Nations, Nationalities, and Peoples Region and is a special zone of this region. The city lies with a latitude and longitude of 7°3'N 38°28'E: 7°3'N 38°28'E with an elevation of 1708 meters.

Tigray Multipurpose Marketing Federation Ltd is located in Northern Ethiopia Humera City, in Tigray Region of Ethiopia which is well-known for its sesame production. Humera is a town and separate woreda in northern Ethiopia, near the borders of Sudan and Eritrea. Located in

Mi'irabawi Zone of the Tigray Region, this town has latitude and a longitude of 14°18'N 36°37'E.

LumeAdama cooperative union is located around Mojo city in the Oromia Region which recognized for its White pea bean production. Mojo (also transliterated as Modjo) is a town in central Ethiopia, named after the nearby Modjo River. Located in the MisraqShewa Zone of the Oromia Region, it has a latitude and longitude of 8°39'N 39°5'E with an elevation between 1788 and 1825 meters above sea level. It is the administrative center of Lomeworeda.

### **3.2 Sampling Design**

The method followed throughout this paper is quantitative and descriptive in nature. Both probabilistic and non-probabilistic sampling techniques were used. A stratified random sampling on coffee, sesame and white pea bean as a three strata has been employed. The sample size vary, in which they are in proportion to the size of each stratum i.e. 69, 17 and 14 samples for coffee, sesame and white pea beans respectively.

The non- probabilistic purposive sampling technique was employed to collect data from small holder farmers under cooperative unions and dispersed small holder farmers. Hence, about a total of 100 samples were administered in which 80% of the samples are collected from small holder farmers under cooperative union and the rest 20% samples are collected from dispersed smallholder farmers.

### **3.3 Data types and sources**

The research is conducted through collecting data from both secondary and primary data sources. The primary data are collected from selected farmers under cooperative unions, dispersed

farmers, suppliers (brokers) and ECX staffs. Both closed and open ended questions are administered. The interview is conducted from the staff of the ECX and other concerned parties using unstructured form of interview questions. The major source of secondary data is a study made by the United Nations Conference on Trade and Development (UNCTAD) on emerging Commodity Exchanges comprising leading exchanges of five developing countries – Brazil, China, India, Malaysia and South Africa.

### **3.4 Data collection tools**

The first phase of the questionnaire was aimed to assess the size of land and the type of commodity that the respondents cultivate. The second phase of the questionnaire was planned to capture information on respondent access to market information, access to storage facilities and access to credit facility. The third phase of the questionnaire is open ended type and seeks to find out challenges in using the services. The data collection was managed by designated experts, working in ECX at position of Product Development specialist and Member Development specialist, who have extensive experience on awareness creation and client development. Brokers who buy the commodity from dispersed farmers have also participated in distributing the questionnaire.

# CHAPTER FOUR- Results and Discussions

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## **4.1 Impact of ECX to the Economy**

**Market development** – ECX enables greater market flexibility and more efficient geographical mobility of goods (national integration of markets). Considering the geographic dispersion of surplus and deficit areas of the country and the road infrastructure, Addis Ababa is a logical center for the domestic grain market. Thus, Addis Ababa constitutes the primary reference market for the country, as the focal point in which buyers from deficit areas meet sellers from surplus areas.

**Enhance transparency of trade opportunities-** ECX minimize transaction cost, decrease long supply chain of brokers and collectors and squeezes out rent seeking intermediaries from supply chains. A commodity exchange can create markets, by providing a forum in which multiple buyers and sellers trade commodity-linked contracts. ECX has reduced the costs associated with finding a buyer or seller with whom to transact. Commodity exchange helps to reduce factors including distance, more pronounced information asymmetries, and barriers to trade, divergent business practices, and cultural and linguistic differences. The establishment of primary market at regions is also considered as one indicator of market development that aims to eliminate unnecessary actors from the value chain so that farmers and legal traders will benefit from the transaction.

**Reduce seasonal price volatility-** The arrival of goods to market becomes more balanced, instead of having commodities arrive in large. Efficient price formation for agricultural commodities can lead to an increase in the allocative efficiency of the agricultural sector. Prices typically act as a signal that informs the commodity-production, purchasing and investment

decisions of sector participants. Therefore, as pricing becomes more reflective of the underlying supply/demand fundamentals in the sector, so these decisions lead to more efficient outcomes that can increase the net welfare gains to sector participants.

**Increase government tax revenue-** One of the impacts of the commodity exchange to the economy is in reducing tax invasion. The net obligation issued by ECX states, TOT, withholding and VAT obligation of the traders which is directly reported to the Ethiopian Revenue and Customs Authority.

**Increase Employment-** The establishment of ECX creates new job opportunity for more than 600 employees at the Addis Ababa head office and regional warehouses. Moreover, it has open new business opportunities for its member traders as legal brokers.

**Enhance ICT Infrastructure-** ICT has the potential to increase the speed and efficiency of market performance, and to reduce the costs of volume expansion and new product development. Relevant and timely market information packaged and delivered by low-cost technology based systems can improve the competitiveness of smallholder farmers in the market place for better prices (Mesay, 2007). Furthermore, ICT can enable exchanges to overcome the market-access barriers faced by small-scale farmers that are caused by geographical distance and deficient physical infrastructure.

**Facilitates export promotion-**As a result of the establishment of ECX, buyers from abroad have access to standard price index and grade information through ECX website, Bloomberg and Reuters international medias about export commodities traded in ECX. Therefore, ECX has its

own impact in developing and upgrading the confidence of foreign buyers. Moreover, ECX reputation and success can be considered as one input in facilitating export promotion.

**Enhance sectorial integration**-Since ECX ecosystem compiles Government Organizations (Ministry of Trade, Ethiopian Revenue and Custom Authority and Ethiopian Commodity Exchange Authority), Exporters, Cooperatives, Wholesalers, Commercial Farmers and Banks, it enhances the transparency of export items and develop strong integration between Agriculture and Trade sector as a whole.

#### **4.2 Opportunities of ECX for small holder farmers**

Totally, 100 household heads were considered in this study. The respondents have been classified under two groups as small holder farmers grouped under cooperative unions and dispersed smallholder farmers grouped under non cooperatives. About 55% of coffee sample were taken from Southern Region Farmers' Cooperative Federation Ltd, 14% of the sesame sample were taken from Tigray Multipurpose Marketing Federation Ltd, 11% of Pea Beans sample were taken from LumeAdama cooperative union and the rest 13%, 4% and 3% of coffee, sesame and pea bean respectively were taken from dispersed farmers as it is shown in Table4.1.



Table 4.1 Summary statistics of sampled small holder farmers

	Southern Region Farmers' cooperative Federation Ltd	Tigray Multipurpose Marketing Federation Ltd	LumeAdama cooperative union	Dispersed Farmers (Non- Cooperative)
Coffee	<b>55</b>			<b>14</b>
Sesame		<b>14</b>		<b>3</b>
Pea Beans			<b>11</b>	<b>3</b>

Source: Compiled from primary data by the researcher

The total composition of farmers (both grouped under cooperatives and non-cooperatives) in terms of commodity they cultivate, are 69 for coffee, 17 for sesame and 14 for pea beans. The farm size of sampled farmers varies from 2 to 10 hectare and the average farm size for these sampled farmers is found to be 4 hectare.

#### **4.2.1 Basic Functions of Commodity Exchange in relation with small holder farmers**

As it is discussed in the literature review, ECX's model is the first of its kind in Africa with its integrated system of central trading, warehousing, product grade certification, clearing and settlement, compliance and market information dissemination. We tried to examine the opportunities of ECX for small holders' farmers based on the three basic functions of exchange comprising price transparency, price discovery and reducing transaction costs.

**Price transparency**- enabling everyone to have access to a neutral reference of price all over the country is one of the primary aims of the exchange. Price information considered as key for

bargaining power. As stated in the statement of the problem, before the establishment of ECX because of market information deficiencies the bargaining power of small holder farmers was weak. According to the data in hand, 20% and 75% of respondents respectively strongly agree and agree their bargaining power and income have increased as result of ECX. On the other hand, it was conveyed that 5% of the respondents reported reversely as indicated in Table 4.2.

Table 4.2: Improvement in income status and bargaining power

	Frequency	Valid Percent	Cumulative Percent
Strongly agree	20	20.0	20.0
Agree	75	75.0	95.0
Disagree	5	5.0	100.0
Total	100	100.0	

Source: Compiled from primary data by the researcher

The finding of this study implies farmers bargaining power has improved as a result of the establishment of the exchange. Farmers are more informed about market and price information. The price transparency has empowered participants in negotiating and enforcing contracts. Consequently, their income has been improved by receiving better price from intermediaries because of access to neutral & impartial reference price. Price transparency has also enhanced farmers in order to minimize risk. It enables them to hold their commodity until price level is good.

**Reducing Transaction Cost**– One of the basic functions of commodity exchange is reducing transaction costs by offering services at lower Cost than that which participants in the commodity sectors would incur at the traditional market.

Transaction costs are related to conducting or coordinating market transactions between actors, such as the costs of searching for and screening a trading partner, the costs of obtaining information on prices, qualities and quantities of goods, the costs of negotiating a contract, the costs of monitoring contract performance, and the costs of enforcing contracts. Most of small holders' farmers in Ethiopia are found in remote areas producing small volume of commodity in fragmented land. Small holders' farmers were victims of high transaction costs of searching and of holding working capital during search.

Primary Market Centers (PMCs) were established in 2010/11 to encourage legal trading and improve the quality of the coffee brought in to the market. It was designed in order to minimize long supply chain of brokers and collectors so that coffee growers and legal traders will benefit more from the transaction. Primary market centers are outside ECX boundary considered as primary market place aiming coffee, sesame and pea bean growers to benefit more from the transaction. Primary Markets Centers are market places found at nearby distance, for those farmers producing lower volume of commodity (below the minimum standard set by the exchange) and found at remote areas. According to Peter (2011), the primary markets were planned to have a quality manager, to test the products, a security guard and storage capacity. The plan was to have 100,000 primary markets, so that no farmer has to travel more than seven kilometers to reach one. The centers are playing an important role in restructuring transaction as they target removing some unnecessary actors in the value chain.

As we can observe from table 4.2, 94% of farmers under group cooperative union agree the cost of trading through ECX is fair. However, 6% of respondents grouped under cooperatives and 35% of non-cooperatives respond disagree indicating that the cost of trading through ECX is affordable. In addition, according to the survey result, about 65% of the respondents grouped under non-cooperative strongly disagree the cost of trading through ECX is fair.

Table 4.3 Cost of trading through ECX

	Strongly Agree	Agree	Disagree	Strongly Disagree
Cooperatives (Frequency)	-	75	5	-
Percentage	-	94%	6%	-
Non-Cooperatives (Frequency)	-	-	7	13
Percentage	-	-	35%	65%

Source: Compiled from primary data by the researcher

The respondent under group non-cooperatives reveals that they sell their products at the nearby Primary Market Centers since ECX service is unaffordable and inaccessible to trade directly in the exchange. On the other hand, respondents grouped under cooperatives states by selling their products in large volume they can access the service effectively by marketing their products for better prices as well as keeping input costs as low as possible.

**Price discovery-** the other basic function of commodity exchange is Price discovery. Price discovery implies to the mechanism through which prices come to reflect known information about the market. The price level established on the open market can therefore represent an accurate depiction of the prevailing supply/demand situation in the underlying commodity markets. Rewarding quality products allow those active farmers in the commodity sector to commit investment that yield long-term gains and higher-revenue crops (UNCATD, 2009).

Price dissemination, reduced information asymmetries and improved farmer returns can benefit farmers who are vulnerable to receiving sub-optimal prices. Information disseminated by the exchange can therefore reduce the information asymmetries that privilege intermediaries, and can empower participants in the commodity sector to take better decisions in light of a more accurate understanding of market conditions. Moreover, it helps the farmers to decide when the optimal time is to deliver goods to market (UNCATD, 2009).

Table 4.4 Market price disseminating channels followed by respondents

Valid	Frequency	Percent	Valid Percent	Cumulative Percent
Radio	1	1.0	1.0	1.0
TV, Radio, SMS & Price	23	23.0	23.0	24.0
Word of Mouth	3	3.0	3.0	27.0
SMS	23	23.0	23.0	50.0

Radio and Telephone	27	27.0	27.0	77.0
TV and Radio	12	12.0	12.0	89.0
TV and SMS	11	11.0	11.0	100.0
Total	100	100.0	100.0	

Source: Compiled from primary data by the researcher

Regarding market disseminating channel, the majority of the respondents' uses Radio & Telephone disseminating channel followed by TV, Price sticker, radio & Telephone. The respondent grouped under non cooperative explained market information is considerable service that they better access. However, due to infrastructure problem such as network, literacy level of the farmers and financial capacity (since they are living in extensive poverty, it makes difficult in affording accessories), it is difficult to access the market information adequately.

#### **4.2.2 Other opportunities of ECX**

**Storage Facilities**– ECX offers storage facilities for its trade participants. Warehouse facilities qualified by the exchange have strong incentives to introduce effective practices for overseeing delivery, grading the delivered commodity, and guaranteeing ongoing storage in a suitable and secure environment. This can reduce costs arising from lengthy or mishandled delivery procedures, and reduce wastage resulting from the deterioration of produce stored in unsatisfactory conditions.

Table 4.5: Warehouse facility found at nearby distance

	Strongly Agree	Agree	Disagree
Cooperatives (Frequency)	14	64	2
Percentage	17.5%	80%	2.5%
Non-Cooperatives (Frequency)	-	17	3
Percentage	-	85%	15%

Source: Compiled from primary data by the researcher

As we can observe from table 4.4, 17.5% of farmers under group cooperative union strongly agree warehouse facility is found at nearby distance. Similarly, 80% of respondents grouped under cooperatives and 85% of non-cooperatives respondents agree warehouse facility is found at nearby distance. In addition, according to the survey result, about 15% of the respondents grouped under non-cooperative and 2.5% grouped under cooperative, disagree warehouse facility found at nearby distance.

As most of the respondents under non cooperative states they have limited access to storage facility as a result of inaccessibility of ECX service. They tend to trade at primary markets found at nearby distance. Were as respondents under cooperative union have access to storage facility and they can keep their commodity at better condition.

**Price risk management**- risks can discourage farmers from making important investments in upgrading their productive activities, and can instead lock them into cycle of low productivity and low returns. As a result it can create and sustains rural poverty.

As most respondents under non cooperative remarks show they are still in danger for the risk of low product grading and quality standards of the wholesalers and suppliers. Lack of grain standardization, the oral nature of contracts & limited legal enforcement of contracts at primary market still exists; although their vulnerability have relatively decreased with price transparency and price discovery opportunities of ECX. As a result of their better bargaining power they are better off in minimizing the risk.

On the other hand respondents under group cooperative union which have better access of ECX service, enables them to receive a guaranteed price from purchasers. They avoid risks associated with price contract enforcement, standard grading and quality and market risk. Moreover, they have better bargaining power.

**Warehouse Receipt Finance** -Lack of access to affordable sources of finance is a significant constraint faced by many farmers in Ethiopia. Warehouse Receipt Finance is one of the services that ECX give for commodity suppliers. It is a system that the suppliers (sellers) process loan demands by using warehouse receipt certificate as collateral in order to borrow from bank. Currently, the service is active only on non-coffee commodity. The warehouse receipt provides the financier with secure collateral that can be easily liquidated in the case of default.

The process starts once the coffee grade result is revealed; producers such as coffee cooperatives will be given the grade certificate mentioning the specific grade and the quality of the coffee in terms of lots. If the supplier is to sell through the ECX, then ECX will generate warehouse



receipt and the coffee will be stored at the warehouse. Hence, by storing their goods in a reliable warehouse, farmers and suppliers can use the warehouse receipt that is issued as loan collateral and thus access finance without selling their goods. However, according to the improved service law of ECX suppliers must sell their commodities within 30 days without any penalty. The loan is provided for the time span of 20 days, including loan processing days a minimum of 5 days and warning period of 5 days.

Table 4.6: Awareness about Warehouse Receipt Finance

Valid	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	8	8.0	10.0	10.0
No	72	72.0	90.0	100.0
Total Missing	80	80.0	100.0	
Total	20	20.0		
	100	100.0		

Source: Compiled from primary data by the researcher

From samples of this study, 72% of the respondents grouped under cooperative have no information regarding WRF and 8% of the respondents have information about credit facility provided using warehouse receipt (stored commodity certificate) as collateral.

## **Standard and Grading**

Transparent and accepted quality standards, particularly those that offer rewards to higher-quality produce, put in place a strong incentive for farmers to upgrade production and better meet the requirements of evolving commodity-supply chains, in which quality standards are playing an increasingly important role.

The survey found out the service of standardization and grading is highly exploited by respondents grouped under cooperatives accessing standard and grading directly from ECX warehouse. On the other hand, respondent grouped under non cooperatives are also indirect beneficiaries of standard and grading.

**Improving product quality-** Transparent and accepted quality standards, particularly those that offer premiums to higher-quality produce, put in place a strong incentive for farmers to upgrade production and better meet the requirements of evolving commodity-supply chains, in which quality standards are playing an increasingly important role.

Table 4.7: Improvement in commodity grade cultivated as result of market price index

	Strongly Agree	Agree	Disagree
Cooperatives	2	62	16
Percentage	2.5%	77.5%	20%
Non-Cooperatives	-	15	5

Percentage	-	75%	25%
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Source: Compiled from primary data by the researcher

As we can observe from table 4.5, 77.5% of farmers grouped under cooperative union and 75% grouped under non cooperatives agree they have improved the commodity grade they cultivate as result of market price index. Similarly, 20% of respondents grouped under cooperatives and 25% of respondents grouped under non-cooperatives disagree there is improvement in commodity they cultivate. In addition, according to the survey result, about 2.5% of the respondents grouped under cooperative strongly agree there is improvement in commodity they cultivate.

### **4.3 Challenges of smallholder farmers**

Respondents listed a number of problems associated with tackles in using the ECX service and primary market. Among the major problems, language barrier, minimum lot size set by ECX, pre-requisite procedures to be client, literacy level of farmers and infrastructure problem are mentioned obstacles in using ECX service. The below discussion is compiled from various interviews and open ended answers of the respondents.

**Language Barrier-** ECX disseminates market information in four languages, in Amharic, Oromifa, Tigrigna and English. As the survey result indicates in the areas where the mother tongues language is different from the above languages the respondents are facing difficulties in understanding the market information clearly.

**Minimum lot size set by ECX-** The minimum quantity that the clients should trade through ECX is significantly higher than the average quantity produced by the respondents. Therefore, ECX facility of storage, clearing house service, credit facility and contract enforcement services are unapproachable for respondents grouped under non-cooperatives.

**Pre-requisite procedures to be client-** The membership pre requisite to be a client includes Business License, Commercial registration certificate and competency letter. Respondent grouped under non cooperative union conveyed the above pre-requisite as one hindrance for their participation in ECX. On the other hand, individual farmers that are found under cooperative aren't requested

In order to increase the participation of small holders' farmers and primary cooperatives, the exchange had sell 35 full membership seats exclusively for cooperatives in 2006. This will increase the cooperative share of membership seat to 12% which strength direct participation of farmers in the exchange.

**Literacy level of farmers-** Survey result indicates most of the respondents mentioned their level of education hamper them from using the ECX service effectively. As a result, farmers' who neither write nor read has difficulties in accessing information through TV, price ticker or SMS.

**Financial Barrier-** The study indicates there is financial barrier to afford accessories like TV, Radio and Mobile for the respondents living below poverty line.

**Infrastructure problem-** Most respondents' states poor telecommunication facility, power interruption and poor road networks are also hindrances to use the service of ECX effectively.

#### **4.4 Challenges faced by ECX**

It is argued on UNCAT (2011), the Sub-Saharan Africa commodity exchange is underdeveloped by identify three primary constraints to the development of vibrant commodity exchanges in the region: (i) market size; (ii) weak infrastructure and underdeveloped financial services; and (iii) lack of supportive legal and regulatory frameworks. This paper findings support the first two arguments strongly.

**Market Size-** Achieving sufficient market size, both in terms of volume of trade and number of participants, is a fundamental precondition for any commodity exchange to function effectively. First, sufficient market size is necessary for achieving the competitive conditions that enhance price discovery. Second, high trade volumes allow the fixed costs of operating the exchange to be spread over a large number of transactions and participants. Finally, sufficient market size helps to reduce the risk of market manipulation and collusion among market actors

At the initial phases of ECX establishment, Wheat and Maize were the first commodities selected in order to be traded through ECX. Nevertheless, as with most exchanges in the region, ECX has been unable to achieve the necessary Market size to function efficiently or sustainably. This will intern have effect on the exchange's ability to overcome the transaction costs related to contract enforcement which limits the participation of many potential buyers and sellers Therefore, in order to tackle this market thinness the next step was to focus on the export commodities which are produced at large volume and relatively have lower local demand. Coffee the major export earning to the Ethiopia economy starts to be traded in ECX on December, 2008. Following Coffee, Sesame and Pea Beans joined ECX market. The government of Ethiopia has an active and large role by forbidding the export of Coffee, Sesame and Pea Bans unless it is

traded through ECX. Only cooperatives which are large enough to export are free from this sanction. They have privilege to pass their commodity through ECX for grading and standardization only.

ECX was not competitive enough in order to attract members and client by itself. It isn't at their best interest that most of the member and clients trade through ECX rather in the interest of government intervention through proclamation that abide all produced commodities to pass through the exchange. It is significantly visible that Wheat and Maize have limited trade volume and relatively low number of market participants as compared to mandatory traded commodities. Now a day, these commodities are traded rarely in the Exchange. Some experts doubt the success of ECX as Exchange in attracting considerable market participants without the government intervention in the commodity market sanctioning Coffee, Sesame and Pea Beans as mandatory traded commodities through the Exchange. If governments are truly committed to the development of transparent and efficient agricultural commodity markets, then there is high possibility for the success of the Exchange which is evidently proved by ECX and which can be taken as a lesson for other African countries.

**Infrastructure Problem-** The finding of the study shows that one of the major challenges faced by the ECX appear to be limited capacity in terms of skills and infrastructures including telecommunications, power and warehouse facilities. In particular warehouse infrastructure is a major challenge for ECX operation and development. ECX own 17 warehouses all over Ethiopia, covering full risk of loss associated with human and natural cause of shot fall.

Limitations in the provision of facilities especially internet services, problems related with laboratories like insufficient sewerage system, disruption of power supply that affect service delivery to customers are also stated.

**Short Fall-** The natural cause of short fall occurred largely due to inaccurate risk calculation of weight loss adjustment. The percentage of 0.1376% and 0.0344% respectively for sellers and buyers is applicable per a day throughout the warehouses, regardless of their differential in humidity and warmth until recently. This miscalculation cost the Exchange significant amount of financial loss. Currently, the exchange is on the process of modifying the weight adjustment percentage.

ECX covers its costs of operations from commission of trading through ECX (0.4% of the trade value), charging a yearly membership restoration fee of 436 Dollar to its members, warehouse storage and handling charge and penalty payments (Refer Annex 2). Since it is non - profit oriented organization designed to enhance farmers and develop market integration, its charges are limited to cover the organizational costs related to warehouse rents, salaries and other operational costs.

**Irrational Market Actors-** The other significant challenges during the early years of its establishment are low level of coordination and refusal of traditional brokers to accept the new system. Earlier to the establishment of ECX, the bargaining power on the supply side of the market was weak and there is high possibility of fraud as to the extent of giving blank check (an empty account check was given to the farmers). As a result of the government sanction, all market actors were managed to trade through ECX.

**International Market price-** The market price of the export commodity in the local market is determined by International market price i.e. the price range is settled based on international market price. Therefore, as the price of coffee, pea bean and sesame in International market decline, the trade value of these commodities in local market also declines. Hence, as the value of these commodity declines, the commission gained from the trade also declines. International market price of export commodities is considered as one factor for the incremental or decline of ECX revenue.

Table 4.8: The Trade Performance of Coffee, Volume in Tons and Value in Dollar

Trading Year	Volume	Value
2011/2012	234,050	910,256,373.13
2012/2013	237,431	680,632,042

Source: ECX (2013)

As it is indicated in the above table, the volume of coffee that had been brought for the market in 2011/2012 year (234, 050 tons) was less than that of 2012/2013 year (237,431 tons) by 3381 tons. Nevertheless, the market value of coffee in 2011/12 production year was higher than 2012/2013 production year by 3,317,693,199 birr due to the direct effect of the International market. Figure 4.1 illustrate this effect, as International market declines the trade value of these Commodities in local market also declines.



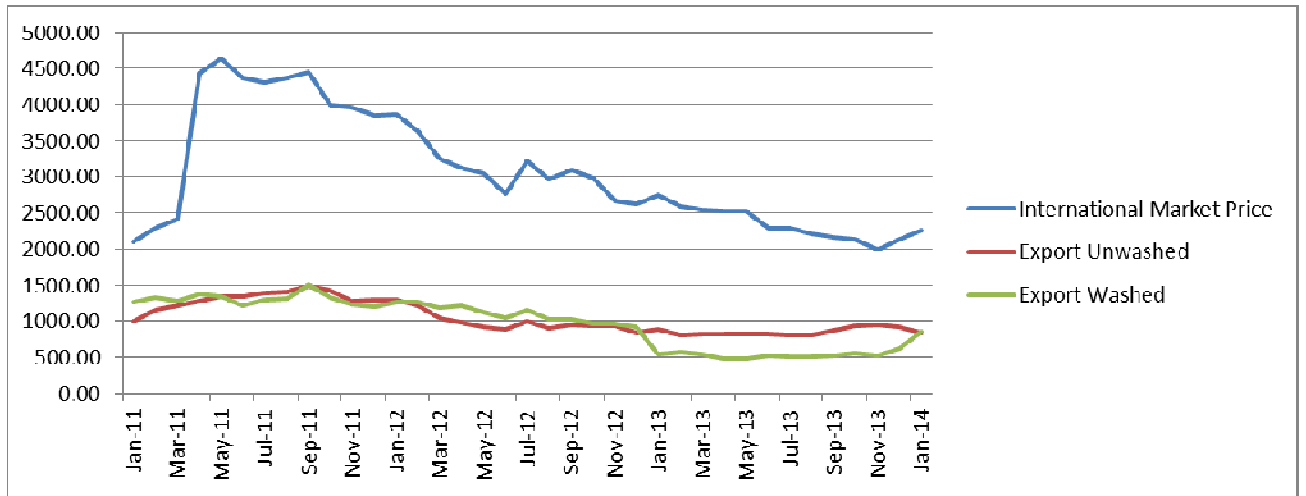


Figure 4.1 Market Price data for Export Unwashed and Export Washed Coffee from Jan, 2011 up to Jan, 2014

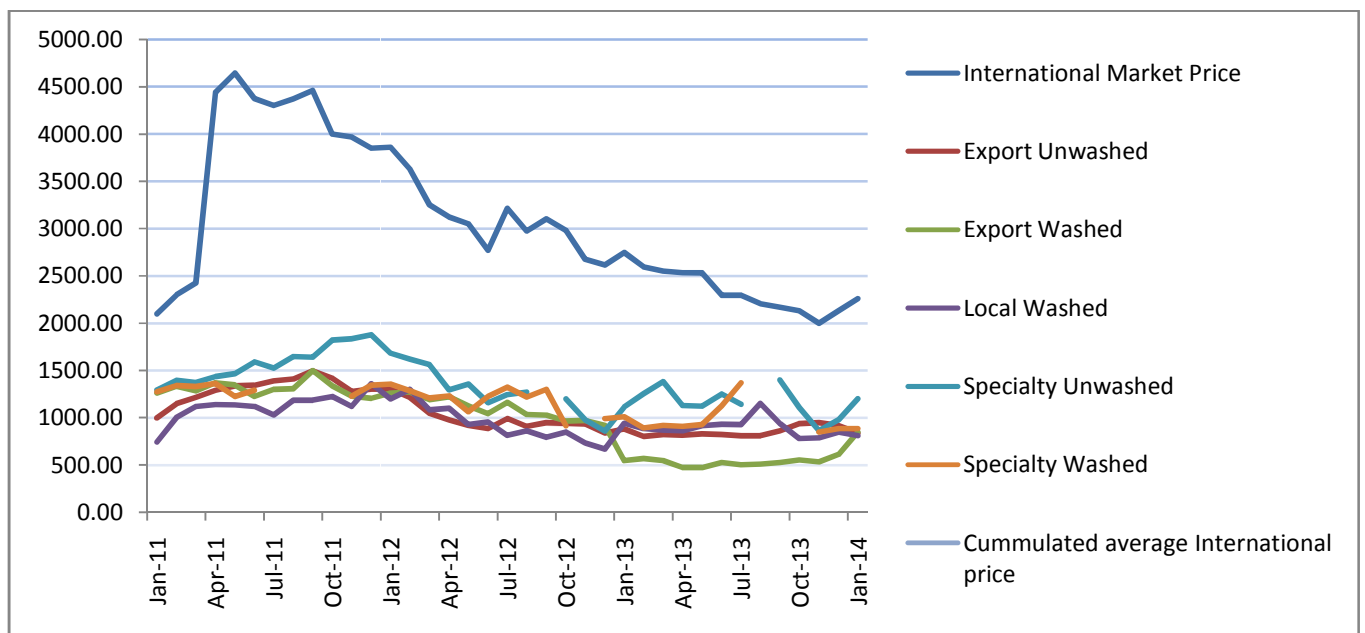


Figure 4.2 Market Price data for Coffee from Jan, 2011 up to Jan, 2014; Source: ECX (2014)

**Note-** Starting from April 05, 2011, the exchange rate had arisen from 8.88 birr/USD to 16.80 birr/USD.

**Weather Condition-** Since the output of agricultural commodities is dependent on good weather condition; it has direct effect on the volume commodities traded through ECX. For instance when there is good weather condition, the volume of commodities traded through ECX increase, as a result the commission ECX collects also increases. Therefore, weather condition and the volume of commodity traded through ECX are directly related.

#### **4.5 Perspectives of ECX**

Ethiopia Commodity Exchange (ECX) starts the trade of a new commodity, Green Mung Bean, into its trade floor on January 23, 2014. Green mung bean is the sixth product that ECX is trading. Coffee, sesame, white pea beans, maize and wheat have been traded in ECX so far. It is the seed of *Phaseoluseradiatus* L. an annual herb of the leguminosal family. It has green skin and is also called green bean. It is sweet in flavor and cold in nature. It is also a recent introduction in Ethiopian pulse production and grown in few areas of North Shoa, hence its consumption is not widespread like the other pulses. Despite its growing demand in the international market there is chronic supply gap in Ethiopia from the production side.

In Ethiopia, Amhara region North Shoa is the largest producer of Mung bean. North Shoaweredas of Kewot, TarmaBer, Ephrata Gidim, Shoarobit, Ancober, Ataye, Shenkora, Kallo, Argoba, Mehal Site, Ambasel, Borena and Tenta are well known producers of Mung Bean. Kewot and Tarma-Berworedas contributes more than 715 of the production; which implies the production of mung bean as a country comes from these two woredas. Marketing of mung bean generally starts with the collection of grains from village markets moving on to the woredas towns and then to terminal markets in the cities.



Fig.4.3Mung bean plant and its seed

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Green Mung bean is one of the products that has low local consumption yet has a high international demand. As the market surplus is significant, it is expected to have a positive impact on the country's export earnings and bring considerable foreign currency exchange. Studies show that 150,000 to 200,000 quintals of Mung bean, known in Amharic as 'Masho', is produced per year in Ethiopia. According to the Ministry of Trade's data Ethiopia has exported 174,000 quintals of green mung beans in the concluded year of 2012/13 and there is high demand in South Asia, Indonesia, Belgium, India and the UAE. Green Mung bean is most used in the making of Chinese and Indian cuisines, sweets and ice cream. It also has protein and high nutritional value in fighting against cholesterol and diabetes.

According to Product Development Department of ECX, the two other Commodities which are planned to be traded through ECX by the next Ethiopian Fiscal year include Red Kidney Bean and Chick Pea. Furthermore, it is planned to outsource the warehouse facility in order to minimize risks associated with short fall and rental expenditure. Studies are undertaken by

Ministry of Trade and it is planned to be effective by the next Ethiopian Fiscal year after it is approved by the Parliament.

ECX is on the road of progressive transition from “open outcry” trading, based on the physical presence of market users on an exchange trading floor, to electronic trading executed by market users remotely from the exchange premises. According to Strategic Department report, online trading is planned to begin on August, 2014. Adoption and upgrade of financial and trading technologies is now a top priority for commodity exchanges around the world. The electronic trading system will help to access remote areas possible and increase the number of traders. The remote connections will help clients to handle their orders by themselves through approval of their members. Online trading will also minimize restriction on the location of trading since it is all through electronic telecommunication. Besides transactions are easier and faster to complete, monitor, clear and settle trades and errors in recording and reporting trades are reduced. The other benefit online trading are it will allow the participants to catch more international market movements leading to more trading opportunities and large volume of transaction.

# CHAPTER FIVE

## CONCLUSION AND RECOMMENDATION

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### 5.1 Conclusion

The study found out ECX has wide range of actual and potential impact for small holder farmers and to the economy as a whole. The all over impact of ECX to the Ethiopia's economy includes reduce seasonal price volatility, market development, increase government tax revenue, increase employment opportunity, develop transparency of trade opportunities, enhance ICT infrastructure facilities, export promotion and enhance sectorial integration.

Impact analyses of the study which was made on 100 small holder farmers under cooperatives and non-cooperatives (dispersed farmers) categorized according to eight broad functions of ECX in which three of these considered as basic function: price discovery, price transparency and reduce transaction cost. The other impacts of price risk management, storage facilities, credit facilities, standard and grading facilities and improving product quality also analyzed in this study.

The opportunity of ECX in reducing transaction cost is significantly low for farmers categorized under non-cooperatives as compare to those categorized under cooperatives. Due to obstacles which will be explained below, the cost of trading through ECX for dispersed farmers is unaffordable and its services are inaccessible. On the other hand, farmers under cooperative union selling their products in large volume they access the service effectively keeping transaction costs as low as possible. Study revealed the opportunities of Ethiopia commodity

exchange as a means of improving small holder farmers' market access is relatively more effective for farmers under cooperative union.

The advantage of ECX in enhancing price transparency and price discovery is relatively better accessible service for dispersed farmers in relative to the other services. About 97% of the sample farmers respond they are direct beneficiaries of market price information. The benefits of storage facilities and standard and grading are also better exploited services by farmers under cooperative union. About 72% of the respondents have no information about the credit facility provided through ECX.

The study revealed a number of problems associated with tackles in using the ECX service and primary market by small holder farmers. Among the major problems, language barrier, minimum lot size set by ECX, pre-requisite procedures to be client, literacy level of farmers and infrastructure problem are mentioned obstacles in using ECX service. The study also discovered existence of problems at primary market place at the time of selling their product. The study indicated primary markets are insignificant in number relative to the farmers' volume. As a result, the services of ECX are inaccessible for dispersed farmers' in exclusion of price discovery and price transparency.

The finding of the study indicates the major constraints that hinder the exchange from further expansion includes, poor infrastructure facility precisely warehouse, telecommunication and power facilities and irrational market actors. Weather condition and international market price has also direct effect on the performance of the exchange.

The perspectives of the exchange in improving the service to small holder farmers is improving physical presence of market users on an exchange in trading floor to electronic trading executed

by market users remotely from the exchange sites. Furthermore, ECX recently added a new trade commodity called Green Mang Bean which is believed to benefits farmers who cultivate this commodity.

## **5.2 Recommendation**

### *For the exchange*

- Raising awareness, educating and building capacity of small holder farmers about commodity exchange functions, operations, services and benefits; and organize them to form cooperative so that they could become direct beneficiaries of the exchange service.

### *For the government*

- Ministry of agriculture and rural development, Ministry of Trade and other eligible government offices should work attentively with the exchange in addressing and improving the challenges faced small holder farmers.
- In order to advance the exchanges impact and resolve the exchanges short comings, government should work in developing elements of physical infrastructure that support commodity exchange and market development – including information and communications technology, electricity and storage.



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## II. Opportunities and service Challenges of ECX for the respondent

1. How many years did you work with ECX?

- |              |              |
|--------------|--------------|
| 1. 1-2 years | 3. 3-4 years |
| 2. 2-3 years | 4. 4-5 years |

2. Do you think the cost of trading through ECX is fair?

- |                   |                      |
|-------------------|----------------------|
| 1. Strongly Agree | 3. Disagree          |
| 2. Agree          | 4. Strongly Disagree |

3. Did your income improved since you start to trade through the exchange?

1. Very much improved
2. Moderately improved
3. Not improved

4. Did you get day to day market price information about the commodity you cultivate?

- |                   |          |             |                      |
|-------------------|----------|-------------|----------------------|
| 1. Strongly Agree | 2. Agree | 3. Disagree | 4. Strongly Disagree |
|-------------------|----------|-------------|----------------------|

5. Through which disseminating channel did you follow the market data?

- |              |                  |
|--------------|------------------|
| 1. TV        | 4. Price sticker |
| 2. Radio     | 5. Web site      |
| 3. Telephone |                  |

6. Please state the challenges you face in using these disseminating channels;

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7. Are you user of storage facility provided by ECX?

1. Yes, I am user      2.No, I am not user

8. If your answer to the question number 7 is “Yes”, do you think the storage facility provided by the exchange is satisfactory?

1. Strongly Agree  
2. Agree  
3. Disagree  
4. Strongly Disagree

9. If your answer to the question number 7 is “No”, please give your reasons in the space provided below?

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10. Do you think the Warehouse facility found at nearby distance?

1. Strongly Agree    2.Agree    3. Disagree    4. Strongly Disagree

11. Do you have information about Warehouse Receipt Finance service provided by the exchange?

1. Yes I do  
2. No, I don't have

12. If your answer to question 13 is 'yes', are you user of the service?

1. Yes                      2. No

13. If your answer to question 13 is 'No', do you want to use credit facility provided through ECX?

1. Yes                      2. No

14. Have you improve the commodity standard you cultivate using market price information of ECX?

1. Strongly Agree    3. Disagree  
2. Agree    4. Strongly Disagree

15. If your answer to question 16 is "No", please give your reasons in the space provided below?

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16. Do you have any complain regarding the grading standard of the exchange?

1. Strongly Agree      2. Agree      3. Disagree      4. Strongly Disagree

17. If your answer to question 17 is "No", please give your reasons in the space provided below?

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18. Do you have information about the online trading that will begin in the near future?

- 1. Yes, I have information
- 2. No, I don't have information

19. If your answer to question 18 is "Yes", please give your reasons in the space provided below?

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20. Please state other challenges that you have faced in using the exchange service?

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## Annex 2:Fees & Penalties

### Fees

	Buyer	Seller	
<b>ECX Trading Fee</b>	0.4%	0.4%	of transaction value (non-adjusted)
<b>Warehouse Storage Fee-Coffee</b>	-	0.16	Birr per bag/quintal per day (free if sold within 3 or less days)
<b>Warehouse Storage Fee- Non-Coffee</b>		0.16	Birr 0.16 per bag/quintal per day for the first 30 days and <b>Birr 0.32 Birr per bag/quintal per day beyond 30 days</b>
<b>Warehouse Handling and Product Certification fee-Coffee &amp; Non Coffee</b>	3.50	3.50	Birr Per bag/quintal
<b>Warehouse Re bagging</b>	-	19.00 4.00 5.00	Birr per Coffee Jute bag Birr per 50Kg PP bag Birr per 100Kg PP bag
<b>Clearing Fee Buy-Only Limited Members</b>	0.0125	-	Of trade value (non-adjusted). This is added to the standard trading fee
<b>WHR Financing Borrower Fee</b>		0.2%	of transaction value (non-adjusted)
<b>Duplicate Net Obligation Report</b>	3.50	3.50	Birr per page
<b>Duplicate Delivery Notice</b>	30.00	-	Birr per page

### Penalties

<b>Late Pick-up</b>	1%	-	Per day of the value of the trade between T+10 and the new pick-up date.
<b>Withdrawal (Non-Coffee)</b>	-	Double	The normal Warehouse storage and handling fees
<b>Expiration of Warehouse Receipt (WHR)</b>	-	3.5%	Per day of the commodity value (closing Price) for period each day past the expiration