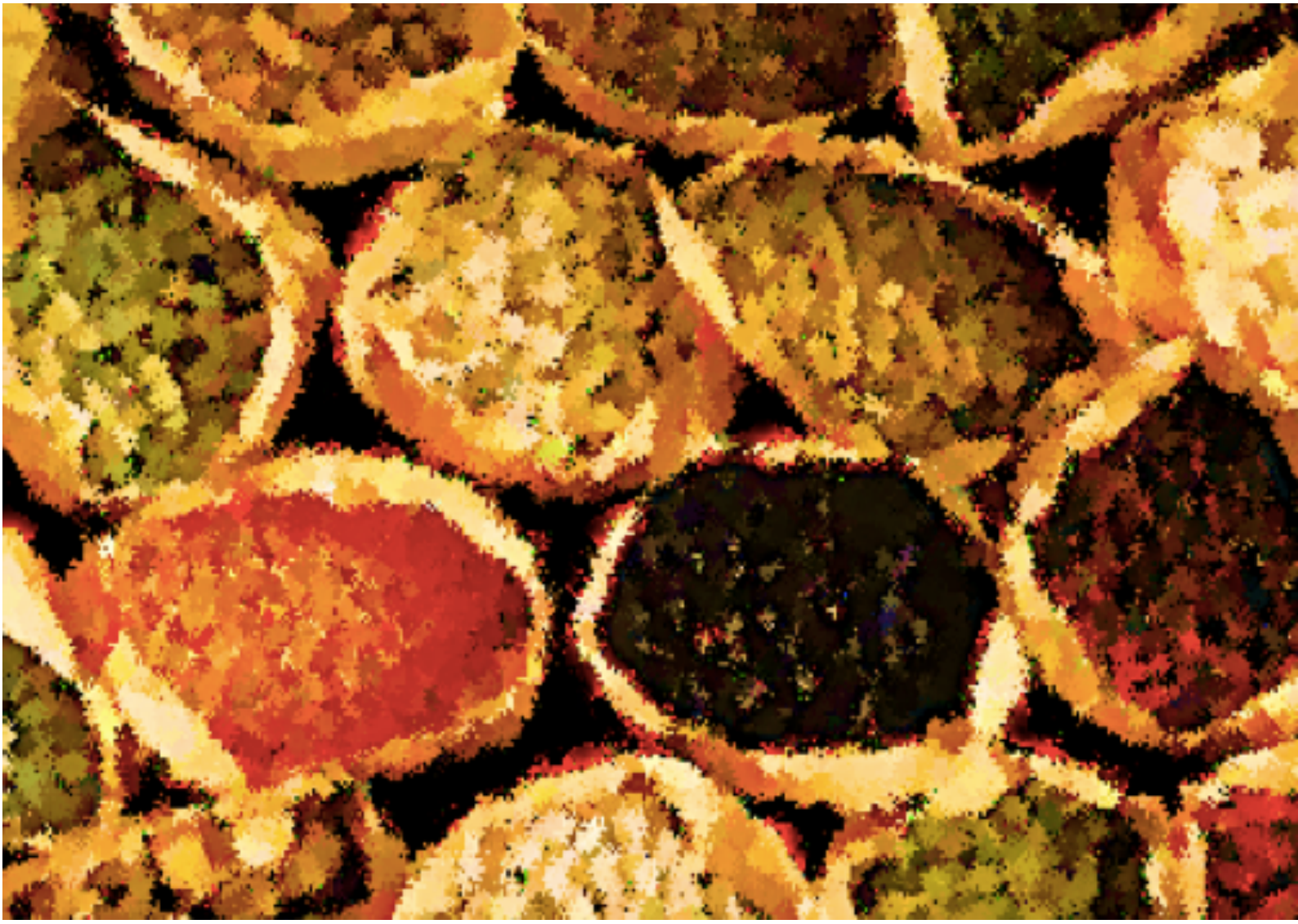
Research Report

Promoting Agricultural Commodity Management in Zambia

Leveraging Regional Policy Successes to Improve Performance by ZAMACE



CUTS International

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Contents

Acronyms

AHL	Auction Holdings Limited
AMD	Agricultural Markets Division
CEC	Crop Estimates Committee
DAFF	Department of Agriculture Forestry and Fisheries
ECX	Ethiopia Commodity Exchange
FNB	First National Bank
FRA	Food Reserve Agency
GDP	Gross Domestic Product
GRN	Goods Receipt Note
GTAZ	Grain Traders Association of Zambia
JSE	Johannesburg Stock Exchange
LuSE	Lusaka Stock Exchange
MACE	Malawi Agricultural Commodity Exchange
MAZ	Millers Association of Zambia
NASFAM	National Small Farmers Association of Malawi
NUSFAZ	National Union of Small Scale Farmers
SAFEX	South African Futures Exchange
SAGIS	South African Grain Information Service
SI	Statutory Instrument
TWLB	Tanzania Warehouse Receipt Licencing Board
WRS	Warehouse Receipt System
ZAMACE	Zambian Commodity Exchange
ZNFU	Zambia National Farmers Union

Executive Summary

In order to deal with a number of market imperfections in the agricultural sector, in 2010 the Government of Zambia passed the Agricultural Credits Act to establish a Warehousing Licencing Authority. The Act sought to address issues such as high transaction costs, low and asymmetric levels of market information, low levels of trust, and adversarial trading relations that were increasingly stifling the growth of the agricultural sector.

Although the Act was enacted in 2010, it was not implemented until late 2014 when Statutory Instrument (SI) No. 59 was signed into law appointing the Zambian Commodities Exchange (ZAMACE) as the 'authorised agency' of the Agricultural Credits Act. It effectively assigned ZAMACE statutory powers to create, manage and enforce a warehouse receipts system. However, despite the role that ZAMACE occupies in the agricultural sector, it has not successfully managed to leverage its potential.

Although ZAMACE has been in operation since 2009, it could only take off in 2014 after the enactment of the Agricultural Credits Act. However, the death of the then republican president, H.E. Michael Sata in 2014 and the preparation for elections in 2016 meant that the substantive commencement of the work of ZAMACE was only in 2017.

Aside from the changes within the political sphere, there have also been a number of mutually reinforcing factors that have impeded ZAMACE from growing to its fullest potential. *'Why are African commodity exchanges languishing? A case study of the Zambian Agricultural Commodity Exchange'* by Sitko and Jayne is the most seminal piece on the challenges that ZAMACE has faced over the years.

In recent months, there has been a growing interest to see ZAMACE begin to play a much more significant role in the economy. Through the use of interviews and focus group sessions, this paper has sought to understand whether the issues that were identified previously as major hindrances to the success of ZAMACE still remain the most important impediments to its growth since Sitko and Jayne published their paper in 2012.

The main barriers identified by Sitko and Jayne to growing the volume of trade and number of participants on ZAMACE could be summarised as: i) market size; ii) conflict of interest of brokers; iii) limited participation of the financial sector; iv) poorly developed arrangements for dispute settlement; v) high participation costs; and vi) government intervention.

Following our research however, it seems that some progress has been made since then and as such, the three main barriers hindering the growth of ZAMACE, are namely: market size; government intervention and limited participation of the financial sector. Drawing on interviews with key stakeholders in Zambia and best practice from other commodity exchange in in sub-Saharan we recommend a series of policy recommendations which are focussed on addressing these three barriers.

1. **Market size** has indeed severely limited the effectiveness of ZAMACE. One of the major reasons for this is that Zambia's agricultural sector is dominated by small scale farmers and ZAMACE has yet to leverage their potential. Boosting their participation is key to growing ZAMCE. To do this, we recommend: firstly, more concerted awareness raising efforts need to be undertaken by ZAMACE to sensitise farmers about the exchange. Secondly mechanisms that allow farmers to get some of their cash as soon as they deposit their commodities would improve the participation of farmers, particularly those who do know about ZAMACE but do not participate due to the need to pay for some of their more immediate needs.

   The other key recommendation we make to grow ZAMACE is for the government to oblige the Food Reserve Agency (FRA) to purchase at least 50 percent of its reserves through the platform. This would be the quickest way to address the lack of liquidity and low volumes. Such a move combined with measures to bring in small scale farmers would not only serve the purpose of improving the government's intervention in the sector but also contribute to the issue of ZAMACE's market thinness.

2. Secondly, inconsistency and **unpredictability of government policy** has made all actors, including commercial banks, hesitant to work with ZAMACE. In order to address the issues of government participation, a legally binding document that establishes the principles for government intervention in

agriculture is a key issue to this end. The Agricultural Marketing Bill would be a first step to achieving this role as it establishes an Agricultural Marketing Council, however, some stakeholders were of the view that such a council would be limited in scope. Rather, the proposed recommendation is that the sector requires a council that has a purview much wider than marketing and instead supports the government on all aspects of the agricultural value chain – not just marketing.

Additionally, a much more substantive institution akin to South African Grain Information Service (SAGIS) or the Crop Estimates Committee (CEC) would be needed to provide the necessary information to provide for evidence-based agricultural policy decisions. Such a move would be the first step to building confidence for all actors and contribute significantly to the success of ZAMACE.

3. Specifically, on the **participation of the financial sector**, the lessons from other country commodity exchanges is that banks need to be shareholders. This has allowed the financial sector to have an interest in the success of the commodity exchange. In the case of ZAMACE, bank participation at this level could potentially also attract other financial institutions thereby increasing the participation of the financial sector. This could play an important role as many banks are waiting to see increased participation by their counterparts in ZAMACE before they too can follow suit.

As above, our study finds that some progress has been made in respect of addressing other barriers previously identified by Sitko and Jayne. Efforts are being made to help reduce the issue of conflict of interest of brokers (the fact that traders and brokers are often the same people). There are currently discussions pertaining to an arrangement with the Lusaka Stock Exchange (LuSE) which would give confidence to various actors on the ZAMACE platform. At present, it is still unclear who exactly sits on the board currently. As such, there may still be a need to look into the full ZAMACE board and ensure that it adequately represent various actors including financial institutions.

The issue of high participation costs also seems to no longer be as pertinent as before. ZAMACE's participation costs are relatively affordable. While there does seem to be the perception that ZAMACE's participation limits small scale farmer participation, ZAMACE has worked out a way that small scale farmers can use the platform as groups to lessen the costs of participation. ZAMACE costs can also be covered by using grain. Therefore, even if the farmer does not have cash at hand, the farmer can cover their cost of using the platform using whatever commodity they have.

While poorly developed arrangements for contracts seemed to play a major impeding role in participation in ZAMACE, according to stakeholders this is no longer the case. ZAMACE has developed relatively strong legal recourse to protect against contract defaults. Furthermore, grain traders report that they are less reliant upon informal and interpersonal relationships for ensuring availability of supplies and protecting against severe price volatility.

1. Introduction

Background

As with many African economies, agriculture is a key priority sector in the growth and poverty reduction agenda of Zambia. Agriculture provides employment to over 60 percent of the population however, in spite of this significant contribution to employment, it only contributes 18 percent to the country's Gross Domestic Product (GDP), about 35 percent to the country's total non-traditional exports (all exports other than copper and cobalt) and about 10 percent of the total exports earnings for the country. Despite the post-2000 policy initiatives to diversify the economy by building labour-intensive sectors such as manufacturing and agriculture, mining has still remained the dominant sector.[1]

A number of factors have limited the growth of the agricultural sector. In order to deal specifically with issues pertaining to multiple market imperfections such as high transaction costs, low and asymmetric levels of market information, low levels of trust and 'adversarial' trading relations, the government passed the Agricultural Credits Act 35 of 2010 to establish a Warehousing Licensing Authority. The Act also sought to: 'facilitate the borrowing of money on the security of charges created on farming stock and other agricultural assets; provide for the registration of charges; provide for the certification of warehouses; provide for the issue and negotiation of warehouse receipts and the rights conferred by warehouse receipts; provide for the rights and obligations of warehouse operators; repeal and replace the Agricultural Credits Act, 1995; and provide for matters connected with, or incidental to, the foregoing.'[2]

Although the Act was enacted in 2010, it was not implemented until late 2014 when Statutory Instrument (SI) No. 59 was signed into law appointing the Zambian Commodities Exchange (ZAMACE) as the 'authorised agency' of the Agricultural Credits Act, effectively assigning it statutory powers to create, manage and enforce a warehouse receipts system.[3]

Aims and Objectives

In light of this background, this study seeks to explore the factors that have impeded the growth of ZAMACE since its establishment in 2009 and identify potential solutions that could expand and enhance the role that ZAMACE is already playing in the agricultural sector.

In order to do so this, the study: (i) assessed the performance of ZAMACE by reviewing the relevant literature and by carrying out interviews with key stakeholders; and (ii) reviewed the literature of other relevant sub-Saharan commodity exchanges to help inform how to strengthen the role of ZAMACE. The countries looked at were South Africa, Tanzania, Ethiopia and Malawi.

As such, the three main objectives of this study are:

a. Undertake an analysis of the exiting literature on the challenges that ZAMACE has experienced since its establishment;

b. Conduct an analysis on agricultural commodity management in the sub-Saharan region, and identify lessons which Zambia can adopt; and

c. Provide specific, practicable recommendations that can aid in addressing existing issues in ZAMACE and agricultural commodity management in Zambia.

[1] Seventh NDP, pg 2, http://41.77.4.165:6510/www.mndp.gov.zm/download/7NDP.pdf

[2] Laws of Zambia Chapter 224, Agricultural Credits Act, http://www.zambialaws.com/Principal-Legislation/chapter-224agricultural-credits-act.html

[3] http://www.zamace.co.zm/content/about-us-0

2. Rationale for ZAMACE

A commodity exchange is a centralised location where buyers and sellers carry out transactions, with or without physical commodities, under a set of clearly defined rules and regulations (Rashid, 2015). It is fundamentally designed to add value to all market players by addressing the risk of contract performance; the risk of contract default on physical delivery or payment; as well as market risk. While members trade in commodity futures and spots, non-members also trade by dealing through a member broker and paying a brokerage commission (Lerner, 2000).[4]

The theory behind a commodity exchange is that they should facilitate title transfer, price discovery and market transparency. Transaction costs can be decreased because coordination through a centralised exchange can decrease costs associated with identifying the market outlets, physically inspecting the product quality, and finding buyers or sellers. By decreasing transaction costs and enhancing information flows, an exchange can improve returns to market agents while reducing short term price variability and spatial price dispersion. Such contracts command little capacity to address inter annual price uncertainty. More sophisticated contracts allowing exchange in futures can enable further risk management, but these require a well-developed exchange and cannot maintain spot prices in bounds that might be desired.

ZAMACE was established to address some of the challenges that were limiting the efficiency of the agriculture production system in Zambia. These included high transaction costs, poor market information and low levels of transparency and trust among the stakeholders (Tembo, 2010). High transaction costs arose as sellers invested significant resources and time in searching for buyers, while the sellers also encountered similar search costs. In addition, both buyers and sellers could end up settling for sub-optimal prices due to poor market information as supply and demand mismatches arose due to market distortions and barriers. Given the existence of middlemen seeking to exploit both farmers and final buyers, there was a general lack of trust due to limited transparency in transactions. As such, since 2014, ZAMACE has been the authorized agency for implementation of the warehouse receipt system (WRS) under Agricultural Credits Act 35 of 2010.

A WRS is a risk management tool used to reduce price instability. Warehouse receipts are certificates, issued by warehouse operators to depositors, which provide proof of ownership on a certain commodity deposited in a particular warehouse (Antonaci, Demeke and Vezzani, 2014). The WRS facilitates private storage where receipts are provided in exchange of stored commodities. WRS can be sold as well as used as proof of collateral for loans. In this case, WRS allow farmers to access formal credit markets by offering a collateralisation service which is generally based on a tripartite agreement involving a financial institution, the borrower (the depositor) and the collateral manager (the warehouse operator) (Antonaci, Demeke and Veazani, 2014).

ZAMACE is a private limited liability company that was incorporated under the Companies Act in 2007. It operates as Zambia's sole commodities exchange with services open to farmers, storage operators, banks, processors, transporters and information providers. The ZAMACE WRS is a transparent trading platform, with known grades and standards accepted in the market. It is also a safe certified storage platform for grains, which facilitates access to finance and under which buyers and sellers can secure prices for commodities bought and sold for a future date and forward contracts. ZAMACE's mission is 'to provide an efficient and vibrant agricultural commodity exchange, supported by a warehouse certification and receipt system to enhance market access, liquidity and credibility in the commodities market.'[5] Despite the role that ZAMACE occupies within the agricultural sector, however, it has not successfully managed to leverage the potential within the sector.

[4] https://www.omicsonline.org/open-access/assessing-the-opportunity-and-challenges-of-ethiopia-commodity-exchange-for-the-members-of-agricultural-product-export-2162-6359.1000193.php?aid=33642

[5] http://www.zamace.co.zm/content/about-us-0

3. Factors Limiting the Growth of ZAMACE

Although ZAMACE has been in operation since 2009, it could only fully take off in 2014 after the enactment of the Agricultural Credits Act. However, the death of the then republican president, H.E. Michael Sata in 2014 and the preparation for elections in 2016 meant that the work of ZAMACE only substantively begun in 2017. Aside from the changes within the political sphere, however, there have also been a number of other factors that have impeded ZAMACE from growing to its fullest potential, contributing to low trade volumes passing through the exchange.

'Why are African commodity exchanges languishing? A case study of the Zambian Agricultural Commodity Exchange' by Sitko and Jayne is the seminal piece on the challenges that ZAMACE has faced over the years. Given the recent growing interest to see ZAMACE begin to play a much more significant role in the economy, this paper has sought to understand whether the issues that were identified previously as major hindrances to the success of ZAMACE still remain the most important impediments to its growth.

The issues that were raised in the 2012 paper could be summarised as: i) market size; ii) conflict of interest of brokers; iii) limited participation of the financial sector; iv) poorly developed arrangements for contracts; v) high participation costs; and vi) government intervention. The remainder of this section, therefore, looks at these six key challenges, and on the basis of a number of interviews that were held with various key stakeholders explores whether these still remain the most important factors impeding the growth of ZAMACE.

Market Size

Market size is indeed the most significant indicator and contributor of a commodity exchange's performance. A significant market size allows for competition which provides for price discovery, and the fixed costs of operating the exchange to be spread over a large number of transactions and participants. A thinly-traded market does not offer these benefits.

Since its establishment, ZAMACE has not managed to obtain the necessary market size for it to function efficiently or sustainably. To compare, a single day of trade activity on the South African Futures Exchange (SAFEX) is normally valued at over US$100mn, while ZAMACE reported a total of US$70mn from its inception in 2007 through to 2011. Even then however, ZAMACE's trade figures can be misleading as clients are only required to report 'over the counter' transactions, ignoring trades not undertaken over the exchange floor.

In 2016-17 agricultural marketing season ZAMACE only traded about US$3mn worth of transactions, and in terms of volume, less than 12,000 metric tonnes in 2017. According to the management at ZAMACE, In order for ZAMACE to continue operating, it needs to trade about 250,000 metric tonnes of any commodity annually. Comparatively, both numbers are very small juxtaposed against the 3.6 million metric tonnes of maize Zambia produced in 2016-17.

Indeed, according to all stakeholders an insufficient market size has severely limited the effectiveness of ZAMACE. One of the major reasons for this is that Zambia's agricultural sector is dominated by small scale farmers and ZAMACE has yet to leverage on this potential. The limited participation of small scale farmers is due to a number of reasons: firstly, in spite of the concerted efforts by both ZAMACE as well as some banks, small scale farmer awareness of ZAMACE is limited; and secondly, farmers tend to sell their commodities in order to pay for immediate needs, the ZAMACE model does not provide farmers with instant cash.

While limited market size is indeed an impediment to the growth of ZAMACE, it can be better understood as a consequence of more fundamental issues affecting the performance of grain markets in Zambia more broadly. The following section explores some of the constraints to achieving sufficient market size on ZAMACE.

Conflict of Interest of Brokers

While the objectives of ZAMACE are clearly outlined, its governance has been cited as a concern since its inception. ZAMACE never formed an advisory board, and its elected board lacked broad consultation from the onset. Ideally, a commodity exchange board should include representatives from the government, banking, storage/warehousing and the agricultural sector (e.g. traders, processors, input suppliers, etc.) however, ZAMACE initially started with only eight core members, which primarily comprised of large grain traders.

When ZAMACE was starting out, there were no commodity brokers in the Zambia. As such, due to the reluctance of other actors to participate on the exchange, ZAMACE turned to the grain traders, who were existing market actors on ZAMACE to comprise the board and buy brokerage seats. This undoubtedly resulted in a perceived conflict of interest as many commercial farmers and smaller traders believed (and still do to this date) that ZAMACE was not competitive, and more specifically, that it was open to price collusion between members, and as such, brokers might not act in the best interest of their clients, but rather in the interest of the major trading firms they represent.

In light of this issue, at the time of writing, there have been discussions that ZAMACE has recently struck an arrangement with the LuSE, where the LuSE may soon be the majority shareholder. This is in an attempt to separate the ownership of the exchange from its participants. While discussions are apparently still ongoing, it has been stated that the LuSE indicated that ZAMACE would need to recapitalise if the previous shareholders wanted to retire their stake in ZAMACE. As a result of this development, the issue of the conflict of interest of brokers, should potentially be addressed.

Limited Participation of the Financial Sector

To date, ZAMACE has only partnered with three financial institutions, namely: The First National Bank (FNB), Stanbic Bank and Madison Finance Company. The challenge of attaining financial players to partner with ZAMACE is not one unique to Zambia but one characteristic of commodity exchanges on the African continent. Part of this problem stems from the fact that ZAMACE generally has not enjoyed a broad-based membership and suffered from limited buy-in, including from the financial sector. According to previous literature this is partly due to a general lack of understanding of how exchanges work and benefits its users.

This explanation was refuted by various stakeholders as the reason for the limited participation of the financial sector on ZAMACE. One of the reasons given that this explanation does not hold is that ZAMACE in recent years has undertaken numerous information-sharing sessions with banks in an effort to convince them to partner with ZAMACE.

According to representative from the financial sector, one of the major factors that determines banks' participation in ZAMACE is their internal strategies. Stanbic Bank, for instance, is the largest lender in the agricultural sector in Zambia and so ZAMACE is an area of interest for the bank.

The other reason that came across quite prominently for the limited participation of banks in ZAMACE was that banks are waiting to see how ZAMACE progresses with the financial institutions that it has partnered with currently. According to interviews with representatives from the banking sector, given that banks tend to be inherently risk-averse, the success or failure with these institutions will therefore determine whether or not they partner with ZAMACE as well.

Finally, the last issue that arose during the interviews was that when one looks at the ZAMACE website, there is always a substantial gap between bidders and offers for various agricultural commodities. Typically, this gap is filled by speculators, however in Zambia, speculators have lost significant amounts of money due to policy inconsistency. For an exchange to work there needs to be speculators to fill the gap who can assist in price discovery, transparency and eventually create liquidity.

This, therefore, ties to another key issue that contributes to banks' reticence to participate in the financial sector, namely the inconsistency and unpredictability of government policy. One of the most recent efforts on the part of the government to address this was in 2017 when, in a show of commitment, the government held meetings with the financial sector to encourage them to participate in ZAMACE. Unfortunately, nothing substantive resulted from these meetings as the financial sector indicated that they would need a legally binding commitment from the government that they would no longer undertake ad hoc interventions in the agricultural sector.

In Zambia, therefore, one of the key hindrances to the involvement of commercial banks in the commodity exchange is the numerous and *ad hoc* policy-related challenges associated with government operations in grain markets. This issue is explored in more detail later in this section.

Poorly Developed Arrangements for Dispute Resolution?

A commodity exchange must have clear, consistently applied and balanced rules and regulations that govern all parties to the exchange and are designed to

protect the integrity of the exchange. Trading rules, specifically, need to include delivery guarantees or a means of alternative dispute resolution that ensures performance by all parties. The exchange, therefore, must develop a transparent surveillance and monitoring system and act decisively when breaches in rules occur.

According to previous literature, ZAMACE has traditionally been associated with high levels of risk and uncertainty associated with contract default, including delivery and payment failure and contract non-compliance encouraged by the high costs and the time associated with resolving disputes through Zambia's legal system. Although ZAMACE has arbitration protocols and a settlement guarantee facility in place, potential clients see this as an extra cost and find it time consuming (Sitko and Jayne 2012).

According to interviewees, however, this is not the case. In ZAMACE's history there have been two arbitration cases including one whereby it took about a year to reach a resolution and cost approximately US$20,000. However, while previous literature argued that ZAMACE has not had any arbitrations due to the costly and drawn out processes (as indicated by the previous example) involved, according to stakeholders we spoke to the main explanation is actually *because* ZAMACE has since those two instances developed strong legal recourse to protect against contract defaults.

Interviews with the grain traders indicated that contracts negotiated outside of ZAMACE are actually where most traders see defaults as a result of many traders not understanding the content of the contracts and that defaulting is actually less likely to take place on ZAMACE due to the enforcement measures.

High Participation Costs

ZAMACE raises money by charging for commodity testing and certification services and collecting transaction fees (charged to both parties) of 0.15 percent of each side (bid and offer) of the value of the trade conducted through ZAMACE, and 0.2 percent on the value of a reported (over the counter) trade. ZAMACE also charges a monthly fee to its members (Sitko and Jayne 2012).

Because transaction fees are derived from percentages of the bids, according to Sitko and Jayne (2012) low traded volumes result in failure to raise enough money to run ZAMACE. ZAMACE, in turn, has to find alternative ways of raising money such as increasing membership fees. Fewer participants mean that the cost of running the commodity exchange is spread across a small number of people causing their membership fees to be high and as such impedes the participation of members on the exchange.

According to stakeholders however, issue is no longer a key impediment to participation on the platform as costs on the platform are as per volumes traded. ZAMACE is currently on a drive to attract small scale farmers to the exchange and as such participation costs are being altered to no longer be an impediment to participation. In order to deal with participation costs, ZAMACE has also created an opportunity for small scale farmers to trade on the platform through farmer groups. This reduces the price that an individual farmer would have to pay.

Having said this, interviewees did note that the perception of needing higher volumes to trade on the platform does indeed affect the participation of small scale farmers on the platform; as such, more awareness raising and sensitisation of small scale farmers on the fee structure is imperative. As it stands, due to the current cost structure, even smaller grain traders have an opportunity to benefit from the exchange through the agent costs and brokerage fees without having to have physical stock.

Although costs no longer seemed to be an impediment, one major impediment that was noted as a hindrance to small scale farmer participation on the platform was ZAMACE's inability to hedge future prices. According to stakeholders, although indeed ZAMACE may be making it cheaper to participate, unless ZAMCE is able to with certainty provide a future price, farmers may be hesitant to participate as the minor costs incurred while trading on the platform may not provide returns as soon as may be needed by the small-scale farmer.

Government Intervention

In Zambia, like other countries in the region, the government regularly intervenes in cereal markets in an effort to both support producer prices and/or reduce consumer prices in the event of price spikes (Sitko and Jayne 2012). In Zambia, this includes unanticipated changes in marketing board purchases or sales out of buffer stocks, export bans, and sudden changes in import tariff rates on imported grain.

One significant government intervention that has had significant impacts on ZAMACE is the selling of maize by small scale farmers to the FRA at above market prices. This limits the incentive for smallholders to sell their maize to marketing actors that might use the exchange.

In 2005, the FRA Act was amended, and it was given the authority to get involved in marketing activities by providing a market to smallholder farmers – allowing it to essentially assume the role of a grain marketing board (Mason and Myers, 2011, and Govereh et al., 2008). Since then, the FRA has become the main market player in maize markets, purchasing about 83 percent of total maize marketed surplus between 2010 and 2012 (Kuteya and Sitko, 2014). Selling maize to the FRA reduces the volumes of the commodity being traded on the market. This is discouraging for the private sector.

Other government interventions, such as import and export bans, as well as the release of stocks on the market at concessionary prices, discourages traders and millers with no particular insider knowledge of impending government actions from taking speculative positions in the maize market, which in turn decreases the potential volumes of trade on the exchange (Sitko and Jayne, 2011). A contributor to the failure of the Zambian exchange has, therefore, partly been due to the private sector being discouraged from investing in commodity exchanges due to policy bottlenecks such as governments' price policies, trade policies, exchange rate policies, or macroeconomic stability (Rashid, 2015).

Policy inconsistency from the government is, therefore, also a major factor. It hinders banks and other financial institutions from financing the exchange and also stands in the way of private sector participation through forward contracts as borders can be closed or open at any time. When the private sector is not participating, financial institutions are also hesitant to engage. Government intervention therefore affects trade volumes, private sector participation through forward contracts, the financial sector's participation and market size. As such, until government intervention in cereal markets becomes more transparent and predictable, the development of a commodity exchange in Zambia will remain stunted.

4. Regional Case Studies

South Africa

Background

In 1993 and 1994, research was undertaken by the SAFEX on the viability of an agricultural derivatives market. In light of the positive outcome of the study, 84 trading seats were taken up by interested parties which eventually provided the startup capital for the commodity exchange (UNCTAD 2009). Each seat was taken up by interested parties at R50 000.00 each to form startup capital of R4.2m (about US$1 million). As such, the commodity exchange was started with private money. The seat holders included banks, existing financial trading houses, new commodity trading houses and agricultural interest entities.

The commodity exchange in South Africa was established in 1995 and was known as the Agricultural Markets Division (AMD), a division of the SAFEX. The AMD was licenced to trade derivatives in terms of the Financial Markets Control Act and regulated by the Financial Services Board (FSB). In the same year, the government stepped away from most forms of intervention in the pricing of agricultural products. Grain products, however, were still subject to a form of price intervention.

In August 2001, SAFEX became part of the JSE Securities Exchange and agricultural derivatives trade within a division of the JSE. During the first half of 2001, members of SAFEX accepted a buyout by the JSE Securities Exchange to become a separate division within the JSE. As from August 2001, the Agricultural Markets Division of SAFEX became the Agricultural Products Division of the JSE Securities Exchange South Africa and moved from its original premises to the JSE building.

With respect to the products traded, white maize is the most liquid, followed by wheat, yellow maize, sunflower seeds and soya beans. Participants rich in understanding of the market and the development of a broader base of marketing strategies have been the reason for the success of commodity exchange. In 2010, the division reinvented itself by introducing other commodity products and so rebranded to become the Commodity Derivatives Market of the JSE Ltd (JSE Education 2017).

In addition to SAFEX, a number of non-governmental organisations (NGOs) have been set up that work in collaboration with the government to curb loss of excess grain in the event of a bumper harvest. The main organisations include the South African Grain Information Service (SAGIS) and Crops Estimate Committee (CEC). SAGIS is a non-profit company, established in 1997, after the deregulation of the marketing and control boards in South Africa. It was formed to supply the grain and oilseeds industry with essential market information. The main goal of SAGIS is the gathering, processing, analysing and timeous distribution of reliable agronomic information to all role players. SAGIS also monitors import tariffs and audits certificates for minimum market access. Market participants such as storers, processors, importers and exporters of grains and oilseeds, are statutorily compelled under the Marketing Act of Agricultural Products, Act 47 of 1996, to register with SAGIS and to submit information (SAGIS, 2017).

The CEC is responsible for the official crop forecasts and estimates of summer and winter field crops for the country. The CEC functions under the auspices of the Department of Agriculture, Forestry and Fisheries (DAFF). Crop forecasts are primarily undertaken to give an early indication of the expected production of grains to decision-makers in the agricultural sector. This information is of critical importance to all role-players in the grain industry in order to plan and make informed decisions for the trading, transport, storage and marketing of the crops. A reliable crop estimate ensures that buyers and sellers have equal bargaining powers and eliminates unfair advantage. The forecast is also extremely important because it prevents the spreading of rumours aimed at market manipulation and unfair price-influencing (SAGIS, 2017).

Success Factors

There were a number of reasons that lead to the success of the South African commodity exchange which provide lessons for Zambia. The most important was that the exchange added value to the market place. The commodity exchange process through SAFEX is better, faster and cheaper and also provides price transparency, price integrity, price management and secure settlement. Additionally, institutions such as SAGIS and CEC which are lacking

in Zambia play vital support mechanisms by ensuring that SAFEX has essential market information.

Notwithstanding the above, the South African government also plays a very vital role by creating an enabling environment for the development of the sector in such a way that the overall economic, social and environmental objectives described above can be achieved. There are three aspects to this approach, namely: establishing principles for government support for agriculture, building partnerships with the private sector and farmer organisations and establishing accountability for services.

Tanzania

Background

Tanzania started receiving technical assistance for its WRS in 1999. However, WRS financing projects were only piloted in the Tanzania between 2002 and 2005. Initially they did not have any legal framework to support their activities and so financial institutions were hesitant to support the model. The Warehouse Receipt Act was eventually passed by the Parliament and the Tanzania Warehouse Receipt Licensing Board (TWLB) was established. In 2006, operational guidelines were released and a few financial institutions started accepting receipts issued by warehouse operators as documents of title (Pascal, 2012). As such, Tanzania has one of the most developed WRS in Africa.

Success Factors

There have been a number of key factors that have contributed to the success of Tanzania's WRS which could serve as lessons for Zambia. These include suitable storage infrastructure with appropriate legislation guiding the operations of warehouses. In addition, there is strong buy in by financial institutions who have a large network to reach rural farmers and ability to provide adequate monitoring and supervision, which is currently missing in Zambia.

The organisation of the market through grades, quality and standards that increase efficiency in trading also influenced success and such grading and quality system is not strong in Zambia. Clear guidelines and definitions of commodity standards, quality and quantity must be implemented to resolve information uncertainties. This helps to remove transaction costs that arise from lack of grades and standards, especially to big buyers. Tanzania's WRS also helps cut transaction costs arising from moving commodity before the transaction occurs; they provide collateral that farmers can use to borrow, and they also provide important market information. There is still some work to do for Zambia before it can adequately perform similar services. There is need for requisite infrastructure, a supportive policy environment that is not ad hoc and unpredictable, a developed financial market and a stable legal environment to enforce contracts. Clear guidelines and definitions of commodity standards, quality and quantity must be implemented to resolve information uncertainties. This helps remove transaction costs that arise from lack of grades and standards, especially to big buyers.

Challenges

Key challenges in the system have been as a result of political interference in the markets, especially in grain markets. This is also similar to what is happening in Zambia. There is also lack of awareness among smallholder farmers on how WRS work. Markets that were performing the worst on WRS showed very low levels of knowledge among farmers. Further, it was noted that auctions in cashew exports were conducted through closed tender bids while in coffee, bidding was through open auctions. This was causing a lot of complaints and suspicion among producers and traders as to how the tender committee was awarding successful bids. Finally, the cost of setting up and running a warehouse was prohibitive in some rural areas.

Ethiopia

Background

The Ethiopia Commodity Exchange (ECX) is one of the most successful commodity exchanges in Africa. The ECX is authorised to operate warehouses, to carry out weighing and inventory management of agricultural commodities, and to issue exchange warehouse receipts for the purposes of Exchange trading by Proclamation No. 550/2007. It commenced trading operations in April 2008 and its success is attributed to the efficacy of the WRS.

Prior to the establishment of the ECX trading in agricultural markets in Ethiopia was characterised by high costs and high risks of transacting. Given that only one third of the agricultural output was reaching the market, commodity buyers and sellers tended to trade only with those they knew in order to avoid the risk of being cheated. The assessment of the agricultural products was done on the basis of visual inspection as there was no assurance of product quality or quantity which drove up market costs, leading to high consumer prices. Small-scale farmers

who produce a significant component of the Ethiopia's agricultural output were also severely disadvantaged as they would come to the market with little to no information and as such were unable to negotiate better prices or reduce their market risk.

The warehouse receipt financing applies to all commodities including maize, wheat, sesame seeds, and white pea beans. The duration of the WRS is limited to two-four months and the expiration period for the loan is similar to the warehouse receipt expiration for sale at the ECX. The period is based on the maximum length the commodity can be deposited without changes to its quantity and quality (USAID Ethiopia).

Considerable experience has been gained from the investments made by ECX to launch a functioning commodity exchange and ECX Warehouse Receipts Programme. The table below shows the major participants that have contributed to the successful implementation of the WRS.

Depositors/Borrowers	**These are ECX members or /clients that deposit their commodities at designated warehouses and use their Goods Receipt Note (GRN) issued by the exchange as collateral for obtaining loans from exchange partner banks.**
Warehouse Operators (in this case is the exchange)	The warehouse operator will be responsible for weighing, sampling, grading and storing the commodity and issuing the GRN. It is also expected to keep the commodity in a safe and secured store while maintaining the initial quality.
Partner Banks	Banks accept electronic WHR as collateral for short-term loans, issue WHR pledge requests to the ECX, disburse credit for WHRs, and receive settlements directly from the ECX Clearing House (CH). There is strong reporting and information exchange system between the exchange and the partner banks that: - ECX has established a reporting template for sharing WRF status reports, the template details each transaction is sent to ECX on daily basis - ECX market data unit also sends daily updates on the average price of sesame to CBE HQ for determination of the loan value
Ethiopia Commodity Exchange	The commodity exchange provides market data to value the WHR (such data may be based on ECX trades or third-party market information) and provides an efficient trading platform for selling the WHR. The Clearing House of ECX clears the sale of WHR, manages moisture loss adjustments, taxes, fees, and ensures the cash settlement of WHR disbursement to the Loan Account in the Bank.

Success Factors

ECX warehouse receipt financing is based on the use of securely stored commodities as loan collateral designed for suppliers. The approach allows suppliers, such as farmers, cooperatives, processors and traders, to deposit commodities in designated ECX warehouses where the depositor receives a receipt certifying the deposit of commodities of particular quantity, quality, and grade. While one of the key obstacles for banks, including in Zambia, to participate in the system is operational risk associated with storage and warehouse management; under the ECX WRS the warehouses have been licenced and insured.

Additionally, operational risks related to the warehouses are guaranteed by ECX. The ECX has signed agreements with six commercial banks (one government and five private banks) to work in partnership on warehouse receipt financing, although the government's financial policy that requires private banks to purchase bonds equivalent to 27 percent of each disbursement, has limited their participation. Zambia thus could also draw lessons from the Ethiopia system, especially the need to ensure that there is buy in from the financial institutions, especially with respect to insurance and risk management in general.

As it stands the potential users of the ECX WRS are small scale farmers who are not able to access rural banks and/or micro finance loan services due to existing collateral requirements. The exchange envisages reaching this group through primary cooperatives and unions as grain minimum lot size might be a problem for individual farmers. Small scale farmers/producers will need to work via cooperative unions or societies, as there are certain barriers that restrict their participation in ECX warehouse receipt financing directly, such as minimum lot sizes, loan amounts, short storage period, long process to get loan, lack of awareness of WRS, and distance to ECX warehouses (USAID Ethiopia). The need to target small scale farmers is also apparent for Zambia, pointing at the need to ensure that farmers are better organised to work as cooperatives to gain the critical mass needed to fully enjoy the warehouse system benefits.

Malawi

Background

Agriculture plays a vital role in Malawi, making up around 30 percent of total GDP of the country and employing over 80 percent of the labour force. The agricultural sector of Malawi is still dominated by a few food and cash crops despite numerous attempts to broaden the variety of produce; as such maize remains the main food crop produced by most small holder farmers to secure their own food supply. Most of the smallholder production does not enter the formal market but is used for self-consumption; it only goes as far as the village mills but seldom enters large scale millers.

Private traders, either as companies or individuals, are also involved in the business at large, but most of these traders have access to storage facilities. This enables them to make maize purchases immediately after harvesting, or even during harvest time when prices are at the lowest point with oversupply and release that stock as prices increase during the non-harvesting period from December-March of the following year. This not only leads to most of the profits entering the hands of the traders, but also ensures a smoothing of supply so that higher prices in the market will call forward stored domestic supplies. Larger traders often buy from small-scale traders to enable them to get larger volumes than making many small direct purchases from individual farmers.

Malawi initially had two commodity exchanges, one for local trade and the other for regional trade. The Malawi Agricultural Commodity Exchange (MACE), was established in 2004 and had the vision of making markets work better for the smallholder farmers through reliable market information and improving transparency in trade. It provided market information through sending SMSs to farmers' mobile phones. MACE is a private company which was funded by the Rockefeller and Gates Foundations (AHL Commodities, 2016).

The Agricultural Commodity Exchange for Africa (ACE) was also established in 2004 and started operating an online trading platform in October 2006. The National Small Farmers Association of Malawi (NASFAM) took the initiative to establish ACE as an attempt to ease the marketing effort for small farmers. The aim was to link national marketing institutions to create free information flows and facilitate regional trade growth. Shortly after launching, it had attracted the interest of 11 companies in Malawi, 6 companies in Zimbabwe and a growing number of members from South Africa, who are also members of the SAFEX (AHL Commodities, 2016).

Auction Holdings Limited (AHL) is currently setting up a third exchange that will be used as a platform to facilitate buying and selling of agricultural produce (AHL controls the tobacco auctions). AHL's facility will offer central stocking, better commodity prices and increased exports with foreign buyers' participation. It could propel development of commercial agriculture and diversification while helping export growth. There are also opportunities for banks and other lending institutions, farmers, transporters, brokers, insurers etc. as this set up will provide collateral or security for so many business transactions (AHL Commodities, 2016).

From a practical point of view, of the three exchanges mentioned above, only ACE is presently functional and growing in volumes, support and initiative. ACE has a system whereby bids and offers are advertised on a screen. When a deal is struck between two parties it is supposed to be a valid forward contract (AHL Commodities, 2016). However, when the market price moves away from the transaction price, a culture has unfortunately established itself where the party losing out because one can now obtain a higher/lower price, walks away from the transaction. Apparently, this is no different from any other transaction struck outside the exchange, but nonetheless it greatly tarnishes the image of the exchange. ACE does not guarantee the transaction but only advertises it. Although market participants are aware of this, outsiders compare ACE to that of a futures exchange where all transactions are guaranteed. For this reason, a system whereby WRSs are traded and guaranteed by ACE will greatly enhance the image of the exchange.

Lessons from ACE

Dentoni (2015) undertook a study on ACE and was able to identify various factors that set ACE apart from other countries, especially with respect to its governance structure. These provide important lessons for Zambia, especially as far as enhancing effectiveness is concerned.

- The government finances ACE but does not participate in the ACE Board, so it exercises external rather than internal influence.
- The investors reduce their risk by pooling their warehouse facilities in ACE, thus avoiding having only one company dominating

ACE trades. Such investors include farmers, input providers, traders and financial institutions who hold shares in AC.

- ACE is divided into two separate units; ACE Trust and ACE Ltd, which allows the development of two separate business models. ACE Trust focuses on seeking donors' grants while ACE Ltd focusses on profit generation from traded volumes. This has allowed the two to develop competencies within their focus areas:
    - There is a legal counsellor, an independent third-party and the ACE Chief Executive Officer (CEO) who mediates among the interests of the farmers' associations and private investors participating in the Board.

5. Conclusion and Recommendations

To date, the potential of ZAMACE has not been fully realised. This is primarily as a result of a number of different challenges that have impeded the growth of ZAMACE. Drawing from the different country case studies above, this section outlines a number of recommendations on how to address some of the issues that are still hampering its growth, namely: market size; government intervention and limited participation of the financial sector.

Market Size

Market size has indeed severely limited the effectiveness of ZAMACE. One of the major reasons for this is that Zambia's agricultural sector is dominated by small scale farmers and ZAMACE has yet to leverage their potential. Drawing from the Ethiopian case study, the users of the ECX WRS are small scale farmers through primary cooperatives and unions. ZAMACE needs as a priority to explore how to make more effective use of cooperatives to draw small scale farmers to participate on the platform.

According to stakeholders, the limited participation of small scale farmers on ZAMACE is also due to: i) their limited awareness of ZAMACE and its operations; and ii) an inability of the exchange model to cater to many small-scale farmers' immediate cash needs. To address these issues ZAMACE needs to firstly, increase its sensitisation activities and secondly, explore the possibility of providing even a partial immediate payment to small scale farmers once they have deposited their grain. While provisions have been made for farmers to pay for their cost of using the platform using whatever commodity they have, a similar exception on the part of payment for deposits to small scale farmers could be considered to further promote their participation.

Finally, and perhaps most importantly stakeholders believe that the key reform the government could make which would actively contribute to the growth of the ZAMACE would be by obliging the FRA to purchase at least 50 percent of its reserves through the platform. This would be the quickest way to address the lack of liquidity and low volumes. Such a move combined with measures to bring in small scale farmers would not only serve the purpose of improving the government's intervention in the sector but also contribute to the issue of ZAMACE's market thinness.

Government Intervention

The inconsistency and unpredictability of government policy has made all actors, including commercial banks, hesitant to work with ZAMACE. In other countries, such as South Africa, the government plays a very vital role by creating an enabling environment for the development of the sector. The South African case study provides three principles that have guided the intervention of the government in the agricultural sector. These are:

1. establishing principles for government support for agriculture;
2. building partnerships with the private sector and farmer organisations; and
3. establishing accountability for services.

A legally binding document that establishes the principles for government intervention in agriculture is a key to this end. The passing of the Agricultural Marketing Bill would be a first step to achieving this role as it establishes an Agricultural Marketing Council. Some stakeholders, however, are of the view that such a council would be limited in scope. Rather, the proposal is that the government requires a council that has a purview wider than marketing and instead supports the government on all aspects of the agricultural value chain.

Additionally, much more substantive institutions akin to SAGIS or CEC are needed to provide the necessary information to provide for evidence-based agricultural policy decisions. Such a move from the government would be the first step to building confidence from all actors.

It is however important to note that in the past year and a half, the government has kept to its commitment to not close the borders as well as ensure that not more than 500, 000 MT of maize is bought by the FRA. Further to this, conversations regarding the FRA potentially using the ZAMACE platform to buy its commodities begun a number of years ago however there has been no conclusion.

Participation of the Financial Sector

The third key issue that proved to be quite pertinent is the participation of the financial sector in ZAMACE. Drawing from other country case studies, in South Africa, shareholders in the AMD include banks. This requires the financial sector to have an interest in

the success of the AMD and as such has also contributed to their increased participation in ZAMACE.

One of the other major reasons for limited financial sector participation in the sector is their averseness to risk. In Ethiopia, there is a strong reporting and information exchange system between the exchange and the partner banks. Such a reporting system in Zambia could serve to promote transparency and free flow of information between ZAMACE and the bank, and ideally contribute to confidence building with the financial sector.

The remaining three issues have indeed reduced in relevance over the years. Conflict of interest of brokers is no longer an issue of the same magnitude as it was before as there are currently efforts to address this. There are currently discussions pertaining to an arrangement with the LuSE which would give confidence to various actors on the ZAMACE platform. At present, therefore, it is still unclear who exactly sits on the board. As such, there may still be a need to look into the full ZAMACE board and ensure that it adequately represent various actors including financial institutions.

The issue of high participation costs also seems to no longer be as pertinent as before. ZAMACE's participation costs are relative. While there does seem to be the perception that ZAMACE's participation costs limit small scale farmer participation, ZAMACE has worked out a way that small scale farmers can use the platform as groups to lessen the costs of participation. ZAMACE costs can also be covered by using grain. Therefore, even if the farmers do not have cash at hand, they can cover their cost of using the platform using whatever commodity they have.

While poorly developed arrangements for contracts seemed to play a major impeding role in participation in ZAMACE, according to stakeholders this is no longer the case. ZAMACE has developed strong legal recourse to protect against contract defaults and according to the grain traders, while inter personal relationships were indeed critical for ensuring availability of supplies and protecting against severe price collapses in markets this is no longer the case.

Issue		Recommendations	Implementation		Responsible Institutions
			Short Term	**Long Term**	
1.	Market size	1. Undertake more ZAMACE awareness efforts by partnering with likeminded institutions and hiring more staff. 2. Implement payment mechanisms that cater to the more pressing and/or urgent cash needs of farmers 3. The Government through the FRA consider trading on the ZAMACE platform.	Undertake roadshows targeted at small holder farmers with limited access to markets	Develop attractive payment mechanisms for payment for small scale farmers Mandate the FRA to make purchases through the ZAMACE platform.	ZAMACE, MoA, FRA
2.	Government Intervention	1. Establish principles for government intervention in agriculture. 2. Providing the necessary information to feed into evidence-based agricultural policy decisions	Establish a platform where all stakeholders are present (consumer bodies, ZNFU. NUSFAZ, MAZ, GTAZ, government) to discuss and agree on the appropriate government actions to take every year	Enact the Agricultural Marketing Bill	Ministry of Agriculture, ZNFU. NUSFAZ, MAZ, GTAZ, consumer bodies
3.	Limited Participation of the Financial Sector	1. Include banks as ZAMACE's shareholders. 2. Establish a strong reporting and information exchange between the exchange and the partner banks.			ZAMACE

Annex 1: ZAMACE Participation Costs

Warehouse Operator		
Description of Service	**Unit of measure**	**Rate Per Tonne (Inclusive of VAT)**
Storage	Per Month per tonne	ZMW 42.00
Handling (IN)	Per ton for account of Depositor	ZMW 28.00
Handling (OUT)	Per ton for account of Buyer	ZMW 28.00
Fumigation	Once off charge per ton for Depositor	ZMW 21.00
Lodgement Fees (Lodgement of Bid or Offer with ZAMACE)		
Fee based on actual quantity transacted	ZMW 10.00 Per tonne	
Authorised Participation Fee: (Broker)		
Businesses	ZMW 5,000 Per Annum	
Farmer Groups	ZMW 1,250 Per Annum	

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