The Agricultural Commodity Exchange for Africa

Mapping the Progress of Structured Trade Systems in Malawi

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ABSTRACT

The Agricultural Commodity Exchange for Africa focuses its operations on three complementing spheres: trade facilitation, implementation of a warehouse receipt system and market information dissemination. It aims to decrease transaction costs, mitigate information asymmetries and govern contractual relations between market participants with the overall objective of inducing efficiency gains. Conquering a number of the agricultural markets' limitations, ACE has shown that a well-designed institution can bring substantial social benefits to its participants and the economy as a whole.

Disclaimer

The views and opinions expressed herein are those of the author and do not necessarily reflect the views of the Common Fund for Commodities (CFC) or the Agricultural Commodity Exchange for Africa (ACE).

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List of Acronyms

ACE	Agricultural Commodity Exchange for Africa
AAACP	All ACP Agricultural Commodities Program
ACEF	African Commodity Exchange Forum
ADMARC	Agricultural Development and Marketing Corporation
BVO	Bid Volume Only
CFC	Common Fund for Commodities
COMESA	Common Market for Eastern and Southern Africa
EAGC	Eastern African Grains Council
ECX	Ethiopian Commodity Exchange
Esoko	Electronic Market in Kiswahili
FAO	Food and Agriculture Organization of the United Nations
FMB	First Merchant Bank
IFAD	International Fund for Agricultural Development
IndeBank	Investment and Development Bank of Malawi
INVC	Integrating Nutrition in Value Chains
JSE	Johannesburg Stock Exchange
MLI	Market Linkages Initiative
NASFAM	National Smallholder Farmers Association of Malawi
NBM	National Bank of Malawi
NFRA	National Food Reserve Agency
P4P	Purchase for Progress
SAFEX	South African Futures Exchange
SATH	Southern Africa Trade Hub
SOAS	School of Oriental and African Studies
UNCTAD	United Nations Conference on Trade and Development
USAID	United States Agency for International Development
WFP	World Food Program
ZAMACE	Zambia Agricultural Commodities Exchange
MACE	Malawi Agricultural Commodity Exchange
COMEZ	Commodities Exchange of Zimbabwe
UCE	Uganda Commodity Exchange

Executive Summary

Agriculture is the backbone of the Malawian economy. It mainly features smallholder farmers, who constitute more than 90 percent of the rural population and contribute over 80 percent of the agricultural production. They are not only central to food production, but also to poverty reduction. At the same time, agricultural markets are highly inefficient. They lack transparent systems of price discovery and institutions and instruments to manage risks.

Given structural adjustment programs and liberalization drives, many rural markets eroded with the demise of the state-run marketing board, ADMARC, and private traders, constrained in their transport, storage and credit facilities, have failed to reach them. Malawian farmers, therefore, suffer the consequences of the agricultural sector's inefficiencies. Improving grain trading and market access is of paramount importance to the improvement of the entire sector.

Commodity exchanges are institutions that seek to facilitate and improve trade. They aim to decrease transactions costs, mitigate information asymmetries and govern contractual relations between market participants with the overall aim of inducing efficiency gains. Under this banner, the overall objective of the Agricultural Commodity Exchange for Africa (ACE) is to create an efficient and transparent marketing system for agricultural commodities, thereby reducing transaction costs and risks and linking small producers to markets. ACE aspires to use a holistic approach to structured trade as a means to promote rural economic development.

Since inception, ACE has sought to develop organically and in harmony with the needs of the agricultural sector. Conquering a number of the agricultural markets' limitations, ACE has shown that a well-designed institution can bring substantial social benefits to its participants and the economy as a whole. ACE now focuses its operations in three complementing spheres: trade facilitation, implementation of a warehouse receipt system and market information dissemination.

The first pillar of the exchange's model is facilitating access to higher-value output markets using a virtual trading platform, which allows registered traders or brokers to place bids to buy or offers to sell that are in turn promoted via the internet, email, mobile networks, newspapers and radio. ACE also developed an alternative procurement mechanism, Bid

Volume Only (BVO) for the World Food Program (WFP), which has proven to be a catalyst in the exchange's evolution.

The second pillar is the warehouse receipt system, through which Malawi's numerous smallholder farmers, often cut off from the markets, the services and the financing that would allow them to benefit from rising prices and demand, are able to store their produce safely and sell it when prices are higher. By ensuring compliance with quality standards, it also provides access to higher-value markets. Small traders have the opportunity to use financing as capital investment and thus reap the benefits of trading in a larger scale, and sellers can sell to buyers in a wider geographical area than their immediate location. Processing companies, retailers and international buyers have access to a secure and transparent mechanism to trade that can reduce the transaction costs. The government of Malawi can greatly benefit from accurate information on the availability of commodities.

The proper functioning of the warehouse receipt system requires a number of elements, including a legal framework, collateral financing, insurance, grading regulation, registered warehouses and a trading system.

The third pillar is an integrated marketing information system. ACE uses mobile technology to collect price information from the rural areas and disseminate it to farmers, traders and others in the agricultural industry. Farmers and traders need to be well informed about price trends in order to make good marketing decisions.

Crosscutting, supporting components such as promotion, sensitization, arbitration and information technology management are also strategic to the model's holistic approach. Together these elements represent an on-going process as the exchange grows and new services are offered.

ACE must turn its attention to the healthy expansion of the system. Attracting sufficient trade volumes to meet its operating costs and become a profitable institution, diversifying and educating its stakeholders are top priorities. Though not exempt from challenges, the way in which ACE has identified the weaknesses of its model and the threats in the system, and is actively working to put the infrastructure and partnerships required in place in order to address those needs must be its greatest merit.

Introduction

The Common Fund for Commodities (CFC) is an international development fund that pursues economic and social development in commodity dependent developing countries. The CFC operates by financing projects that target a wide range of commodity value chains and that seek to achieve equitable and sustainable socioeconomic development of commodity production and trade.

In Malawi, as part of the project entitled 'Warehouse Inventory Credit – Malawi Component' (CFC/FIGG/38FA) and funded jointly with the European Union, the CFC has successfully assisted the Agricultural Commodity Exchange for Africa (ACE) in the implementation of a warehouse receipt system, particularly in what pertains to the integration of rural warehouses, with the objective of tackling the impediments to an efficient market system and strengthening the exchange's business model. The project has now come to an end and the CFC contracted this report to follow up the progress of the exchange and the warehouse receipt system.

Commodity exchanges are institutions that facilitate trade. They aim to decrease transaction costs, mitigate information asymmetries and govern contractual relations between market participants with the overall aim of inducing efficiency gains. A highly fragmented market plagued with information and infrastructure obstacles characterizes the Malawian agricultural sector. Early on, therefore, ACE realized it would struggle to fulfill this mission without a successful warehouse receipt system that not only guarantees quality, quantity, payment and delivery, but also lays the groundwork for the development of a fair and inclusive trade platform.

The Agricultural Commodity Exchange for Africa has come a long way since its inception. It now focuses its operations on three complementing spheres: trade facilitation, implementation of a warehouse receipt system and market information dissemination. Its evolution is tailored to the specific needs of the country and its markets, as it pursues the even distribution of gains necessary to guarantee the cooperation and advancement of all parties. Conquering a number of the agricultural markets' limitations, ACE has shown that a well-designed institution can bring substantial social benefits to its participants and the economy as a whole.

For instance, Malawi's numerous smallholder farmers, often cut off from the markets, the

services and the financing that would allow them to benefit from rising prices and demand, are able to store their produce safely and sell it when prices are higher (Nwanze 2012). Farmers with an entrepreneurial inkling and small traders have the opportunity touse financing as capital investment and thus reap the benefits oftrading in a larger scale. Traders and commercial operators can access agricultural finance as well, and processing companies, retailers and international buyers have access to a secure and transparent mechanism to trade that can reduce the transaction costs associated with identifying market outlets, physically inspecting product quality and finding buyers or sellers. The government of Malawi can greatly benefit from accurate information on the availability of commodities to introduce appropriate trade, development and food security policies. All participants benefit from the access to more reliable price and other market information (Rashid et al. 2010).

Notwithstanding these direct and other indirect advantages, commodity exchanges in Africa have been criticized for their donor-driven nature, failure to attract sufficient trade volumes to be sustainable, ignorance of local conditions and structural inadequacies, being prohibitively expensive and drawing resources from other important sectors or projects (Robbins 2010; Rashid et al. 2010). In Malawi, an under-developed financial market, the poor infrastructure, the political sensitivity of grain trading and an unstable macroeconomy challenge the development of the commodity exchange.

This study sets out to describe the model being implemented by the Agricultural Commodity Exchange for Africa, as well as to identify its most important merits and limitations. The first section describes the agricultural context in Malawi, particularly the magnitude of agriculture in the country's economy, the pervasive limitations to agricultural marketing and the demise of the marketing-board role of the Agricultural Development and Marketing Corporation (ADMARC). Section 2 frames ACE in the context of other commodity exchanges in Africa. Section 3 covers the three core functions of the exchange—trade facilitation, implementation of a warehouse receipt system and market information collection and dissemination—and presents both recent developments and promising opportunities in each category. Section 4 summarizes broader challenges. The last section concludes.

Context | Agriculture in Malawi

Malawi is one of the least developed, poorer countries in the world, and agriculture is the backbone of its economy. Malawi is highly dependent on tobacco, a commodity in decline but still responsible for the majority of export earnings. The International Fund for Agricultural Development (IFAD) estimates that more than a third of rural households earn their livelihood only from farming or fishing, an additional 25 percent combine work on their farm with other jobs, largely in agriculture, and other income sources tend to be limited to poorly-paid agricultural labor. Agriculture makes up 30 percent of the country's gross domestic product (GDP) and employs over 80 percent of the labor force (USAID 2009).

Within the agricultural sector, smallholder farmers deserve particular attention. According to the World Bank et al. (2010), smallholder farmers constitute more than 90 percent of the rural population and contribute over 80 percent of Malawi's agricultural production. They are not only central to food production, but also to poverty reduction. They are also extremely and increasingly vulnerable. While smallholder farmers cannot escape worldwide concerns over climate change and the increasing volatility of agricultural commodity prices, they also have to withstand local obstacles. Their agricultural productivity is severely limited by poor access to financial services and markets, nutrient-depleted soils, limited use of fertilizer and dependence on a unimodal rainfall pattern, which means there is a single short growing season per year. Falling average landholding sizes, estimated at 1.5 hectares in 1968 and 0.8 hectares today, further aggravate low productivity. Additionally, high levels of post-harvest losses are incurred due to lack of quality storage facilities. Precise figures are hard to come by. IFAD (2012) estimates post-harvest losses in Malawi to be as high as 40 percent of production, while other studies estimate losses in the grain sector in Eastern and Southern Africa to be around 13.5 percent of the total value of grain production (World Bank et al. 2010).

An important implication of this type of agriculture is that while most of the country farms, only 10 percent of maize producers are net sellers, while 60 percent of farmers see themselves obliged to buy maize to complement their production (SOAS et al. 2008). Farmers in Malawi, therefore, are victims of the following dilemma: consumers require low maize prices to afford food and the opportunity to diversify into higher-return income-generating activities within or outside agriculture, whereas producers need higher maize prices to guarantee higher returns from input use in order to reliably cover their purchase

costs and incite reinvestment (Dorward et al. 2010). For producers price instability can be a severe disincentive for investment, and net food buyers are prone to food insecurity.

Given Malawi's history of food insecurity, food crops, especially maize, are of particular social, political and economic importance. Almost all smallholder farmers grow maize. Additionally, the powerful tobacco companies have recently started implementing input packages and thus directly supporting food crop production in an effort to secure tobacco production and farmer loyalty. Most importantly, given the declining nature of the tobacco industry and the increase in the production of maize, which according to government figures has risen from 1.56 million metric tons in 2002 to 3.90 million metric tons in 2011, maize trading provides a great opportunity for the successful establishment of the exchange (Van der Vyver and Nordier 2012).

Worldwide, agriculture has suffered an important transformation in recent decades. Currently, a few agricultural inputs giants dominate food value chains. The concentration of power at the trading, processing and retail end of the value chain allows these multinational companies to hold on to the profits while passing the costs and risks onto producers in developing countries. Furthermore, growing quality requirements can exclude smaller farmers who fail to shoulder the cost of meeting such standards (Bargawi and Oya 2009). The profits of agricultural sectors around the world accrue to oligopolies while producers' revenues are increasingly squeezed out.

The Malawian market is no exception. Traditionally, the market has been characterized by a small group of buyers who purchase commodities right after harvest at typically low prices and later sell in the lean season at high prices. In recent years, with the production of grain surpluses, Malawian markets have seen the participation of more foreign and medium vendors. However, the market remains highly fragmented and monopsonistic. Dorward et al. (2010) believe poor market access, low public investment in infrastructure, seasonal scarcities, high transportation costs, uncertain production and uncertain government intervention help explain high seasonal maize price variation. The majority of the farmers in Malawi are at the mercy of a few players and the whole sector suffers the consequences of this inefficiency. Improving grain trading and market access, therefore, is of paramount importance to the improvement of the entire sector.

Grain Trading in Malawi

Grain trading in Malawi, as was the case in many developing countries, used to be done through a state-run marketing board, the Agricultural Development and Marketing Corporation (ADMARC). The mandate of the Agricultural Development and Marketing Corporation was twofold: firstly, to facilitate the marketing of agricultural produce and inputs and secondly, to enhancethe smallholder agricultural sector, which demanded the development ofboth an extensive marketing network and the appropriate infrastructure across the country. More importantly, ADMARC played a key role in food security, offering subsidized maize seed and fertilizer, buying maize output at guaranteed pan-territorial prices and selling in domestic markets at subsidized consumer prices (Harrigan 2005). Furthermore, experts claim that parastatal marketing boards permitted 'small, resource-poor farmers in isolated regions to engage in cash crop and more input-intensive farming through implicit and explicit subsidies' (Oya 2010).

'Until 1987 ADMARC enjoyed a monopoly in the importation, marketing, and storage of grain' (Kutengule et al. 2006: 416). Structural adjustment programs proposed that the market would be more efficient without government intervention, and so ADMARC's operations and marketing infrastructure have been severely reduced in the last two decades. While in 1990 ADMARC operated about 1,300 seasonal markets and 18 storage depots, by 2004, figures had been reduced to 300 seasonal marketsand 9 storage depots (Kutengule et al. 2006). As of 2001 the government mandated the National Food Reserve Agency (NFRA) to manage the strategic grain reserve instead of ADMARC.

ADMARC had been largely criticized for lack of transparency. Additionally, corruption, an emphasis on tax collection and stifling bureaucracy often meant producers only received a small fraction of the sales price (Robbins 2010). The marketing board had become inefficient. ADMARC had deviated greatly from its core mandate to engage in other business activities that were often loss-making (Kutengule et al. 2006). Harrigan (2005) also argues that while national aggregate food security was achieved by ADMARC before liberalization, poverty had actually increased significantly among smallholder households.

Liberalization failed to provide the promised fruits. Reforms in Malawi have been unsuccessful, stressing the difficulty the private sector encounters in remote areas and the weaknesses of private agricultural marketing channels. Many rural markets eroded with the demise of ADMARC, and private traders, constrained in their transport, storage and credit facilities, have failed to reach them. The effective and guaranteed demand created by the

parastatal until the early 1980s addressed many of the market failures that have become obvious with market liberalization. Decades later, markets remain highly inefficient in Malawi. They lack transparent systems of price discovery and institutions and instruments to manage risks. High levels of postharvest losses are incurred due to lack of quality storage facilities. Furthermore, liberalization misunderstood the social role ADMARC played. In fact, research shows that unfair trading practices, the monopsony power of private traders and the lack of reliable markets for agricultural produce and inputs have left poor Malawians worse off (Chirwa et al. 2005).

Section 2 | Agricultural Commodity Exchange for Africa

The number of commodity exchanges in Africa has seen a substantial increase in the last two decades. The erosion of marketing boards coupled with intensifying volatility in commodity markets have urged governments and donors alike to find alternatives for managing risk.

While some have voiced their concern over the top-down nature of many African exchanges, it is impossible to overlook how the 'pervasive conditions in poor rural areas also undermine the ability of existing markets (which are weak, disjointed and atomistic) to develop coordinated exchange mechanisms which are critical in the development of agricultural supply chains needed for pro-poor agricultural intensification' (Dorward and Kydd 2005: 2).

Rashid et al. (2010: iii) identify four important obstacles to the development of commodity exchanges in Africa: the small size of domestic commodity markets, weak physical and communication infrastructure, a lack of legal and regulatory environments, and the likelihood of policy interventions. These often translate into high transaction costs, little market coordination between buyers and sellers, limited market information, poor contract enforcement and lack of trust among market players.

The international community is eager to understand what makes a commodity exchange thrive. For instance, in a joint effort by UNCTAD, All ACP Agricultural Commodities Program (AAACP), the Common Market for Eastern and Southern Africa (COMESA), the Eastern African Grains Council (EAGC), the European Union and USAID, the African Commodity Exchange Forum (ACEF) was established in 2010 as an information-sharing platform that aims to identify ways to make African exchanges[1] more efficient. While this initiative does not stand alone, it is still difficult reduce the evolution, the complications and intricacies of several exchanges to a list of criteria.

African countries have adopted different strategies to face the obstacles encountered and have experienced different success rates. Of five African countries that launched agricultural commodity exchanges in the 1990s, only South Africa, aided by the size and infrastructure of its markets, succeeded in making its exchange sustainable. Price spikes and government intervention in Zambia and Zimbabwe and limiting trade volumes in Kenya and Uganda led to the failure of the other four (Rashid et al. 2010). At the turn of the century there was a new wave of exchanges including Zambia's ZAMACE, Zimbabwe's COMEZ, an effort to revive

[1]It includes 13 African exchanges and exchange start-up initiatives from Ethiopia, Ghana, Kenya,

Uganda's UCE, Malawi's MACE and ACE, and Ethiopia's ECX. In the Ethiopian case, the government has legally required all coffee exports to be done through the exchange, which has, on one hand, guaranteed support, and on the other hand, depressed exports at given times (Rashid et al. 2010).

A proper analysis of other African exchanges is beyond the scope of this report. While studies have helped identify the enabling features for the development of a successful commodity exchange, the experiences of different African countries demonstrate the importance of building a locally relevant platform that addresses the specificities and meets the needs of a given country. There is no single recipe for success.

The Agricultural Commodity Exchange for Africa is a prime example of this. Though not exempt from challenges, the way in which ACE has identified the weaknesses of its model and the threats in the system, and is actively working to put the infrastructure and partnerships required in place in order to address those needs must be its greatest merit.

The National Smallholder Farmer's Association of Malawi (NASFAM) established ACE in 2004 with the intention of accessing better markets for its members. It was not until 2006 that exchange started operations, which initially were limited to price information sharing. Its overall objective is to create an efficient and transparent marketing system for agricultural commodities, thereby reducing transaction costs and risks and linking small producers to markets. ACE aspires to use a holistic approach to structured trade as a means to promote rural economic development. Since inception, ACE has sought to develop organically and in harmony with the needs of the agricultural sector.

2.1 Partners and Partnerships

NASFAM is the largest independent small-holder-owned organization in Malawi and it has actively supported ACE from the beginning. NASFAM works all over Malawi and thus represents an extensive network of farmer associations and their needs. It has valuable know-how in organizing farmers and it is a rural storage operator for the exchange.

ACE has also fostered a durable relationship with international development agencies and projects that complement and often finance the exchange's mission. For instance, the World Food Program (WFP) has been a particularly influential buyer. Section 3.1.1 elaborates on its relationship with the exchange. The CFC and the EU jointly funded the introduction of the

warehouse receipt system and the construction of the first three rural warehouses. The USAID-funded projects, such as Market Linkages Initiative (MLI) and Integrating Nutrition into Value Chains (INVC), support the technological side of ACE. AGRA has provided critical support when it comes to training and sensitization efforts.

The exchange has also forged important partnerships in the private sector not only with clients, but also for the provision of storage and other services. Rab Processors, Farmers' World, KU Distributors, Transglobe and Senwes have facilitated storage space and act as storage operators for the exchange. ACE has also made agreements with seed and fertilizer suppliers to obtain bulk prices for its farmers.

However, there are no indications of a strong relationship with the government. The Ministry of Agriculture has publicly voiced its support for the exchange's initiative (Van der Vyer 2012a). ACE's transparent trading platform and warehouse receipt stocks could be of great support to government planning. Likewise, the government could complement ACE's mission through extension services, investment in infrastructure and facilitating rural storage sites. Yet, there is no evidence of direct support either way. Government policies, such as the current export ban on maize, can significantly affect the exchange's performance. In light of that, it is in the exchange's best interest to strengthen its relationship with the government.

2.2 Cash Flow Projections

Experts are critical of the donor-driven nature of most of the recent African exchanges (Robbins 2010), and ACE is no exception. ACE generates most of its income from transaction commissions. The standard commission charged on transactions on the trading platform is 0.2 percent. Warehouse receipt transactions generate 1 percent of the contract value. When ACE has made its own capital available to complement the financing provided by banks, it charges the same interest rate as the bank. Other operations such as providing bags, facilitating transportation and diffusing market information also generate some income. ACE is inclined to charge a commission on storage and financing next season as well. See Table 2.1 and Annex A for a more detailed description of revenues and projected revenues.

In 2011 ACE's revenue from its operations was negligible. Although it was slightly higher in 2012, ACE is still highly dependent on grants and donor funding. Self-sufficiency is a prime concern for the exchange and its current funders. Cash flow projections, however, are

optimistic and estimate that trading volumes reach 200 thousand metric tons the business will be sustainable. In 2012, ACE expects to generate income of around 39 thousand US dollars compared to expenses of around 240 thousand US dollars. Projected numbers increase dramatically in 2013, when ACE targets an income of 106 thousand US dollars against expenses of 400 thousand US dollars.

Table 2.1 | Cash Flow Projections

Cash Flow Projections		
Income Source	**2012**	**2013**
Trading	18 750	82 353
Financing	9 164	13 985
Operations	1 950	3 059
Information	6 000	7 500
Total Income	35 864	106 897
Total Expenditure	350 000	400 000
Net Income	- 314 136	- 293 103

Section 3 | The Three Pillars of the Exchange

The Agricultural Commodity Exchange for Africa works in three main overlapping spheres: trade facilitation, the warehouse receipt system and market information collection and dissemination.

3.1 Trade Facilitation

The exchange provides access to higher-value output markets using a virtual trading platform, which allows registered traders or brokers to place bids to buy or offers to sell that are in turn promoted via the internet, email, mobile networks, newspapers and radio. Once a bid or offer has been negotiated and accepted, ACE generates a binding contract. Traders must abide by the exchange's arbitration rules in case of dispute. Initially, trade facilitation was ACE's core function. However, contractual defaults stood in the way of guaranteeing performance and began to erode the confidence in the exchange, and so, early on, the need to complement trade facilitation with a warehouse receipt system was identified.

ACE also developed an alternative procurement mechanism for the World Food Program (WFP), which has proven to be a catalyst in the exchange's evolution. A Bid Volume Only (BVO) tender functions as a virtual reverse auction, whereby a buyer fixes the quantity of the commodity he wishes to purchase and interested sellers—traders and farmers—place price and quantity offers of the demanded commodity online. This modality is a WFP favorite for it presents farmers with a 'new opportunity … to independently decide, plan and participate in the formal market economy' (WFP 2012).

3.1.1 The World Food Program's Support

The World Food Program (WFP) distributes food to targeted groups in food deficit areas. It is a very important buyer of grain in Malawi and a major client for ACE. In fact, WFP bought 26 373 metric tons in 2011 and 8 728 metric tons in 2012, which translates respectively to 63 percent and 84 percent of all trade through ACE in those years.[2]

The WFP is increasingly interested in procuring the food it distributes locally. With that goal

[2] Figures do not include traded tonnages on warehouse receipts that remain in the warehouses.

in mind, the Purchase for Progress (P4P) project, a five-year pilot that aims to link farmers to markets, was launched in 2008. Hoping to strengthen farmers' livelihoods and food security status, WFP uses its weight in the market as leverage to buy directly from smallholder farmers under fair terms. Since its inception, the program that has purchased more than 33 thousand metric tons in Malawi. This figure also includes purchases for the region.

The WFP estimates that 27 percent of their purchases were done through ACE in 2011. Though some purchases are still pending, to date, procurement through ACE in 2012 accounts for 16 percent of their overall purchases. However, ignoring some important in-kind contributions WFP received, procurement through ACE would have accounted for over 40 percent.

Given the experimental nature of the program, P4P is required to test different procurement approaches, including direct contracts, closed and open tenders and purchases through the commodity exchange or warehouse receipts. As the preferred procurement modalities are identified and cemented, purchases through ACE are very likely to increase.

Kennedy (2011), however, concerned with questions of transparency and fairness, urges ACE not to place the WFP at the heart of its operations. While WFP support has proven critical in the early stages of the exchange's development, high reliance on a single buyer is far from ideal. Moreover, once the BVO has closed, the method of selecting the winning offers has been deemed unclear. Participants are only informed if their offers are successful.

A strict procurement process also means long waiting periods before payments are released. In that time, prices can vary significantly. Participants, smallholder farmers particularly, are not pleased with the delay. A successful exchange should be a third-party guarantor of smooth transactions. It should guarantee payment within a reasonable period of time. The Ethiopian Commodity Exchange, for instance, claims to guarantee payment by the next day (Everitt 2012).

3.1.2 Traded Volumes

The exchange's history of annual traded volumes is presented in the table below. The decrease in volumes traded should not suggest the weakening of ACE's position. Firstly, figures do not include deposits on warehouse receipts, which are soon to be traded. These are discussed in the next section. Also, since late 2011 the government of Malawi has

suspended exports of all maize and related products and invalidated all existing export licenses, keeping international markets out of reach. The regional and international potential of the exchange sees itself hampered by the government's export ban on maize, failing to attract sufficient trade volumes to cover the costs of running the exchange and be self-sustaining. Malawi's history of food insecurity coupled with the political sensitivity of food crops in face of the upcoming national election explains the government's decision. Smuggling and illicit trade with neighboring countries, however, is so pervasive that the export ban could not claim effectiveness. It is not a successful food security policy. In some countries, export bans have also been used as a price stabilization measure. What is more, this is an indication that there is always the risk that government intervention could threaten the stability and credibility of the exchange.

Additionally, many international donors suspended budgetary support to Malawi over concerns of economic management. Allowing the kwacha to float was a key requirement to unlock donor funds. In May 2012 the value of the Malawi kwacha fell from 168 to 247 to the US dollar, representing a devaluation of almost 40 percent. Since then, the currency has not ceased to lose value. The US dollar value of the volumes traded in 2012 also reflects the severe devaluation of the kwacha. In fact, the total value of volumes traded in local currency in 2012 only differs by 36 percent from that in 2011.

Nonetheless, size, in terms of both volumes and number of traders, remains an issue.ACE intends to focus on scaling up utilization and to capitalize on new income streams as its warehouse receipt system grows and is further promoted abroad. Moreover, Norway and Ireland have committed to replenish the strategic grain reserve, assuring the government of Malawi that 60 thousand metric tons of maize will be replaced in 2013. ACE has been chosen as one of the purchasing modalities, which guarantees a significant volume already.

Table 3.1 | Volumes Traded

Period	Volume traded (MT)	Value (million USD)
2006 – 2009	38 000	9.5
2010	20 000	7.0
2011	41 840	11.8
2012 (to date)	19 924	6.7

3.2 Warehouse Receipt System

A well-established warehouse receipt system will help address numerous challenges within, as well as beyond, the scope of the exchange's operations. These include improved market transparency, more accurate price information, expansion of regional trade, enhanced credit availability and better bargaining power of farmers.

Not only do warehouse receipts provide farmers with the opportunity to store safely, better time their sales and access finance until they decide to sell, but by ensuring compliance with quality standards, they also provide access to higher-value markets. Sellers can sell to buyers in a wider geographical area than their immediate location. The use of common storage facilities means farmers bulk their crop for deposit and minimum quantity requirements can more easily be met.

At the national level, not only do warehouse receipts promote transparent trade, storage options, the development of the financial sector, the inclusion of smallholder farmers and price discovery, but they also provide an indication of grain availability in the country, which can help avoid food security shocks and better plan food security strategies.

Direct Benefits to Depositors

Financial benefits to depositors are tangible. They originally stem from seasonal price differences. Table 3.2 shows that after all costs, depositing a commodity under a warehouse receipt instead of selling early in the season leads to significant profit.

Total costs incurred by depositors were 3,092 US dollars in 2011 and 40,088 US dollars in 2012. Depositors received profits of 3,208 US dollars in 2011 and 31,729 in 2012, which represents a 35 percent value added in 2011 and 63 percent in 2012. These figures do not account for any additional profit created from the loans given against the deposits. Perhaps the warehouse receipt system is able to add more value than it is measured and stated here.

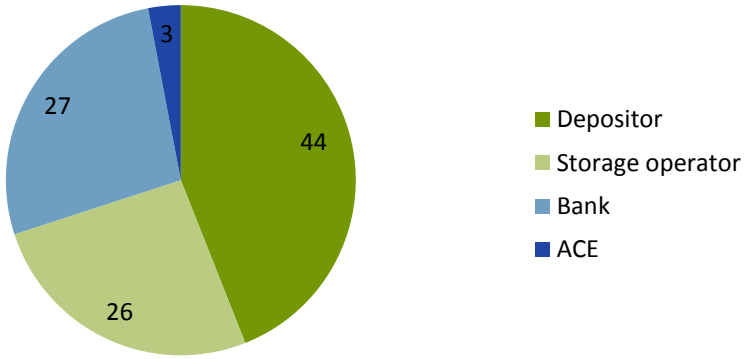
Chart 3.3 below illustrates the distribution of the value added created by the warehouse receipt system. The depositors obtain almost half of the benefits. Banks and storage operators both receive approximately a quarter each. The exchange keeps 3 percent of the added value.

Table 3.2 | Creation of Added Value by the Warehouse Receipt System

Warehouse Receipts Value Added*(in USD)*			
	2011	**2012**	**Total**
Number of warehouse receipts delivered	4	17	21
Tonnage (MT)	102.46	637.66	740.12
Loan against tonnage deposited	10,999.08	100,222.89	111,221.97
Sales value at deposit	18,150.37	113,864.52	132,014.89
Sales value at sale	24,450.35	185,681.61	210,131.96
Total costs	3,091.82	40,087.91	43,179.73
Net margin	3,208.16	31,729.18	34,937.34
Value added (in percentage)	34.71	63.07	
Percentage margin after all costs	17.68	27.87	

Chart 3.3 | Distribution of Added Value

Distribution of Warehouse Receipt System Value Added*(in percentage)*



The warehouse receipt system is fairly new, but it has taken years to create the foundations. ACE registered its first storage facility and issued its first warehouse receipt in 2011. The first depositor, a small trader, started with 14.5 metric tons of maize that later in the season, with additional deposits, grew to 44 metric tons. The receipt was split into two: one was bought by the World Food Program and one by a trader. Upon sale of the receipt, the contract value was deposited in ACE's settlement account, which guarantees financial performance for the seller. When the receipt was sold and the costs were deducted the seller received 72 percent more than he would have had he sold his commodity at the time of deposit. This first example illustrates many of the benefits of the system (ACE 2012b).

ACE's warehouse receipt system shows a promising evolution in terms of figures, structures developed and support from partners. Table 3.2 compares volumes deposited, traded and financed in 2011 and 2012. Projections anticipate even greater increases for 2013.

Table 3.4 | Warehouse Receipt Volumes

Warehouse Receipts					
Year	Commodity	Number of Receipts	Volume (MT)		
			Deposited	Traded	Financed
2011	Maize	4	106.53	106.53	62.09
2012	Maize	72	6660.41	10,023.72	1,078.03
	Soya	2	6.56	6.56	6.56
	Peas	6	64.49	64.49	
	Total	80	6,731.46	10,094.77	1,084.59

Examples from other countries acknowledge that progress has typically been slow (Coulter 2009). Pioneering schemes have been mainly criticized for their exclusion of smallholder farmers through high transaction costs or for the intensive and costly supervision required (Omunah 2012). ACE has encountered numerous challenges along the way. Still, it has managed to put in place the structures the system requires in order to meet fewer obstacles in the future and to focus on increasing the scale of operations.

The central elements in the proper functioning of the warehouse receipt system are a legal framework, collateral financing, insurance, grading regulation, registered warehouses and a trading system. They are discussed below.

3.2.1 The Legal Framework

Often the legal structures are not in place when a warehouse receipt system is launched, but rather they develop later. 'Specific warehouse legislation and formal regulatory structures followed, rather than led the development of the successful receipt systems' in Africa (Onumah 2010: 11).

In Malawi, there is no specific regulatory framework for warehouse receipts. The warehouse receipt system is based on contractual relationships between the participants, namely grain depositors, storage operators, financial institutions and the exchange. A warehouse receipt

is ‘a standard storage and collateral management contract between the depositor and the storage operator’ (ACE 2012b: 3). ACE warehouse receipt rules and regulations regulate all aspects of the system and stipulate that contracts under the system are binding. Existing contact law protects the integrity of the system. In this case, a credible system of contract enforcement is important. Rashid et al. (2010) argue that contract enforcement capacity in Malawi is limited, but not necessarily worse than enforcement abilities in other African countries or India.

According to the proposed rules and regulations, disputes are referred to arbitration. Arbitration rules, therefore, were developed. Experts recommend that these be revised to guarantee that no terms are conflicting and the smooth resolution of disputes.

3.2.2 Certified Storage

Registered storage facilities that meet the required standards in infrastructure, equipment and management receive the right to store grain for third parties by way of safe custody, which means they are liable to make good on any value lost while in storage (Onumah 2002). This allows distressed sellers to hold on to their produce until prices increase while also guaranteeing the quality of the grain throughout the storage period.

To complete the certification process, existing warehouses need to submit applications for registration as an approved storage facility. Independent experts carry out an extensiveinspection, which surveys a broad range of elements, from equipment, handling tools and the physical characteristics of the facility to the training of the staff and the management structure.

Aware of the different needs and availabilities throughout the country, the list of the exchange’s storage sites combines options inindustrial areas and rural warehouses. A fine balance is required between maintaining a minimum standard whilst accommodating less capitalized warehouse structures (Van der Vyver 2012a). Current certified storage sites are presented below. They includefour sites operated by grain trading and processing companies and three rural warehouses of 500 metric tons each operated by ACE and NASFAM. The ACE-operated warehouse in Kafulu and the NASFAM-operated warehouses in Balaka and Nathenje were in fact constructedfor the warehouse receipt system with CFC and EU funding and equipped by the USAID Market Linkages Initiative (MLI). It has been a key site for ACE’s learning process and it will eventually be fully managed by the farmers’

association. ACE would like to see the private sector fully take on storage responsibilities. Under no illusion of the level of support and training required, ACE believes empowering farmer cooperatives to provide this service to its farmers and to reinvest the gains from storage charges can ensure the fair participation of smaller market players.

Table 3.5 | Storage Facilities

Warehouse	Operator	Location	Capacity (MT)
Grain Security	Grain Security Limited	Lilongwe	12 000
Rab Warehouse	Rab Processors	Lilongwe	3 000
Senwes Warehouse	Senwes Limited	Lilongwe	6 000
Transglobe Limbe	Transglobe Produce Exports Limited	Blantyre	5 000
KU Warehouse	KU Distributors Limited	Blantyre	15 000
Rab Processors Limbe	Rab Processors	Blantyre	40 000
Kafulu Warehouse	ACE	Dowa	500
Balaka Warehouse	NASFAM	Balaka	500
Nathenje Warehouse	NASFAM	Lilongwe	500

New storage opportunities include promoting Rab Processors field warehouses, as well as conditioning, registering and certifying additional warehouses. Rab Processors has committed five Kulima Gold depots in the Central Region of the country to the warehouse receipt system. These depots will issue receipts but will not be certified. Essentially, they will be used as aggregation centers. They will work through a swap mechanism, whereby maize brought to the depots will be swapped with grain that has already undergone quality checks and is safely stored in certified warehouses in the city. The exchange will benefit from their extensive network of Kulima Gold depots across the country while guaranteeing that the grain is handled and stored appropriately in Lilongwe. The depots will provide farmers in remote areas with the opportunity to cut out the middleman, use the depots' transportation network, meet quality standards and access higher-value markets in the cities.

ACE is extending operations to include seven new rural storage sites. Cash flow studies suggest that to become a sustainable operation warehouse capacity must be at least 500 metric tons. A list of sites that meet that requirement has already been identified. In order to reduce construction and maintenance costs, it is also studying the possibility to use modern storage technology like silo bags.

Table 3.6 presents the storage costs in 2012. These are likely to increase next season. Also, whereas this season all storage revenues have gone to the storage operators, ACE is considering charging a storage commission next season.

Table 3.6 | Storage Charges

Storage Charges (MWK/MT)				
Category	Operators			
	Grain Securities Limited	KU Distributors	Rab Processors	NASFAM and Cooperatives
Handling	710		665	1000
Bags and Bagging	3500	3000	3250	3000
Daily Storage	21.22	33.33	20	21

3.2.3 Quality Standards

The guarantee of performance means a buyer knows that a commodity under a warehouse receipt is in secure storage and managed professionally. If quantity and quality conditions described in the receipt are not met, the storage operator is liable.

Grain quality standards define the maximum percentages of defective and broken kernels, foreign matter and moisture permitted for a specific grade. In Malawi, there are no de facto national grading standards. ACE grades have been defined using both National Food Reserve Agency (NFRA)and World Food Program (WFP) criteria. Different grading regulations are problematic and should be standardized(Van der Vyer 2012a). A warehouse receipt system backed by clear grades could be the vehicle to homogenizing grading standards at the national level, providing a reference base in case of dispute, a guide to banks' evaluation of collateral and trading standards reviewed for export markets (Kiriakov 2007). According to experts, a task group should be formed at the national level to implement national standardized regulations (Van der Vyer 2012a).

The inspection and certification of storage facilities is the first step towards guaranteeing quality standards. Quality issues, however, need to trickle down to the field. Farmers, extension workers, storage operators and traders all need to understand, agree upon and apply these grades. ACE believes a capacious trading system that rewards quality could reinforce the quality standards. The training of specialists is fundamental. The Southern

African Trade Hub (SATH) has offered to invite foreign warehouse management specialists who could share their skills and to launch a proper higher education degree in the subject matter.

3.2.4 Financing

Financing agricultural transactions is typically considered a high-risk activity. A reputable warehouse receipt system can facilitate access to agricultural credit. In Malawi, encouraging banks to provide finance against collateralized inventory has been challenging because the necessary market structures are not fully developed and adequate financial products do not always exist. The exchange has played a central role encouraging banks to undertake this new business.

In 2012 First Merchant Bank (FMB) was the only bank to participate directly, grantingACE an overdraft facility of 25 million Malawi kwacha at an interest rate of base plus 2 percent. Warehouse receipts were financed at 70 percent of their market value, of which the bank covered 75 percent and ACE funding covered the remaining 25 percent. Given this set-up, the exchange is expected to take on the first 25 percent of a loss on a warehouse receipt. Market value was not adjusted later in the season, but the additional funding stemmed from price differentials was used to purchase fertilizer and seed for warehouse receipt depositors.

While financing was one of the system's bottlenecksin 2012, ACE is now in a position to capitalize on the success of its first year of warehouse receipts to bring more banks on board and negotiate better terms. For instance, the National Bank of Malawi (NBM) had shown interest in financing commodities as a diversification strategy from tobacco since last season. However, it required its committee to come around to this new idea. The bank has now put together different product profiles to target both smallholder farmers and bigger corporations, and it has submitted the proposal to its credit committee in order to obtain approval for the coming season. The bank is eager to help these products develop, but for now ACE must exercise due diligence on its warehouse operators and provide a certificate attesting to their soundness.

Table 3.7 | Warehouse Receipt Financing

Warehouse Receipt Financing			
Year	**Number of Receipts**	**Volume (MT)**	**Value (MWK)***
2011	3	62.09	1,759,852.60
2012	63	1,084.59	44,341,858.00

*Figures include bridging finance.

Additionally, 65 farmers, depositors in 44 warehouse receipts, had the option to purchase seed and fertilizer against their active receipts this season, allowing them to withstand the pressure of selling in order to plant in time and to access bulk prices.

ACE also complemented the financing provided by FMB with a bridging finance pilot project. Small vendors, hindered by their lack of capital, typically trade in time-consuming and cost-ineffective ways. Buying a truckload of grain to in rural areas and selling immediately to processing companies in the capital leaves little revenue break this small-scale cycle. In 2012, four small traders received 100 percent financing to kick start heir trading activities. Warehouse receipt and bridging finance has allowed them to overcome the shortfall in own contribution, maintain liquidity and buy greater quantities to be sold later in the season. More importantly, bridge financing efforts are testimony of how small traders can become competitive entrepreneurs and reap the benefits of the warehouse receipt system in a larger scale.

Table 3.8 | Bridging Finance

Bridging Finance		
Warehouse Receipt	**Volume (MT)**	**Value (MWK)**
2012/001	184.54	10,341,405.00
2012/004	29.28	1,082,540.00
2012/033	45.39	2,538,480.00
2012/046	24.61	1,250,000.00
2012/061	12.95	1,835,250.00
Total	**296.77**	**17,047,675.00**

3.2.5 Insurance

Protecting against potential losses and guaranteeing financial performanceare equally important to the integrity of the system and the confidence of the financial institutions. The grain stored in certified warehouses is currently protected against natural perils and theft. Under the existing insurance, however, warehouse operators are not legally obliged to repay its depositors or the banks in the event of a loss. Naturally, some banks, including the Investment and Development Bank of Malawi (Indebank), require indemnity insurance as well, to protect them against any warehouse receipt default. Van der Vyver (2012b) claims ACE will have difficulty finding a solution at the local level and encourages the exchange to look for international alternatives.

3.3 Market Information Collection and Dissemination

Farmers and traders need to be well informed about price trends in order to make good marketing decisions and financial institutions need price information to determine the value of collateral. Typically, information asymmetries skew bargaining power in favor of traders and powerful agribusinesses and in detriment of farmers (Onumah 2010). Malawi is no exception. Smallholder farmers have a hard time negotiating fair prices because they ignore how much their commodities are worth. Though there is more to disadvantageous market structures than price information, market information dissemination can certainly help address the underlying power asymmetries inherent in linking different market players (Oya 2009). Access to reliable price information is of utmost importance for the functioning of the system.

In order to improve market transparency and operational efficiency, the third pillar of the model is an integrated marketing information system. Given the absence of a reliable spot or futures market for price discovery in Malawi, ACE uses mobile technology to collect price information from the rural areas and disseminate it to farmers, traders and others in the agricultural industry. The Esoko system, a technology platform that allows organizations to profile people and manage the information flows between them, is used. ACE's virtual trading platform is a price discovery mechanism as well, which will gain importance with increasing volumes traded.

Currently, a network of 28 rural trade agents raises awareness, facilitates transport services, collects market prices andpromotes communication between rural areas and the central

offices. For information dissemination to make a significant difference it needs to be linked to access to market opportunities. Therefore, ACE has two types of alerts. *Esoko alerts* provide price information weekly. The information is free via website and email, buttext messages are sent for a fee, which has been covered by NGOs and associations in the past. *ACE alerts,* on the other hand, are used for the dissemination of trade opportunities and are being subsidized by ACE. Currently, 2 468 people are registered to receive Esoko alerts and 3 930 have signed up for ACE alerts.

ACE believes mobile technology provides an unprecedented opportunity to change how markets function and it intends to make full use of cutting-edge technologies to achieve more efficiency and transparency, particularly in partnership with the new USAID-funded INVC project, which intends to use satellite-based technology to provide market information in remote areas. In order to reach a more significant number of stakeholders and finance the Esoko license, ACE plans tostrengthen and expand the network of agents, to target individuals when an effective billing technology is in place, to get mobile operators to design and sell a market information packages and to find partners who are willing to sponsor farmers.

3.4 Other Activities

Crosscutting, supporting components such as promotion, sensitization, arbitration and information technology management are also strategic to the model's holistic approach. Together these elements represent an on-going process as the exchange grows and new services are offered. Promotion and sensitization both require that a diverse group of stakeholders—from illiterate farmers to government officials, bankers and multinational exporter companies—be targeted. The trade facilitation staff visit the sites ACE works with, explain the model and coordinate with the rural agent network to provide around the clock assistance. ACE is in the process of developing more structured promotional and training manuals to systematize information sharing, to address the needs of its stakeholders and to tap the potential of the exchange.

The information technology infrastructure holds the system together. The system is integrated and works on one same database. It has been tailored for the needs of the exchange and grows with its evolution. The importance of a well-functioning IT platform cannot be underestimated and should not be neglected as operations escalate.

ACE also facilitates complementingservices. Transportation, for example, is a serious constraint for farmers, and thus for ACE. While increasing the number of rural warehouses will help alleviate part of the problem, it will hardly compensate for the lack of transportation services, networks and infrastructure. Deviating from core activities that are not financially sound is certainly not wise. However, the exchange needs to find the balance between concentrating on its core business and facilitating the secondary services that its core activities require. Kennedy (2011) suggests that transport should be left in the hands of expert providers. The time and effort required to seek transport opportunities and monitor their services should be concentrated elsewhere. It is paramount for the exchange to develop strong partnerships able to address these ancillary needs and protect the heart of the operation.

Section 4 | Challenges and Opportunities for Growth

At this stage it should be clear that the structured system ACE is establishing addresses a number of the shortcomings of free market systems as it provides safe, affordable and financially attractive alternatives to farmers and traders. In doing so, it smoothes the progress of transparent trade, suitable storage infrastructure, market information, regulatory support, bargaining power to small-scale producers, agricultural credit, institutional development and quality standards.

While defaults once were ACE's main obstacle, now that a warehouse receipt system is in place and can guarantee performance, ACE must turn its attention to the healthy expansion of the system. All market players need to recognize and understand its added value if they are to buy into the system. Recognizing that a number of these challenges are beyond ACE's scope, it is important to identify them nonetheless and understand how they might limit its proper development.

4.1 Regional Promotion and Diversification

Most agree that ACE's major challenge is to become a sustainable business, attracting sufficient trade volumes to meet its operating costs and become a profitable institution. This will help the exchange gain long-term support.

Selling ACE abroad could be a good way to further establish the exchange and get more business. This requires embarking in a campaign to promote the exchange's services abroad and register more users. ACE is already planning the development of a digital tool to visually present the model and its advantages.

An overreliance on maize is highly problematic. From an agricultural point of view, not only is maize not drought resistant, but also to maintain yields it requires fertilizer and fresh hybrid seeds each year. It is also a politically sensitive crop, prone to restrictions such as the current export ban. Studies find that other crops with higher profit margins bring higher income to farmers (van der Vyver 2012b). Tobacco companies have embarked in input support programs for their farmers that are likely to result in increased production of food crops, an opportunity the exchange should capitalize on to diversify its income sources.

4.2 Including Poor Farming Households

The dynamics in poor farming households are particularly complex. Low agricultural productivity and small landholdings force many households to bridge the gap between own production and consumption needs with casual off-own-farm employment (Whiteside 2000). Dorward et al. (2012) find that in Malawi poorer households tend to who sell *ganyu*[3] labor in order to buy maize. It is a common misconception that household income derives from agricultural production only, or mainly. High maize prices, therefore, can lock smallholder farmers in a cycle of poverty and food insecurity. Higher revenues from higher maize prices, however, can also result in an incentive to increase production and invest.

The exchange has been built under the premise that equitable and fair participation of primary commodity producers in global commodity markets is in everyone's interest. Given the heterogeneity of the Malawian market and, more particularly, the complexity of poor smallholder farming dynamics, assuring the successful inclusion of the different groups of market players and guaranteeing the even distribution ofthe gains are neither easy nor automatic.

'The nature of social relations in markets is critical for understanding who wins and who loses in a market' (Oya 2010: 11). Larger institutions and companies with better understanding of how the industry works, access to technology and have the upper hand. Expecting the market to distribute the added benefits of the exchange evenly is as naïve as believing that the availability of new structures alone places different market players in an even playing field. Leaving questions of access and participation of the majority of the farmers up to the corporate world or even up to farmer organizations will not guarantee the improvement of the prevailing market system. For instance, Bargawi and Oya (2009: 2) report on a study that finds that farmer organization membership fails to facilitate greater smallholder participation in markets and increased producer bargaining power because such producer organizations remain 'embedded within existing disadvantageous market structures and entrenched hierarchical global production systems.'

Previous studies have found that a warehouse receipt system does not succeed at the farm gate or directly benefit farmers because volumes are too small (Onumah 2010). Traders are the immediate beneficiaries. The successful inclusion of smallholder farmers is not purely altruistic, but strategic. Without it, the exchange will not have the effect it desires or the

[3] Informal off-farm labor.

reach it requires tobecome established. ACE needs to cater to the smallholder farmer because he constitutes the base of the Malawian agricultural sector. An active spot market will require the successful integration of the smallholder farmers and small traders. Moreover, a large number of market participants reduce the probability of collusion.

4.3 Educating Stakeholders and Participants

The exchange certainly offers potentially fruitful opportunities to its diverse group of stakeholders. While it must be acknowledged that not every farmer has an entrepreneur in him, if farmers are to take advantage of these opportunities, they need the tools to address the underlying power asymmetries inherent in linking local low-income producers in developing countries with powerful agribusiness interests.

Interviews undertaken revealed that a large number of participants, mostly farmers and small traders, have limited understanding of how the system works, what the services costs, how agricultural markets function, why prices fluctuate, when to sell or how to guarantee a profit. Naturally, they cannot take full advantage of a system they do not understand. Within the exchange and among its donors there is the tacit understanding that once farmers receive compensation for taking part in the system they will realize its advantages first hand. In the meantime, farmers and small traders rely on the exchange's staff and brokers to help them make their every decision.

ACE needs to invite the beneficiaries to set in motion a self-reinforcing cycle, whereby the access to a variety of options and opportunities leads to productivity-increasing investments.

The exchange's staff sensitizes the farmer associations and communities where it intervenes. A rural agent is made available in the areas of intervention on a regular basis. Warehouse managers are full-time staff with a clear understanding of the warehouse receipt system. Still, coming to terms with the intricacies of the system can take both time and some general knowledge. Some farmers struggle to understand what a percentage is or how interest rate works.

In the future, as the system grows, more in-depth training should be offered to rural agents, who represent the exchange in the rural areas of intervention andcan provide support to rural participants. More importantly, the needs of the system's participants must be identified and addressed. Designing a training course and developing training materials

would allow the exchange to systematize its educational component. Ideally, farmers would learn about business strategies, agricultural marketing and the advantages offered by an exchange as part of an extension service. Eventually, the exchange could forge partnerships with other organizations, development agencies or the government to implement trainings in a larger scale.

The sheer weight of the numbers requires farmers—particularly smallholder farmers—to be empowered if they are to appropriate the system. 'One should not underestimate the importance of building local capacity—nor the time it takes' (Wambugu 2012).

4.4 Price Volatility

Agricultural markets are characterized by high volatility due to three market fundamentals. Firstly, agricultural output varies from season to season because of natural shocks such as weather and pests. Secondly, demand and supply are relatively inelastic, which implies that after a supply shock prices have to vary rather strongly, especially if stocks are low. Lastly, supply cannot easily respond to price changes in the short term (FAO et al. 2011). Commodity dependent low-income countries are hypersensitive to external shocks (Nissanke 2011).

Excessive price volatility is dangerous. Volatile food prices harm producers by increasing uncertainty and making it difficult to plan for production. Price uncertainty can lead to suboptimal production and investment decisions.

Well-established commodity exchanges typically trade futures contracts, whereby a farmer can sell a contract of grain he has yet to harvest and a trader can buygrain ahead of time at a set price. In theory, this protects the farmer from price drops and the buyer from price rises. ACE is not at this stage yet. In fact, the warehouse receipt system vouches on inter-seasonal price variation.

The development of commodity exchanges has also seen the increasing participation of speculators. The extent to which financial speculation drives price volatility is a controversial topic. Significant amounts of research have been undertaken lately with the objective of better establishing the effect of speculation. Experts concur that the determinants of volatility are numerous. Wahl (2009), for instance, believes speculation was the single most important factor in the 2008 price bubble and Ghosh (2010: 72) convincingly argues that the

'dramatic rise and fall of world food prices in 2007–8 was largely a result of speculative activity in global commodity markets, enabled by financial deregulation measures.' While some might consider these views extreme, most agree that 'increased participation by non-commercial actors such as index funds, swap dealers and money managers in financial markets probably acted to amplify short term price swings' (FAO et al. 2011: 12).

Furthermore, Nissanke (2011: 6) argues that heightened price volatility and the globalized landscape of commodity marketing and production not only discourage 'the process of learning and accumulation of critical importance for economic development,' but also weaken the capacity and resiliency of commodity-dependent economies.

This is important because to some extent it determines the context in which the exchange operates. Successfully managing price volatility risks requires country-specific strategies at both national and international levels, particularly because the extent of transmission of global prices to domestic markets varies. While this is beyond the scope of ACE's mission, the importance of volatility to the agricultural sector and the possibility that the exchange might promote speculation in the future invites careful oversight.

Conclusion

The Agricultural Commodity Exchange for Africa has shown promising progress. It has managed to establish the necessary infrastructure to provide noteworthy alternatives to farmers and traders. Stakeholders have noticed and have supported ACE's initiative. Farmers, small traders and processing companies have already enjoyed the fruits of system. The enduring willingness of the exchange to evolve organically, adapt to the needs of the market, address the loopholes in its model and set in motion innovative schemes is remarkable.

Currently, the exchange is at a critical turning point. Significant improvement on the road to sustainability and expansion is underway. To a great extent, the coming season will determine if the model can continue to gain momentum and enjoy the support of donors and market players alike.

As long as the exchange can continue to proactively address the challenges that arise, it will bring benefits to the economy and hopefully revolutionize agricultural trade in the region.

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Annex A | Cash FlowDetails

Table A.1| Sources of Revenue in 2012 and Projected Revenue for 2013

ACE Revenue in 2012 and Projected Revenue for 2013 *(in USD)*		
	2012	2013
From trades		
a. *1 percent of warehouse receipts*	3,750.00	38,235.00
b. *0.2 percent of BVO trades*	15,000.00	44,118.00
From financing		
c. *Interest on own capital*	8,625.00	11,838.00
d. *0.5 percent commission on financing provided by banks*	0.00	1,471.00
e. *1 percent arrangement fee*	539.00	676.00
From bags and bagging		
f. *At 4 MWK per bag*	75.00	118.00
From transportation services		
g. *At 2 MWK per bag per Km*	1,875.00	2,941.00
From market information sales		
h. *Subscription at USD 0.60 per month*	6,000.00	7,500.00
Total	**35,864.00**	**106,897.00**

Table A.2|Revenue and Projected Revenue Calculations

Calculations on Revenue and Projected Revenue

Trades

	Year	Percentage	Price (MWK/Kg)	Kg/MT	Quantity traded (MT)	Exchange rate	Total
a.	2012	0.01	60.00	1,000.00	2,000.00	320.00	**3,750.00**
	2013	0.01	65.00	1,000.00	20,000.00	340.00	**38,235.29**
b.	2012	0.002	96.00	1,000.00	25,000.00	320.00	**15,000.00**
	2013	0.002	100.00	1,000.00	75,000.00	340.00	**44,117.65**

Financing

	Year	Percentage	Time (months)	Quantity (MT)	Amount	Exchange rate	Total
c.	2012	0.32	6.00	288.00	17,250,000.00	320.00	**8,625.00**
	2013	0.35	6.00	353.85	23,000,000.00	340.00	**11,838.24**
d.	2012	0.00					**0.00**
	2013	0.005	6.00		200,000,000.00	340.00	**1,470.59**
e.	2012	0.01			17,250,000.00	320.00	**539.06**
	2013	0.01			23,000,000.00	340.00	**676.47**

Bags and Bagging

	Year	Price (MWK/bag)	KG/bag	Bags/MT	Quantity (MT)	Exchange rate	Total
f.	2012	4.00	50.00	20.00	300.00	320.00	**75.00**
	2013	4.00	50.00	20.00	500.00	340.00	**117.65**

Transportation Services

	Year	Price MK/bag/Km	Distance (Km)	Bags/MT	Quantity (MT)	Exchange rate	Total
g.	2012	2.00	50.00	20.00	300.00	320.00	**1,875.00**
	2013	2.00	50.00	20.00	500.00	340.00	**2,941.18**

Annex B | Past Warehouse Receipt

Agricultural Commodity Exchange for Africa

GRAIN TRADERS AND PROCESSORS ASSOCIATION

Date of Print: 02 Aug 2011

Warehouse Receipt Number: 2011/1

1) Depositor Details

a. ***Entity:***
b. ***Contact:*** Lawrance Chikhasu
c. ***Physical Address:*** Mchinji
d. ***Postal Address:*** P.O. Box 181
e. ***Tel:*** +265 (0) 884 447 956
f. ***Fax:***
g. ***Email:*** lchikhasu@yahoo.com

2) Warehouse details

a. ***Warehouse Name:*** Grain Security
b. ***Warehouse Manager:*** Ashif Patel
c. ***Warehouse Operator:*** Grain Security Limited
d. ***Warehouse Number:*** GrainSecurity
e. ***Location:*** LILONGWE
f. ***Fax:***
g. ***Email:*** ashif@farmersworld.net

3) Commodity Details

a. ***Commodity Name:*** Maize Grain
b. ***Variety:*** White (non GMO)
c. ***Grade:*** FAQ
d. ***Crop Year*** 2011
e. ***Quantity:*** 0.00

4) Storage Cost as of 18 Jan 2013

Cost code	Cost (MWK)
Fixed Handling	87,194.04
Bags and Bagging	94,460.21
Daily Storage Fee	101,703.00
Total	**283,357.25**

Storage settled till :	25/01/2013
Amount Financed :	
Placement :	Owner

5) This Warehouse Receipt is subject to the terms and conditions stipulated in:

a. The ACE Warehouse Receipt Rules
b. The parties acknowledge themselves to be familiar with and to be bound by the defaults terms and conditions if applicable as stipulated generally by the Regulations of ACE.
c. ACE Arbitration Rules - Any dispute arising under this or in relation to this Warehouse Receipt shall be submitted to Arbitration in terms of regulation 38 of the regulations of ACE.

6) Audit Trail

Date	Action	Owner	Volume(MT)
02/04/2012	Volume change	Lawrance Chikhasu	14.50
05/04/2012	Volume change	Lawrance Chikhasu	14.36
05/04/2012	Volume change	Lawrance Chikhasu	14.65
05/04/2012	Volume change	Lawrance Chikhasu	-43.51

Annex C | Photos of Storage Facilities

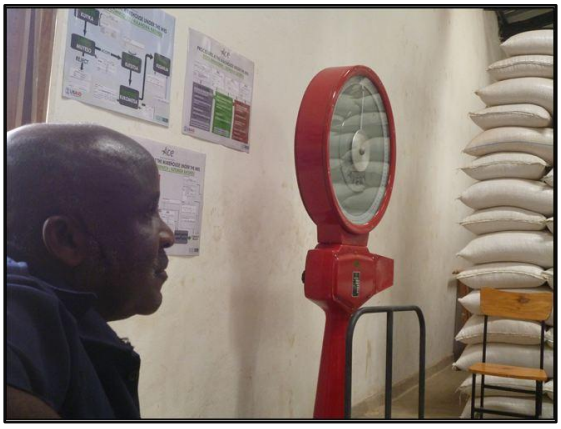
C.1. Small traders weigh, re-bag and buy maize from farmers in the field

C.2. Grain Securities Limited (GSL) silos at Farmers World in Kanengo

C.3. Bagging and handling of grain by Grain Securities Limited (GSL)

C.4. Maize Stock at Kafulu warehouse

C.5. Equipment at Kafulu warehouse



C.6. Warehouse Receipt System procedure charts at Kafulu warehouse