Guidebook on African Commodity and Derivatives Exchanges

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Foreword

African policymakers have increasingly realized that efficient financial and commodity exchange markets are important for growth as well as for equitable, inclusive and sustainable development. Derivatives and commodities exchange markets can help deliver an improved market transparency, financing of commodity chain and financial market participants, hedging and risk management, and provide the financial resources for privates sector participation in Africa's infrastructure development. As a secondary effect, derivatives and exchanges can result in job creation and enhanced cross-border economic integration by offering venues for the mitigation of key financial and trade risks. It is in the financial sector where inclusion and innovation has taken place and can unlock Africa's financial potential.

Commodity exchange and derivative market development has therefore become an important aspect of development initiatives and aspirations in many African countries. Yet, some notable exceptions notwithstanding (e.g., Ethiopia, South Africa), the past three decades of African exchange market development have not yielded much to show for the effort. The results of various initiatives are being called into question for inappropriate approaches, poor results in take-off, unsustainable impact, and inadequate use of appropriate technologies. And factors - such as globalization, the information revolution, the tremendous growth in international markets -- and the development paradigm shifts with the prominent role of the private sector in creating and sustaining markets are causing national authorities and their development partners to reassess their roles in commodity market development.

Africa is latecomer to commodity and derivative markets. However with the recent growth dynamism on the continent, African countries are tapping into new and innovative sources of financing, including exploiting the full potential of the commodity exchange and derivatives markets to facilitate the development of local capital markets. Ethiopia is a good example in this regard.

A fully functioning derivatives and commodity exchange market will be pivotal in improving competitiveness, facilitating both domestic and international trade and integration of the continent to the global economy. And more can be done by developing further Africa's leadership in m-banking, m-agriculture and related areas.

At the same time comprehensive evaluations of derivative and commodity market development reveal the severe limits of narrow approaches that are divorced from the broader enabling environment within which these markets and their related economic institutions must operate. African governments can play a facilitating role by developing institutional framework and improving the regulatory environment that will encourage institutional investors to make use of these financial instruments.

The African Development Bank, in line with its role as a catalytic agent at the heart of Africa's capital and financial markets development, disseminating best practices and innovative ideas across the continent, took a lead in drafting this Guide Book which aims to promote innovative ideas and discourse on best practices on derivatives and commodity markets development. It draws on three decades of Africa's development efforts in this area, complemented with lessons and best practices from across the globe. The Guide Book also illustrates how these lessons can be applied going forward.

The Guide Book was written in the context of the first Pan-African Workshop for Regulators of Derivatives and Commodity Exchanges that the Bank, in cooperation with Bourse Africa Limited and with the support of Botswana Investment and Trade Centre (BITC), organized in Gaborone, Botswana in July 2012.

We hope that this volume will help African countries, the private sector investors and other development actors deepen their understanding on the benefits that arise from exchanges and the development of paradigm-shifting structures and practices that can revolutionize African capital and commodity markets.

Professor Mthuli NCUBE

Chief Economist and
Vice-President of the African Development Bank

Acknowledgements

This is a product of the Regional Integration and Trade Department (ONRI) led by Mr. Alex Rugamba, Director of ONRI. It was produced under the strategic guidance of Ms. Moono Mupotola, Manager of the Regional Integration and Trade Division (ONRI.2).

The coordinator and team leader was Cedric Achille Mbeng Mezui, Senior Financial Economist (ONRI.2), and is the result of collaborative efforts between the African Development Bank and African commodity exchanges. Within the Bank the team comprised Lamon Rutten (Consultant ONRI.2), Kamgnia Bernadette (Division Manager, EADI.2), Jian Zhang (ONRI.2), Sofiane Sekioua (OPSM.4), Yannis Arvantis (EDRE.1), Nontle Kabanyane (AFMI), Max Magor N'diaye (FTRY.4), Uche Duru (ONEC.3), Bleming Nekati (ONRI.2), Hugues Kamewe (MFW4A), Olumide Abimbola (ONRI.2), Michael Mah'moud (Consultant, ONRI.2) and Alassane Diabaté (ORNB). Externally, the Bank collaborated with Adam Gross (Bourse Africa), Chris Sturgess (SAFEX), Chris Goromonzi (Bourse Africa), Eleni Gabre-Madhin (Founder and fmr CEO, ECX), Brian Tembo (ZAMACE), Charles Furaha (CMA Rwanda), Phemo Marumoagae (Botswana NBFIRA), Tirivafi Nhundu (Securities Commission of Zimbabwe), Ombara (Kenya CMA), and Endris Negus (Ethiopia Commodity Exchange Authority).

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Abbreviations

ACE	Agricultural Commodity Exchange for Africa, Malawi
ACEF	African Commodity Exchange Forum
AHCX	AHL Commodity Exchange, Malawi
AfDB	African Development Bank
ASCE	Abuja Securities and Commodities Exchange, Nigeria
AU	African Union
BAL	Bourse Africa, Botswana
BCEAO	Banque Centrale des Etats de l'Afrique de l'Ouest
BoT	Bank of Tanzania
BRPB	Bourse Régionale des Produits de Base, Senegal
CAADP	Comprehensive Africa Agriculture Development Plan
CCH	Commodity Clearinghouse, Ghana
CCP	Central Counterparty Clearinghouse
CEO	Chief Executive Officer
CME	Chicago Mercantile Exchange
COMESA	Common Market for Eastern and Southern Africa
Comez	Commodity Exchange of Zimbabwe
CTA	Technical Centre for Agricultural and Rural Cooperation
EAC	East African Community
EAGC	Eastern African Grains Council
EAX	East Africa Commodity Exchange, Rwanda
ECOWAS	Economic Community of West African States
ECX	Ethiopia Commodity Exchange
EFP	Exchange of Futures for Physicals
EU	European Union
FACOMEX	First African Commodities Exchange, Nigeria
GBOT	Global Board of Trade, Mauritius
ICT	Information and communications technology
ICX	Integrated Commodity Exchange of Africa
IFC	International Finance Corporation
IFPRI	International Food Policy Research Institute
IOSCO	International Organization of Securities Commissions
JSE	Johannesburg Stock Exchange
MCX	Multi Commodity Exchange of India
MoU	Memorandum of Understanding
NASFAM	National Smallholder Farmer's Association of Malawi
NGO	Non Governmental Organization
OTC	Over-the-counter
P4P	Purchase for Progress
SADC	Southern African Development Community
SAFEX	South African Futures Exchange (part of the Johannesburg Stock Exchange)
SRO	Self Regulatory Organization
UCE	Uganda Commodity Exchange
UEMOA	Union économique et monétaire ouest-africaine (West African Economic and Monetary Union)
UNCTAD	United Nations Conference on Trade and Development
USAID	United States Agency for International Development
VSAT	Very Small Aperture Terminal
WFP	World Food Programme
ZACA	Zambian Agricultural Commodities Agency
ZAMACE	Zambia Agricultural Commodity Exchange
ZIMACE	Zimbabwe Agricultural Commodity Exchange

Executive summary

Commodity exchanges are highly efficient platforms for buyers and sellers to meet; primarily to manage their price risks better, but also to improve the marketing of their physical products. They have significant, well-documented development benefits, making economies more inclusive, boosting the links between agriculture and finance, and making the commodity sector more efficient and competitive.

Africa was home to one of the world's first commodity exchanges – in Alexandria, Egypt over 150 years ago. The importance of bringing commodity exchanges to the region was recognized by policy makers in the Abuja Treaty of 1991. Further endorsements came in resolutions adopted by African Ministers and Heads of State. These resolutions were clear in their intent: governments should, in partnership with the African business sector, develop and support commodity exchange initiatives; identify and remove barriers to the establishment and operations of commodity exchanges; and procure government requirements across the trading floors.

The first "modern" commodity exchanges created in the continent were in Zimbabwe and Zambia in 1994 and in South Africa in 1995. The second, wave started in Ethiopia in 2008. The Ethiopian Commodity Exchange (ECX) which was mainly driven by government and donor support has built a reasonable volume, and has shown that a commodity exchange can be successful in spite of infrastructure and commodity sector development challenges.

Many of the economic conditions in the continent are ripe for a continent-wide commodity exchange which also has the potential to boost the continents pursuit of green and inclusive growth through introducing sustainability benchmarks in commodity sector value chains.

We are now in the third wave of African exchange development, with numerous national initiatives alongside a number of ambitious and well-funded sub-regional and regional initiatives. Some of the world's largest exchange groups are interested in the continent. In this respect, African governments face an important policy choice. As noted by Festus Mogae, former President of Botswana and Chairman of the Bourse Africa Advisory Board, "the opportunity for Africa to achieve its development potential is unprecedented, and the international environment has changed, and continues to change, in ways that open up new possibilities, new potential and new paths to progress for our Continent. The big question is whether Africa is to do this as 54 separate countries or as Africa."[1] Available technology now presents a veritable opportunity for the benefits of a pan-African exchange platform in lieu of singular exchanges in different countries.

In view of the challenges that may face the inception of commodity exchanges, a more effective public-private partnership approach is needed to promote the emergence of viable commodity exchanges. The private sector has significant expertise on issues of decisions on ownership pattern, financial arrangements, technology choice or selection of the contracts to be traded. However, exchange initiatives still require appropriate government and development partner support. The public sector in this respect has the responsibility for providing the appropriate legal and regulatory frameworks.

Africa is the world's current frontier for commodity exchange development, attracting the interest of domestic investors as well as some large international commodity exchange groups. With the competitive global business environment, it is now time for African countries to put place viable exchanges that offer the services demanded by the continent's economies. This will enable the continent to internalize the associated valuable revenue opportunities, and to ensure that all African countries, no matter their size, are carried along in this stride for economic development. To realize these opportunities, African countries need to make the right choices, and they have to do so in the next few years. This involves making a concerted effort in the following areas:

- ***The role of the government:*** While a strong hands-on approach that marginalizes the private sector carries significant risk, there are however good arguments for government involvement. It could be a minority shareholder, should commit to using the exchange for large-scale commodity procurement, and has to make efforts to create a favourable policy, legal and regulatory regime.

- ***The focus of the exchanges:*** While agricultural commodities may be the priority for government and development partners, the likelihood of an exchange becoming viable is much higher if the exchange itself can chose the products it wishes to introduce. An exchange initiative needs to demonstrate the prospect of reaching critical mass

[1] Quoted in African Development Bank/Bourse Africa, 2012.

(i.e., profitability) in order to attract investors and to convince others (e.g., brokers, banks) to invest in setting up the network that will link the exchange with prospective users

- ***The strength of the clearinghouse:*** A clearinghouse can only be strong enough to attract international participants if it is empowered to handle efficiently the payment flows that are associated with clearing operations, and if it is a "qualified central counterparty" under international banking regulations (for which it is necessary that a government regulator qualifies it as such).

- ***The choice of technology:*** Only with electronic trading systems can one meet global standards. Electronic systems also have significant benefits in terms of transaction costs, audit trails (for regulatory oversight) and reach.

- ***The choice of contracts to be traded:*** While the best programme of action is determined largely by national conditions, it is worth noting that there is no necessity to introduce spot trading first, and only later futures trading; that even futures exchanges will need to have a well-developed delivery system; and that if one starts with spot exchanges, there needs to be a clear pathway to futures trading. In terms of types of contracts, in addition to traditional spot and futures contracts, exchanges should also consider innovative products such as warehouse-receipt-backed repo contracts.

- ***The development of the warehouse receipt system:*** An exchange should ensure that such a system is built alongside the trading platform. Governments should enable this, and not halt exchange development while elaborating warehouse receipt laws and regulations.

- ***The choice of regulatory model:*** Elaborating the details of such a model should not delay the introduction of an exchange. If the government wishes to give regulatory responsibility to the securities regulator, it should ensure that it is interested in and able to act as promoter of the commodity exchange market, and has sufficient understanding of the particularities of commodity exchanges.

- ***The inclusiveness of the exchange:*** While it is true that non-commercial participants (the so-called speculators) can have a short-term disruptive impact, they are also critical to the success of an exchange initiative. Exchanges should be able to attract such participants, including among their countries' main financial institutions (e.g., pension funds, insurance companies).

- ***The positioning of the exchanges – national, regional, pan-African or global:*** National exchanges may find it difficult to reach critical mass. But available technology makes it possible for governments to combine their desire for a national trading platform with a pan-African exchange network which provides, through the internet cloud, the necessary electronic systems and links the various national exchanges together.

- ***Public and development partner support:*** There is a strong public good element to an exchange – in particular through its price transparency and price discovery functions – which justifies public support. This should be particularly focused on making the exchange more inclusive in terms of connecting to smallholder farmers. Development partners can assist by playing a catalytic role in incubating new approaches, and disseminating best practices and innovative ideas related to commodity exchange development; and by supporting the development of an appropriate policy, legal and regulatory framework.

Introduction

Organized commodities exchanges have a long history. Grain traders in Japan began experimenting with the idea in 1730, while the Chicago Board of Trade ("CBOT") and the London Metal Exchange ("LME") successfully launched their operations in 1864 and 1877, respectively. Hundreds of exchanges were created in the next few decades, in countries ranging from Argentina to China, Egypt to Russia, Hungary to Turkey, and India to the USA. However, most exchanges outside of Europe and the USA fell prey to political upheavals, and at the start of the post-World War II period, most of the remaining exchanges were in the developed world. Their role and influence grew, but until the late 1980s, they remained largely confined to industrialized nations. Only in the 1990s, with market liberalization and increasingly affordable information technology, did commodity exchanges start mushrooming around the world. By 2005, non-OECD countries accounted for more than 50% of the agricultural futures and options traded in the world. The majority of the world's functional commodities exchanges are now located outside of North America and Europe.

Commodity exchanges offer significant developmental benefits. An UNCTAD study assessed a broad range of potential impacts of new exchanges in Brazil, China, India, Malaysia and South Africa, in the areas of price discovery, price risk management, commodity sector investments, facilitation of physical trading, facilitation of commodity finance, and broader industry development (including capacity-building, market internationalization and use of ICT)[2]. It found, *inter alia*, "evidence to support 66 of 76 positive impact hypotheses as occurring in one or more of the featured markets -- 30 of these were farmer-related, and 36 related to the wider sector or economy. Moreover, impacts were generated across all six broad functions."

The desirability of creating an African commodity exchange was first mentioned in the Abuja Treaty of 1991 (article 46(d)), establishing the African Economic Community (the predecessor of the African Union). There was no commodity exchange in Africa at that time – the last one in existence on the continent, a cotton exchange in Alexandria, Egypt, had gone out of business in the 1960s. Since, one highly successful African commodity exchange has been created, the South African Futures Exchange, with the country's main staple, white maize, as its flagship contract. There have been a number of other commodity exchange initiatives, but further success has been sparse.

Africa has a sufficiently large agricultural base to allow the successful operation of a regional commodity exchange; however, an exchange should not limit itself to agriculture. The continent has abundant exports of minerals and fuels, and is a large user of many commodities (e.g., fertilizers, oil products). Ideally, an exchange should trade multiple asset classes, from agricultural to energy and mineral commodities, and including currency contracts and other financial products. There is a multitude of currencies in the region, and underdeveloped financial markets leave a large room for new exchange contracts. Judging from the current large number of commodity exchange initiatives in the region, there is widespread interest in the creation of a viable exchange.

Many groups can benefit from such an exchange. Considering agricultural contracts, for example, farmers will have greater flexibility and can better plan their operations, agro-processors can reduce the impact of price fluctuations on their processing margins, traders can enhance their procurement and better manage their risks, banks will find lending to each of these groups much safer, government entities can buy and sell more easily and more transparently. A futures exchange would allow farmers and their service providers to operate in the typically risky environment of a free market place without having to rely on government guarantees or subsidies. In all, having access to a viable agricultural futures exchange, which offers the products that their economies most need, will help African countries to realize their potential as agricultural exporters, will help governments and development partners to avoid costly market interventions, and in the process, will improve the predictability of agricultural prices and enhance the continent's food security.

Many of the economic conditions are propitious for a commodity exchange to be successful. The underlying physical market is large, prices are volatile, farmers' access to finance (now a large problem) can be unlocked through better risk mitigation tools, payment systems have improved to such an extent that fast payments between countries are now possible, and market players are plentiful. These market players have the capacity to learn how to use a futures exchange properly, and thanks to the rapid penetration of the Internet and mobile phones throughout much of Africa, most could, in principle, access an exchange.

[2] UNCTAD, 2009a.

So why has progress been so slow in developing commodity exchanges in Africa? Is it because physical infrastructure – roads, ports, warehouses – is still poor? Is it because there are so many trade barriers, particularly for intra-African trade in food crops? Or is it because governments may sound positive about commodity exchanges, but in reality, hinder their advance through misguided policies?

This guide does not pretend to give comprehensive answers to these questions. Rather, it discusses the current state of play of commodity exchange development in Africa. Where do exchange initiatives stand, where do they come from, how do they plan to grow in the future? In the process, constraints will be identified, and it will be possible to make a number of recommendations for commodity sector stakeholders, governments and development partners.

The guide starts with a brief history of commodity exchange development in Africa. This chapter briefly sets out the history of exchange development in the continent, from policy recognition of its importance, to the many national projects, their performance and the challenges that they faced. This chapter will also permit a first discussion of the possible aspirations of exchanges, from physical spot and forward trading to derivatives trade; open outcry versus electronic trade, and the strengths and weaknesses of various models; the interplay between commodity price information and commodity exchanges; and the relevance of warehouse receipt systems, and the principles of electronic warehouse receipts trade.

Chapter 2 gives various perspectives on the economic benefits of commodity exchanges for Africa. It sets out the potential benefits of commodity exchanges, using global commodity exchange case studies as illustrations and drawing their lessons. Among the issues discussed is the impact of a commodity exchange on trade opportunities: how a commodity exchange can assist intra-African trade.

Chapter 3 describes conditions and constraints for African commodity exchange development. It explores the extent to which the conditions for successful exchange development exist in Africa and the main constraints. This will include a broad assessment of physical trading practices and support systems (e.g., infrastructure weaknesses, grading issues), the financial support system, the legal and regulatory environment, and the policy environment, including strains between national and regional exchange development perspectives.

Chapter 4 discusses the current situation with respect to African commodity exchanges, and the moves ahead. The initiatives pursued at national, regional and continental levels to develop derivative commodity exchanges, including the role of development partners, will be described.

Chapter 5 discusses the elements of a regulatory system that would need to be put in place to best serve commodity exchange development: areas that may be of concern to regulators, possible responses, and the impacts of certain international regulatory development on (prospective) African exchanges.

A final section concludes, and gives a number of recommendations. A number of key policy choices is set out, recommendations are made on how to improve the main policy, legal and regulatory constraints to the development of commodity exchanges in Africa; and the potential roles of international agencies are discussed (including the potential role of the African Development Bank and other development partners in supporting the development of commodity exchanges, particularly at cross-border level).

An annex contains an overview of the various exchange initiatives that Africa has seen over the past two decades.

1. A brief history of commodity exchange development in Africa

Africa was home to one of the world's first commodity exchanges: Egypt's cotton exchange, established in 1861 in Alexandria. It did not just play a national role but was also of large importance for global trade, attracting users from the rest of Africa and from the USA to India. However, as a result of the steady encroachment of the State in cotton trading, the exchange was closed in the year it celebrated its 100th anniversary.[3] The continent then remained without commodity exchanges until the launch of the Zimbabwe Agricultural Commodity Exchange (ZIMACE) in March 1994.

During the lost decades, commodity exchanges in Europe and the USA went through a massive transformation, adding financial contracts to the traditionally traded physical commodities, innovative instruments (options were added to the traditional futures contracts followed by index contracts and other more exotic products), opening up to a much larger audience, and revolutionizing their technology. These decades were very profitable for the exchanges, giving them the capital base to continue adapting to the even greater and faster changes in capital markets during the 1990s and 2000s.

The withdrawal of government from commodity trading in the 1980s had inspired discussions on commodity exchange development in many African countries, from Ghana and Nigeria to Uganda, Zambia and Zimbabwe. At the political level, the idea began to receive increasing and broader support:

- The desirability of creating an African commodity exchange was already mentioned in the Abuja Treaty of 1991 (article 46(1.d)), establishing the African Economic Community (the predecessor of the African Union).[4]
- The African Commodity Exchange became one of the "instruments of integration" of the African Union (AU), which was formally launched in July 2001.
- At the regional level, UEMOA in West Africa included the plan to create a regional exchange for food products in the UEMOA Agricultural Policy paper, adopted by its heads of state in December 2001.
- Several AU meetings confirmed the interest in moving ahead. In particular: the African Union Business Forum, "Building the African Common Market", 17-18 June 2003,

Box 1

Some of the relevant recommendations of the African Ministers of Trade in the Arusha Plan of Action on African Commodities, November 2005

African Governments should:

- Create a regulatory and institutional environment enabling national stakeholders to use market-based schemes for managing risks;
- Play a proactive role in developing local capital markets that would help in generating local funds for agricultural development;
- Commit to the establishment of commodity exchanges, with the support of the African business sector;
- Provide a forum to highlight the problems met and identify remaining obstacles that governments are in a position to remove; and work with the private sector to identify and remove such barriers to commodity exchange establishment and operations;
- Adopt a partnership model – cooperating with a broad range of private sector interests (including banks, warehousing companies and collateral managers).

Source: African Union, 2005

[3] The Alexandria Cotton Exchange was reopened in 1994, but without offering a trading platform.

[4] "Member States shall cooperate in the development of agriculture (...) in order to: (...) protect the prices of export commodities on the international market by means of establishing an African Commodity Exchange."

concluded that "The envisaged African Commodity Exchange should be subjected to a feasibility study. Meanwhile a capacity building programme on risk-management skill development should be launched to prepare African entrepreneurs, especially women, for efficient use of risk management instruments in the Commodity Exchange." (Final report, para. 5)

- The African Union's First ordinary session of the Ministerial Sub-Committee on Trade, Specialised Technical Committee on Trade, Customs and Immigration, 16-20 June 2003, extensively discussed commodity exchange issues, and recommended that "The Commission of the African Union should be authorized to undertake detailed Feasibility Study and formulate a Business Plan, with Legal Instruments and Operating Systems Manual for the proposed African Commodity Exchange (para. 16.b).

- The report of the Ministers of Trade was endorsed by both the Ministers of the Executive Council and then, in Maputo in July 2003, by the Summit of the Heads of State and Government of the African Union (which then appealed to UNCTAD and other international institutions to provide support to the establishment of the proposed African commodity exchange).

- AU Ministers of Trade once again declared an African commodity exchange a priority in the Arusha Plan of Action on African Commodities of November 2005 (see Box 1).

- The Plan of Action was subsequently endorsed by African Heads of State at the 6th AU Summit in Khartoum in January 2006.

- A 2004 NEPAD study recommended that Regional Economic Communities "should organize capacity-building support for exiting exchanges and encourage new exchanges in their communities".[5] It enshrined the development of commodity exchanges in its 2009 Comprehensive Africa Agriculture Development Program, Pillar 2 (Framework for Improving Rural Infrastructure and Trade Related Capacities for Market Access), which has as a general goal "modernize regional trading systems, including the development of regional and national commodity exchanges" (Strategic area A, point b.iii), and also refers to these exchanges as one of the two main components of CAADP's promotion of regional markets. It has among its proposed "Early Actions" for Pillar II "creating trading platforms to better link international supply and demand and reducing the cost of transactions in regional staples markets by building on East African efforts to develop a regional commodity exchange and replicating these efforts in West Africa."[6]

Nevertheless, until the mid-2000s, only in Southern Africa did these discussions lead to the creation of new exchanges, first when the then-vibrant farming sector set up the Zimbabwe Agricultural Exchange (ZIMACE) in 1994; later in the same year in Zambia when grain traders and brokers came together to create an exchange; and a year later in South Africa when the successful financial derivatives exchange added a commodity department.

While South Africa's exchange flourished, the exchanges in Zambia and Zimbabwe rapidly went the way of the Alexandria Cotton Exchange, for similar reasons – the private sector's role in agriculture was steadily eroded. For another decade there would be little more than further discussions and studies, against a background of a withdrawal of the State from the commodity and financial sectors in many countries.

However, the second half of the 2000s brought change. Accelerating economic growth, the perception of an African renaissance, technological developments and, in many countries, a more cordial relationship between the government and the private sector all helped the spread of commodity exchange initiatives in the continent. Development partners supported one of these initiatives (in Ethiopia) enthusiastically, with tens of millions of US$; but lesser amounts of development partner funding went to other countries. By 2010, there were licensed commodity exchanges or noteworthy commodity exchange plans in 11 countries, and in addition, two well-capitalized regional/pan-African initiatives. Two major international exchanges as well as a large international investment group had started investing in new initiatives in the continent.

Since ZIMACE's start to the present period, three trends can be discerned: ; a growing ambition of exchange initiatives; and a shift from private sector initiatives to government initiatives.

5 NEPAD study to explore further options for food-security reserve systems in Africa, June 2004.

6 Baba Dioum *et al.*, Framework for Improving Rural Infrastructure and Trade Related Capacities For Market Access, CAADP-Pillar II, NEPAD, April 2009.

A growing reliance on warehouse receipt systems.

With the exception of South Africa's SAFEX, most of the early commodity exchanges as well as the unsuccessful exchange initiatives in Africa were configured around trading floors where buyers would be able to meet sellers, and first strike a deal in principle, and then negotiate delivery modalities. By the late 2000s, this had completely changed: all exchange initiatives had as delivery modalities either the delivery from exchange-approved warehouses, or more commonly, the delivery of warehouse receipts.

In a number of cases, governments and analysts have suggested that there should be sequencing: first create a viable warehouse receipt system, then start exchange trading. There are two fallacies here. First, while building a sound warehouse receipt system as a first step may clear the path for a future commodity exchange, this is by no means a certain or efficient way to move towards such an exchange. Second, experience in 19th century USA and India over the past decade indicates that it's commodity exchanges that create an efficient warehouse receipt system, not the other way round.

On the first point, it may be useful to consider the somewhat sobering experience of Zambia. After the failure of the first Agricultural Commodity Exchange, development partners attention shifted to the development of a warehouse receipt system. In 2001, a number of development partners started supporting the Zambian Agricultural Commodities Agency (ZACA), a private inspection and certification agency for warehouses. It was supposed to set up the warehousing and grading infrastructure that would link smallholders to the commercial market. At the peak of its success, in 2004-2005, it had certified warehouses with a total capacity of 105,000 tons. Depositors in the warehouses used the receipts to get US$ 2 million of warehouse receipt finance from banks.[7] A year later, ZACA ceased existing.

The reality was that ZACA did not function all that well. Apart from having serious managerial and reputational issues, virtually all of the warehouse capacity that was certified was used for the operator's own deposits, not for third party. The smallholder deposits were "engineered" to please development partners.

Development partners then (in 2007) shifted to the support of a new commodity exchange initiative, the Zambia Agricultural Commodity Exchange (ZAMACE). One lesson was that "a warehouse receipt system doesn't create an orderly market. It is a product of one."[8] ZAMACE was not unduly focused on smallholders, but rather recognized the importance of large farmers and trading companies in driving the evolution of the market. A core function of ZAMACE was to provide a credible, certified warehouse receipt service. With this in mind, it set up a process to certify warehouses, and regularly inspect them; it also developed a warehouse receipt registry. However, in 2011 ZAMACE stopped operating (there are plans to revive it in 2013). The private sector expressed loud support[9], but continued executing most trade outside the exchange; and the government said it supported the initiative and was working on legislation to enable it to operate well, but undermined it through its grain marketing policies.

On the second point, in the United States the commodity warehousing sector in the second half of the 19th century had oligopolistic powers, and the commodity exchanges played a major role in making them more competitive and more efficient in their service provision, thus laying the basis for a modern warehouse receipts system. In India, the collateral management firms that made finance based on warehouse receipt attractive for banks (leading to an explosion of agricultural lending) had their origins as delivery departments of the country's leading (private sector) commodity exchanges.

The advisable way forward may be, as Ethiopia and India have done in recent years, to permit a dynamic commodity exchange to emerge, and allow this exchange to have as part of its strategy the development of a viable warehouse receipt system. Governments should leave the exact sequencing of actions as well as the choice of commodities to the exchange. When warranted, governments should adopt new, improved warehouse laws and regulations to support the financialization of the commodity warehousing sector. On a temporary basis, they may also give an exchange regulatory authority over the warehouses that it accepts as delivery points. Central Banks should permit banks to finance goods in such warehouses, and recognize this as a low-risk form of lending (with low provisioning requirements). Central Banks may also open discount windows for loans that use warehouse receipts as

7 Munro, 2009.

8 Munro, 2009.

9 "ZAMACE represents the future of commodity trade in Zambia." (Jacob Mwale, Executive Officer of the Grain Traders Association of Zambia, at UNCTAD's workshop on Improving the Functioning of Commodity Markets in Eastern and Southern Africa through Warehouse Receipt Systems and Market-base Interventions, Lusaka, 30 September – 2 October 2009)

collateral. In other words, there is a whole range of supporting actions that governments can take (which is not the subject of this paper); however, governments' micro-management can affect the way that an emerging commodity exchange interacts with the warehousing sector.

A growing ambition of exchange initiatives.

The exchange initiatives in the period up to the early 2000s were all small-scale, often with a focus on only a few crops, the involvement of only a small number of companies, low-end technology, and very small budgets (generally in the tens of thousands of US$). Development partner funding often sustained these initiatives for years, but such funding that was provided in small amounts, even though totaling hundreds of thousands of US$ over time, was insufficient to create a proper exchange. In the early 2000s, setting up a proper single-country commodity exchange, including its linkages with warehouses and banks, would probably have cost over US$ 25 million.

South Africa's commodity exchange platform was able to use the technology developed for currency futures trade. Until the Ethiopian initiative in 2006, there was no exchange initiative that had raised the millions of dollars needed to set up a viable exchange.[10]

According to estimates, over US$ 50 million has now been invested in the development of the Ethiopian commodity exchange (some estimates mention US$ 100 million). However, such an amount is no longer exceptional. COMESA in East Africa estimated a similar requirement for setting up an exchange for the East African region. Bourse Africa, with an ambitious pan-African outlook, is an initiative of over US$ 100 million. Other exchange initiatives in East and West Africa envisage similar budgets. While some governments are still looking at development partners to cover these costs, the private sector is now ready to make these investments. The experience in India, where conditions in the early 2000s (when the country's now-leading exchanges were set up) were similar to those of Africa today (but with a commodity market that is smaller than that of Africa), probably inspires such willingness to invest: India's largest exchange, the Multi Commodity Exchange of India (MCX), was set up in 2002-2003 with a budget of less than US$ 25 million. When it did its Initial Public Offering in February 2013, the exchange was valued at US$ 1.4 billion.

Exchange initiatives have also become more ambitious in terms of geographical coverage – looking for a sub-regional or pan-African role – as well as in their target audience – which now generally includes banks as opposed to only commodity sector participants.

A move from private sector initiatives to government initiatives.

The early exchanges, in Zimbabwe, Zambia and South Africa, were all private sector initiatives. Several countries in West Africa also saw private-sector-led exchange projects. However, from the creation of ECX in 2006 onward, the establishment of commodity exchanges has become strongly government-driven. There is a risk that this will lead to a scattering of national exchange initiatives that are economically non-viable, and that threaten the scope for more viable private sector initiatives, particularly those with a regional perspective.

[10] There were earlier initiatives that aimed for this, in particular PACDEX, but these failed to raise the necessary investments.

2. Perspectives on the economic benefits of commodity exchanges for Africa

Many African economies have been among the world's fastest growing over the past decade, but for this growth to be sustained and, importantly, to benefit a greater part of the populace, structural changes are necessary. Economic links among African countries need to be strengthened; African farmers need to become better linked to Africa's fast growing cities; African entrepreneurs need to capture a larger portion of the upstream part of Africa's commodity production; investments risks in Africa's commodity sector – from production to processing and logistics – need to be reduced; financiers (including investment funds) need to become more comfortable with lending to Africa's commodity sector; the losses resulting from inefficient supply chains need to be decreased. A sound commodity exchange can help achieve all these key imperatives, and more.

2.1 Spot, futures and other commodity exchanges

A commodity exchange is an organized marketplace where buyers and sellers come together to trade commodity-related contracts following rules set by the exchange. There is a wide variety of ways in which the market can be organized (table 1 below describes some of the possibilities), but exchanges tend to have the following elements in common:

- An exchange provides a trading platform, either a physical location (a trading floor) or an electronic trading system, in both cases with an intricate set of trading rules. In this report, a number of simpler forms, namely fair grounds where buyers and sellers have been brought together and prepared for trading (trading fairs in West Africa), and a radio-supported bulletin board (KACE) are included in the discussion, largely because they are an indication that market participants are likely to be interested in a proper exchange platform.

- Except in its simplest form (trading fairs, bulletin boards), an exchange provides standard contracts, rather than letting buyers and sellers determine all contract provisions themselves. The extent to which the contracts are standardized in terms of quality, quantity, delivery location, delivery time, etc. can vary – in their most evolved form, exchanges set all the contract conditions except for the price.

- Again except in its simplest form, an exchange will not deal with most of its users directly, but through brokers. Brokers act as the agents for buyers and sellers, not just for placing transactions, but also for managing the related payment and information flows, and for managing the delivery process. Exchanges deal with the implicit agency risks in two ways. First, there are strong controls on the ways that brokers execute their clients' orders, to make sure that brokers do not abuse their clients. Second, the exchange has the broker assume liability for his clients, in terms of payment obligations, delivery processes etc.; this ensures that a broker will exercise due care in approving clients for trading on the exchange.

- An exchange provides security on the quality and the quantity of the commodity traded. It will normally set grades and standards, and license those who are permitted to issue grading certificates. It may use warehouse receipts, which guarantee the physical presence of the goods. It may have a mechanism to settle quality disputes. A fully-developed exchange guarantees the delivery; if there is a problem, it will either procure goods on the market for delivery to the buyer, or compensate him financially.

- An exchange may guarantee logistics. This is rare – the prime examples are ACE in Malawi and Belarus's commodity exchange – but it is well worth considering. In the case of ACE, farmers can deposit goods in certain upcountry warehouses, and if the grain is of the required standard, the warehousing company will swap this grain against equivalent grain stored in city warehouses. In Belarus, the spot exchange enables international buyers to buy for delivery from warehouses in nearby countries (*e.g.*, Estonia, Ukraine), thus protecting them against transit risk (the exchange protects itself through a policy with the country's export credit agency).

- Exchange trading is tightly regulated, with the exchange as frontline regulator. Regulations may be simple – *e.g.*, arbitrage procedures to deal with conflicts between buyers and sellers – but in an advanced stage of development, there are several layers of regulation involving different regulatory agencies.

Table 1
The degree of sophistication of an exchange, as expressed in different characteristics

	From simple ..... to more advanced				
Trading platform	Bringing people together in one location	Bulletin Board	Auction	Open outcry ring	Electronic platform, compatible with global standards
Speed of trading	Hours	Minutes to days	Minutes	Seconds	Milli- or micro-seconds
Traded instruments	No standard products, trade on basis of reputation	Trade on the basis of samples	Trade on the basis of description/ grading certificates	Standardized spot contracts, warehouse receipts	Futures, options, repos
Brokerage structure	No brokers	Clients leave their commodities with brokers for their later sale	Clients give brokers instructions by phone	Electronic order flow from clients to brokers	Brokers approve clients who then trade directly
Clearing and settlement	Pre-selection of participants	Fixed guarantee deposits	Payments handled by exchange	All trades guaranteed by the exchange. Global risk management standards.	Clearing by unrelated third party clearinghouse. Linked to global clearing firms.
Use of warehouse receipts	None	Warehouse receipts act as the instrument for the buyer's sale	Active trade in warehouse receipts, which change hands more than once	Warehouse receipts act as delivery mechanism for the futures market	Trade of repos backed by receipts
Standard setting and grading	None	Exchange offers simple grading services.	Exchange keeps samples of commodities traded, to help settle contractual conflicts	Exchange sets grading criteria, licenses graders and arbitrates quality conflicts.	Trade is in a narrow range of standard commodities. Exchange has strict grades and standards.
Price information	Prices sampled from market participants	Systematic collection of prices from representative pool of market participants	Contracted prices are registered at the exchange premises	Contracted prices are broadcast, with a delay (*e.g.*, end-of-day)	Real-time price information distributed in many ways
Governance of trade	Committee of market participants control access	No government regulation. Arbitrage rules, enforced by exchange committee	Government regulator alongside self-regulatory exchange	Exchange or regulator also given powers to regulate warehouse receipts	Four separate regulatory structures for overall regulation, exchange operations, brokerage and warehouse receipts
Examples	The "bourses" in Burkina Faso, Mali, Niger	KACE, UCE	ACE, ZAMACE	ECX	Bourse Africa, EAX, GBOT, SAFEX

The world's largest commodity exchanges are futures markets, trading futures and option contracts that are meant as risk management tools rather than tools to buy or sell the underlying commodities. In emerging markets, however, commodity exchanges can play a useful role for physical trade, including in the financing of commodity inventories. By providing a transparent, disciplined marketplace they can reduce the discovery costs of physical trade and the counterparty risks in commodity transactions.

Commodity exchanges can trade a range of instruments. In Africa, Egypt's former cotton exchange traded the gamut of instruments from spot trading to forward trade and futures contracts. South Africa's exchange trades futures and options, and recently also started offering trade in warehouse receipts. Zimbabwe's ZIMACE was a spot market in which buyer and seller, once they were matched, negotiated directly on delivery specifics. Ethiopia's exchange is a spot market which relies on standardized warehouse receipts. Malawi's ACE trades warehouse receipts, operates auctions for large buyers, and offers a spot trade matching facility. Bourse Africa plans to operate a multi-asset platform, with both spot and futures contracts, and associated to it, an electronic warehouse receipt system. GBOT in Mauritius only trade futures.

All these different trading systems have different regulatory implications. Table 2 sets out the different forms of contracts that can be offered on an exchange, and regulatory implications. Regulatory implications should be seen in the light of the need to regulate – governments should refrain from unnecessary intervention. There are just three possible reasons: to protect the integrity of the operation of the exchange; to protect customers from abuse; and to protect the wider financial sector from systemic risk. An exchange that is primarily used by trade participants needs no government regulation, while an exchange that is open to the public, whose prices are used widely, and which is used by many of the country's largest financial sector actors needs a well-developed regulatory framework.

Box 2

Electronic trading systems: from matching service to clearing

In several regions of Africa, mobile phone applications have been introduced for matching buyers and sellers of commodities. The largest such effort was set up by Tradenet in Ghana (but with a regional focus), since renamed Esoko. In Zambia, Sangonet has piloted a scheme of this nature to link farmers in the country to consumers in the Democratic Republic of Congo, with the plan to expand it to the whole COMESA region if the pilot is successful. National projects include *Radio Marché* in Mali, KACE in Kenya, and Kudu in Uganda. Typically, buyers or sellers can send a message to a group of registered users (*i.e.* users who have indicated they are interested in buying or selling a specific commodity) offering to buy or sell commodities of a certain quality – perhaps indicating the price. In a somewhat more complex form, sellers can register details on their products into a database, and buyers can register details of the deals they are interested in (in terms of grade, location, quantity, price, delivery location). A matching engine identifies potential matches and contacts the two parties. In either case, it is up to the two parties then to pursue negotiations, if they wish, and conclude a deal, if they can.

In principle, this is a simple electronic commodity exchange, allowing sellers and buyers to find each other. In practice, little trade actually results from this matching service. The main reason is risk. The system just matches potential counterparties, but does not guarantee any resulting deals. Thus, both buyer and seller remain exposed to considerable counterparty risk.

In contrast, in an organized commodity exchange, the exchange's clearinghouse interposes itself between the buyer and the seller once a deal has been struck, guaranteeing to both the fulfillment of the transaction. Normally, there will be a layer of risk transfers. If the buyer defaults on his obligations, his broker still has to make good on them. If the broker is unable or unwilling to do so, the broker's clearing company will guarantee that the seller is made good. If this is beyond the means of the clearing company, the clearinghouse will guarantee performance, if necessary tapping into its settlement guarantee fund, capital reserves and insurance coverages.

When contracts are cleared, it is irrelevant for a buyer or a seller who the counterpart is. So there is no problem with the typically anonymous character of futures trade: there is no reason to know or trust one's counterparty. This can be particularly helpful for building new trade flows, *e.g.* between neighbouring countries.

Table 2
Instruments and their uses, and regulatory implications

Contracts offered	Use	Regulatory implications
No standardized contracts – all contracts agreed on bilaterally	The exchange provides a meeting place for buyers and sellers	No need for government regulation. Exchange may handle contract performance guarantees and operate arbitration procedures.
Standardized spot contracts, with delivery through warehouse receipts	The exchange offers a liquid, safe environment for spot trading.	No need for government regulation. The warehouse system can be regulated by the exchange.
Standardized forward contracts	The exchange permits buyers and sellers to make commitments for future delivery.	No government regulation needed as long as these are genuine forward contracts. The exchange has to actively manage the risk of counterparty default.
Warehouse receipt repos	The exchange enables those with stocks of physical commodities to use them as collateral for short-term loans.	Warehouse regulation required. The sell-and-buy-back arrangement has to be exempt from VAT. Capital market regulations have to permit an exchange to have this function.
Commodity futures and option contracts	Risk management tools.	It is advisable that there is a government department with the explicit responsibility of overseeing the market. Separate regulator for warehouses desirable.
Currency and interest rate futures and options	Risk management tools.	Government regulation necessary, with good coordination with Central Bank.
Securities derivatives	Offer leveraged alternative to cash securities, and can also be used to manage the risk on a securities portfolio.	Securities derivatives need to be regulated by the securities regulator.

2.2 Making the market complete: the basic functions of a commodity exchange

Commodity exchanges provide three basic functions: price transparency (everyone has access to a neutral reference price); price discovery (demand and supply developments are readily reflected in price levels); and reduced transaction costs (it's easier to find buyers or supply through a centralized market place). Each of these functions can be inconvenient for certain market participants. Without an exchange, large, well-organized trading houses have a better overview of the market than smaller market participants, and thus a better idea of what prices should be. They may not appreciate it when farmers become well-informed – experience from India and elsewhere indicates that farmers learn very fast how to use price information to improve their bargaining position. The prices discovered on an exchange may not be the prices that any particular stakeholder group or politician would like to see emerge, and they may blame the exchange for the bad news (see Box 3). Reduced transaction costs imply greater possibility for competition, which can reduce the margins of intermediaries.

If the exchange offers forward or futures contracts, it also provides a risk transfer function. Forward contracts tend to be risky, as market participants will be tempted to default on their obligations if physical market prices move strongly in their favour. If the exchange offers futures, it will generally also offer option contracts, which tend to be more attractive to farmers. This is for different reasons: when bought, options act as insurance, protecting against negative price movements but still permitting to benefit of improving physical market prices; options can be bought through a single premium payment, whereas futures require continuous financial management to maintain the exchange-set margin levels; and options are better instruments when there is

a risk regarding the quantity of production. For example, in South Africa some 20 per cent of commercial farmers use SAFEX, and most of them use options.[11] Most South African farmers hedge their price risk indirectly, through fixed price forward contracts with traders or processors; the latter often lay off the resultant price risk on SAFEX.

Even for a futures exchange, in its initial years it may well be the reduction of transaction costs when trading through the exchange rather than the management of price risks that will attract most physical market participants. In emerging markets, in the initial months that an exchange operates, one can in effect often observe that many such participants use the exchange as a delivery tool rather than for price risk management. New futures exchanges should capitalize on this to build a strong constituency in the physical market, rather than try to minimize their interface with the physical trading sector. South Africa's SAFEX illustrates well how effective this can be. By creating an extensive and reliable delivery network, which market participants could trust as a channel for procurement and delivery, the exchange overcame the initial skepticism of farmers.

Exchanges bring further benefits. They normally help to define better quality standards, by creating incentives for market participants to produce commodities that meet exchange specifications.[12] For example, when SAFEX introduced premiums that rewarded the delivery of higher quality grain, farmers reacted by applying extra fertilizers in order to improve the quality of their production.[13] By defining quality standards, they speed up the process of product standardization. They also improve the discipline in the market place, by incentivizing market participants to behave according to exchange rules. Exchanges are dynamic tools to remedy the weaknesses of the market place, and exchange promoters should be open to provide any tool that may serve the goal (see box 4 below).

One function that could be particularly useful in the African context is for the exchange to act as registration vehicle for commodity-related transactions – in particular, forward contracts, and the pledging of commodities (expected to be produced, or growing in the field, or already deposited in a warehouse) to secure loans (*e.g.*, from banks, or from input suppliers). The exchange could provide standard contract templates and arbitration facilities; and could eventually also act as escrow agent between buyer and seller.

The more sophisticated instruments that can be offered on an exchange (futures, options, repos) can be repackaged by traders and banks to offer tailored contracts to producers and processors, giving them much greater flexibility in their marketing decisions. For example, the First National Bank in South Africa offers a full range of products in its Grain Hub product suite, including:[14]

- *Spot contracts*, supporting processors and traders in buying SAFEX-delivered grains.

- *Pre-plant contract:* the bank provides grain input finance, with production risk covered by multi-peril insurance and force majeure insurance (which covers against disaster risk: if there is natural disaster that destroys the crop, no debt repayment is necessary). Price risk is hedged on SAFEX.

- *Repo contract:* the bank finances grain against silo certificate as collateral. To cover the related price risk, it purchases 25% out the money SAFEX put options[15] for the financing period. The maximum size of the repo is 75% of the daily market value. The client is responsible for storage and interest during the financing period.

[11] Rod Gravelet-Blondin and Chris Sturgess, South African farmers and the agricultural commodity derivatives market, UNCTAD/SFOA, The World's Commodity Exchanges: Past, Presence, Future, September 2006.

[12] It should be noted that if a small part of production concerns premium products (the premiums could be linked to quality, fair trading criteria, environmental criteria etc.), then the tendency of the exchange to create standard products could actually threaten the prices received by the producers of these premium products. Normally, these producers will then avoid use of the exchange. How exchanges can deal with premium products is discussed in section 3.3.

[13] UNCTAD, 2009a.

[14] Based on UNCTAD, 2009a.

[15] Put options provide protection against the risk of price falls. They are bought at a certain strike price, which is the price at which the buyer can execute the option by converting it into a futures contract (in the case of a put option, he can deliver a futures contract at the strike price, and in the case of a call option, he can buy a futures contract at the strike price). The "out of the money" indicates that the strike price is at some level below current price levels (in the bank's case, if the current price is 100, the put option has a strike price of 75); such options are rather cheap. To give an example, if the put option has a strike price of 75, it gives the buyer the right to deliver a futures contract and receive 75. If the futures price falls below 75 (say it is 60), he can buy futures at 60, and deliver them for 75, realizing a profit of 15. As long as the futures price has moved in tandem with the physical market price, this will compensate the bank and its client for losses due to price falls below 75. As the bank's financing is at most 75 percent of the initial value of the commodities (*i.e.*, in this example, 75), the bank runs virtually no risk that the value of its collateral falls below the value of the loan.

- *Advanced price contract:* supporting processors in the spot purchase of grain at advance payment. To manage price risk, the forward contract is covered by a long futures and a put option.

- *Fixed price forward purchase contract:* to support the forward purchase of SAFEX grain commodities up to 65% of the total crop; with the financing percentage determined by the borrower's financial and risk record, as well as crop estimate reports.

- *Average min/max forward purchase contract:* this guarantees a minimum and maximum price over the contracted period (covered by the bank buying and selling options); physical delivery of contracted grain is compulsory.

- *Weighted average forward purchase contract:* guarantee a minimum price, but the client shares in the gains if market prices, from his perspective, improve.

Box 3
Blaming the messenger

One of the functions of a commodity futures exchange is similar to that of barometer: it converts signals that are more or less invisible to the common man into a simple metric that conveys useful information about the future to everyone. The futures prices quoted on an exchange indicate where "the market" expects prices to be in 3, 12, 48 months or beyond, as the case may be. However imperfect, studies have shown that commodity futures market are better predictors than other sources such as expert panels. Futures prices only reflect the information that is currently available to market participants, and when new information arrives, they can change rapidly; but still, they provide a useful service to all market participants, who can more easily prepare for future price developments and react better to new information.

Sometimes, a barometer indicates that bad weather will come. It cannot be blamed for this – it merely processes the available information. Banning the use of barometers will not affect future weather; it will just make it more difficult for people to anticipate it. Yet, time and time again and in all regions of the world, there are politicians who blame the barometer of the exchange for the direction of price movements. Exchanges cannot ignore this political undertow, and should be ready to demonstrate with data that their prices reflect market realities.

Politicians and stakeholder groups may blame exchanges for both high and low prices. For example, in 2002, South Africa's maize prices rose precipitously, and the Government's Food Price Monitoring Committee began an investigation into the role of SAFEX – in particular, as to whether SAFEX's grain market was being manipulated. As reported in Kirsten and Geyser, 2009, the investigation found that in the 2000-2004 period, SAFEX prices were only marginally different from the prices calculated using a model that just reflected two factors: hard red wheat prices in the USA, and the Rand/US$ exchange rate. Similarly, "South Africa's maize price [in 2002] reacted in a predictable fashion to the change in the exchange rate and the international price of maize, also to market perceptions of the relative scarcity of maize in Southern Africa.." There was no indication of any manipulation. Lack of proper market information was the more important hindrance to the exchange's price formation process.

In 2007, South African grain prices – in particular, maize - fell to very low levels, and once again, SAFEX was accused of manipulation. This time the producers complained. Once again, a statutory body (the National Agricultural Marketing Council) was asked to investigate whether there was indeed price manipulation. The results mirrored that of the earlier investigation – the trend of prices was the same everywhere. However, grain prices in South Africa were relatively more volatile than those on other markets, primarily due to rainfall unpredictability and currency volatility. In its recommendations, the Council focussed on improving information (both market information and information on positions on the exchange), and introducing position limits on large speculative users of the market.

Box 4
Exchanges should police commodity trade - an unconventional interpretation

Exchanges in emerging markets may look for inspiration at what the large exchanges in western countries are doing. However, they may learn more from what these exchanges used to do when their countries' commodity sectors were less well organized than they are today. The key to success of a commodity exchange is that it greatly reduces transaction costs for market participants as compared to other mechanisms. History from western exchanges shows many ways to reach this goal, including unconventional ones.

An example is cotton trade in the USA in the 19th century.* Cotton traders used to face considerable problems with theft and fraud. For example, cotton graders often took samples that were much larger than what was required for the grading and sold the excess. Cotton was systematically pilfered from bales. The New Orleans and New York cotton exchange decided to aggressively tackle these problems. They imposed new regulation on sampling: samplers had to be exchange-licensed, and the exchange retained the samples; the result was a 90 percent decline in losses from sampling. The exchanges appointed guards, with the power to arrest, to patrol the wharves and levees where the cotton was shipped; this resulted in a halving of the insurance costs for stored cotton. The experiences were so successful that smaller exchanges decided to make similar arrangements.

* Based on Stephen Craig Pirrong, The Efficient Scope of Private Transactions-Cost-Reducing Institutions: The Successes and Failures of Commodity Exchanges, The Journal of Legal Studies, Vol. 24, No. 1, January 1995).

- *Minimum forward purchase contract:* this guarantees a minimum price for the contracted period. Clients have a right, at any time, to fix the price of a part of their covered volume.

- *Average call option contract:* for processors, permitting them to lock in a maximum purchase price while still being able to benefit in part from price falls.

Finally, exchanges can make the commodity sector bankable. In the first place, they do so indirectly, because their reference prices allow banks to better value commodities given as collateral, and because banks can be confident that they can deliver commodities that they obtain after a client default to the exchange. However, exchanges can also directly improve commodity finance, by setting up a warehouse receipt mechanism or even, by trading commodity repo contracts. In South Africa, the warehouse receipt system developed by SAFEX has led to bank lending of equivalent of close to a billion dollars annually. In India, the collateral management companies set up by the two leading commodity exchanges have enabled equivalent of billions of dollarsof new agricultural finance, by banks who previously were wary of such lending.

In a liberalized environment, there are few other institutional mechanisms that can easily provide these functions. Specialized press agencies could collect price information and distribute this to subscribers, but this tends to be expensive, and moreover, price collection is normally not on a continuous basis. Traders' associations can provide market discipline, but this normally only works within a relatively small group. In western countries as well as in countries like China and India, commodity exchanges have generally sprung up because they were the most efficient tools for dealing with the exigencies of a liberalized market place.

While there is little exchange experience in Africa yet, an analysis of ECX indicates that the expected reduction of transaction costs indeed materialized: "The comparison of available data before and after the ECX indicates that transaction costs have declined in terms of

(i) the average number of intermediaries each trader used (buying agents, brokers, and selling agents) along with the role of ethnicity and religion,

(ii) average number of people consulted and involved to make a transaction per market day,

(iii) methods/means of verification employed for sesame quality assurance, and

(iv) time required per transaction."[16]

Similarly, marketing costs have declined by about 57% as compared to the situation before the start of the ECX.

[16] Meijerink *et al*, 2010

2.3 Boosting trade opportunities

There are large opportunities for agricultural commodities trade in Africa, and most of these opportunities lie in national and regional trade. According to a 2005 estimate[17], the value of the market for Africa's traditional export commodities, such as cocoa, coffee and cotton, is projected to increase from US$8 billion in 2000 to US$10.5 billion in 2030 (in constant dollars). The markets for high-value exports (*e.g.*, flowers, fruits, vegetables) would increase from US$3 billion to US$10 billion. However, the African urban market for food was expected to grow from US$50 to 150 billion.

The rapid growth of urban demand should be seen in the light of rapid urbanization of the continent. From 2010 to 2025, the population of ten large African cities, such as Lagos, Abidjan, Dar es Salaam and Kinshasa, is expected to grow by more than 50 per cent. In 2025, there will be 18 cities in Africa with more than 2 million people. Half of Africa's fast-growing population will live in cities, up from a third now. Africa is already a large net importer of food which is used to feed its cities. It can hard afford to continue relying on imports for this purpose, in particular in the light of the trend towards higher global food prices.

Therefore, enabling African farmers to meet the demands of African cities should be a priority for African governments. Nevertheless, given that agriculture in most countries is rainfall dependent, markets that are entirely national would be highly volatile. It will be beneficial to have regional markets for grains, other food products as well as certain other crops such as cotton (to supply the clusters of African textile companies). This is on the political agenda, and discussions to create regional trade agreements have been going on for decades. While implementation has been slow, the movement is by and large in the right direction.

Commodity exchanges cannot overcome the barriers created by government policies, but where such policies permit, they can provide a backbone for regional trade. They can then also act as catalyst for the growth of the industries related to such trade, *e.g.*, transport and other logistics services, information services, and even the financial services needed in regional trade (banking, insurance).

Specifically, an exchange will develop a network of warehouses into which sellers can make delivery[18]. It will also develop a market information system that allows buyers to know the prices at these delivery points. This makes it possible for buyers to procure commodities even in places where they have not previously been active (see Box 5). It may even enter into an arrangement with the export credit agency in its country (if there is one) to guarantee transport of goods from one warehouse which is not known to or trusted by market participants to one which does have a good reputation. As long as there are no regulatory or physical barriers to trade, long-distance transactions become possible.

[17] NEPAD Secretariat, Agribusiness, Supply Chain, and Quality Control Initiative. CAADP Implementation Concept Note, Midrand 2005.

[18] It can be noted that in many countries, the warehousing infrastructure exists, but it needs proper management,

Box 5

Does a commodity exchange solve physical infrastructure constraints?

Certain critics of Africa's commodity exchange projects allege that they are a waste of money because the basic infrastructure for commodity trade is so poor that most people will not be able to use the exchange. Development partners should instead spend their funds on basic infrastructure – rural roads, grading systems, warehouses.

This argument fails to recognize the mismatch in funding requirements – building an exchange is very cheap compared to building rural roads – and the fact that an exchange helps market participants to overcome physical market constraints.

This is well illustrated by the founder-CEO of the Ethiopia Commodity Exchange, looking back to the exchange's, and her, roadmap to success. She narrates her discussions with a trader she knows, Abdu, who is based in a market town called Nekempt (Eleni Z. Gabre-Madhin, "A market for Abdu – Creating a commodity exchange in Ethiopia", International Food Policy Institute, 2012):

> I asked if he knew there was a shortage of grain in the country and that prices were rising. A bit impatient, I pressed him further and asked why he didn't think of selling his good maize in the markets of Tigray and Wollo in the north and Dire Dawa in the east, where prices were high.
>
> He looked at the ground, then looked at me, and said yes, he had thought of it. After a pause, he told me that a few months earlier, he had done something that no trader in Nekempt had ever done: he went looking for a new market.. After a lot of asking around, he found the phone number of a buyer and called to arrange a deal. He told the trader in Mekele that he had good-quality maize, and they agreed on a price. Then, with great excitement, he loaded up a truck and started the trip of 900 kilometers, crossing three regional boundaries.
>
> Things started going wrong immediately. He was stopped over and over—more than a dozen times along the way—at road checkpoints where he paid bribe after bribe. The trip he thought would take three days took two weeks. When he finally arrived in Mekele, the buyer, to Abdu's dismay, claimed that the quality of the maize was poor and that prices had gone down. He was no longer interested in Abdu's maize. Abdu could hardly afford to take the maize back to Nekempt, so he had no choice but to sell at a terrible loss and return home. He told me his story quietly, a bit angry as he recalled the bribes and the trader who turned on him. He would never try that idea again, he said.

Her drive to create ECX was largely inspired by her experiences with traders like Abdu. A few years later, the launch of the exchange was near, and she reflected:

> As the start date of operations approached, I asked about my old friend Abdu Awol in Nekempt. I wanted to invite him to join this new opportunity. I wanted him to know that from now on, he could sell his maize to anyone in the country simply by depositing it in the ECX warehouse at Nekempt, trade it without a single bribe or delay, and get paid in full at the agreed price the next day.

Trade is enabled by the creation of an institution – the exchange – rather than by the building of roads, the development of a legal system that would protect farmers and traders against the default on commitments by their counterparties, or a comprehensive anti-corruption programme.

3. Conditions and constraints for African commodity exchange development

An exchange can be made an island of excellence in an otherwise risky world. As long as the economic rationale is strong enough, an exchange that is ring-fenced in an effective manner can work even in difficult conditions. The ring-fencing mechanism normally works through contract law and self-regulation: participants to the exchange sign up to the conditions of the exchange, and commit themselves to abide by all its rules, including its financial regulations and the judgments of its arbitration panels.

This suggests that in the African context, an exchange can be set up even if the environment – the way the physical market operates, the legal and regulatory conditions – is far from optimal. This is not an opinion shared by all observers. For example, a recent policy brief argued that "a commodity exchange can only assist in developing a market-oriented agricultural sector where the underlying spot market for physical commodities functions effectively. ... Functioning spot markets imply that a commodity itself is tradable, which requires the existence and adoption of grades and standards; credible, enforceable and tradable contracts; adequate storage facilities; and an open and efficient market environment."[19] The problem with this view is that it does not reflect historical experience. When the Chicago Board of Trade (now part of the Chicago Mercantile Exchange group, the world's largest commodity exchange) was created, and for the first decades of its existence, none of these conditions was in place. Also, the Multi Commodity Exchange of India, which started trading in 2003, became the world's second largest commodity exchange in less than ten years despite these conditions being largely absent in India.

Of course, an exchange's true potential can be realized only when its environment is improved, and this is something for which the exchange should actively lobby. It will be in a good position to do so once it actually start operating, as many groups will see that they are actually hurt by inappropriate prevailing policy, legal and regulatory conditions; they will provide momentum to the process of change. Experience shows that first trying to create an optimal policy, legal and regulatory environment before moving towards introducing commodity exchange trade does not work: it takes too long and there is not enough momentum to maintain the course.

However, while a commodity exchange helps improve the conditions of physical trade, it requires certain minimum conditions in order to reach critical mass. These conditions broadly fall in the following areas:

- Sufficiently large supply and demand for the commodity;
- Sufficiently free determination of prices (little likelihood of price manipulation);
- Reasonably well-standardized commodity, and accepted grades;
- Sufficiently large price fluctuations to warrant hedging;
- Reasonably well-functioning spot market;
- Support from commercial interests for the futures market;
- Sufficiently large group of speculators;
- Sufficiently well-developed infrastructure (grading, storage, etc.); and
- A supportive legal and regulatory framework.

This chapter will look at a number of these conditions in Africa and draw conclusions from them.

3.1 Physical market structure

(i) The structure of production and trade flows

The total production of agricultural, fuel and mineral commodities in Africa is huge – some three times larger than that of India, which supports the world's second largest commodity exchange as well as a number of smaller exchanges.

However, the structure of production is complex. Production in the fuel and mining sectors is often in the hands of multinational companies, which make their marketing decisions outside of Africa and, if they want to manage price risks, can easily use the established exchanges in the UK and USA.

[19] Quinn, 2012

Agricultural production is highly fragmented, with few farms operating as commercial enterprises. Most smallholders do not produce for the market but only sell occasional surpluses; indeed, most small producers are net buyers of food crops. A large part of the commodities produced are consumed at or near the farm, not traded through markets. There is a lack of cooperatives and other forms of farmers' associations in the continent, and many of those that exist are quite weak (partly as a legacy of the past, when governments tended to control cooperative bodies).

Trade flows are also fragmented. There are large, relatively well-organized trade flows for the main export commodities. Some of these are associated with existing commodity exchanges (*e.g.*, the case of cocoa and coffee), others are not (*e.g.*, gum arabic and sesame). Commodity flows into cities are reasonably well-organized mostly when the commodities are imported from outside Africa (*e.g.*, the import of maize by the large milling companies, or the distribution network for rice). National and intra-regional trade flows are often informal and, indeed, a major part of intra-African commodity trade is not reported in customs statistics.

While the underlying market is large, the fragmentation of production and trade will hinder the growth of an exchange. Exchanges can become efficient if they can trade in units that are equal to typical trading lots in organized trade – in agriculture, say, a truckload or container load – which is to say that a typical minimum trading lot would be 5 tons or more. Those most likely to use the exchange to support physical trading or for managing the risks of their physical trade are market participants (farmers, cooperatives, processors, traders) who deal in quantities that are a multiple of these minimum trading lots. In a western market, smaller market participants would typically be working with aggregators such as cooperatives, processors or traders, and while they cannot access markets directly, the aggregators can enable them to benefit from the exchange's services through the pricing clauses in their physical contracts. In African agriculture, many, if not most, small farmers are probably too far away from these aggregators to get such indirect access to markets.

The total size of the market is sufficiently large with the possibility that the volumes transacted by large farmers and aggregators could support a viable exchange, in particular if this exchange has a sub-regional or pan-African focus. But the exchange will not be able to do much to benefit smallholders... Herein lies a potential role for the development partners, which can help develop aggregators that are close to farmers, such as warehouse operators and farmers' associations. With development partner support, it could even be possible to work with input suppliers or banks, who can build price risk management into the products that they supply to farmers.

ii) Lack of physical and organizational infrastructure

Physical markets in Africa are poorly developed. There is a scarcity of good all-weather roads connecting hinterlands to cities and ports, and countries with each other. Clearance at ports are often slow and expensive. There may be a lot of storage infrastructure in many countries, but it is often in poor condition and inefficiently managed. Infrastructure may have been developed to support export trade rather than trade linking cities to the countryside – which is where trade flows are likely to grow fastest in the future, giving the rapid growth of African cities.

There are also significant deficiencies in the "soft" infrastructure of trade: agreed commodity grades and standards; standard contracts; commercial courts and arbitration panels; supporting customs procedures.

However, things are likely to change in the future. African cities are growing very fast, and will need to be supplied with foods. Much of the incremental demand will have to be supplied from the cities' hinterland, not just with national grain flows but also likely increase in intra-regional flows. The nature of demand is also likely to change, with consumers demanding more in terms of grades and standards. The processing sector is likely to become better organized, including in terms of their demand for risk management tools. For example, the grain milling sectoras well as bakeries (neither of which can easily increase bread prices) are exposed to large price risks. The same is true for organized livestock and poultry producers. These agro-processors and agro-industrial enterprises should thus be very interested in an agricultural futures market.

While an exchange will have to be selective in the way it develops its markets, the likely future trends will be creating large opportunities. Traders will build up regional networks and invest in elevators and other trading infrastructure; they and other investors will also invest in processing plants. Such investments need to be protected against risk, and thus the demand for price risk management is set to grow.

On the side of producers, while still only a minority of farmers is organized in efficient farmers' associations, this group is growing. Furthermore, new Information and

Communications Technologies are making it possible to aggregate supply. This will make it possible for groups of farmers to aggregate the volumes to deliver onto exchanges, use warehouse receipt systems, and use futures and option contracts to manage their price risks. It will also make it easier to enter into forward contracts, which in turn would be hedged by the buyers.

Also on the positive side, electronic infrastructure (mobile telephones, the internet, electronic payment systems) have developed rapidly over the past decade, and conditions continue improving: connectivity is becoming ever-more widespread, reliable and fast; the variety of services available increases; and costs continue falling. This is most relevant to an electronic commodity exchange. In many countries, the Internet has now developed to a stage that it permits, in principle, easy and cheap access to the exchange for a large number of market participants. Governments may consider how they can further support Internet connectivity, as well as rules and regulations affecting access to the Internet (*e.g.*, VSATs are a convenient tool for accessing an exchange from remote, isolated areas).

(iii) Warehousing infrastructure

Most African countries have a surfeit of warehouses, built with development partner funding to enhance resilience to natural disasters. However, in many countries, a large part of these warehouses have fallen into disrepair, albeit this situation is changing. Third-party warehousing and collateral management companies (which take temporary control over a warehouse in order to support a bank loan) are active in most African countries. African banks are becoming more regional, which is likely to help spread the presence of such warehouse operators.

3.2 Product quality, standardization and grading issues

Commodity trade all over the world is mostly conducted on the basis of specified quality characteristics. Thus, sellers and buyers are normally guided by quality criteria/specifications established in their contracts. While this is true for much of Africa's export and import trade, it is unfortunately not so in domestic and regional trade. Grades and standard are hardly used, and to the extent that they exist, they are often different in different countries depending on various factors and quality standards, as well as quality evaluation systems adopted in a particular country.

The quality specifications of the standardized contracts which are to be traded on futures markets have to reflect national grades and standards. This implies that on the physical market, these grades and quality characteristics should also be standardized. This is a major challenge. Industry bodies such as the East African Grain Council have developed comprehensive work programmes to meet the challenge, and an exchange should work with such industry bodies in developing its contracts.

In any case, not all of a country's physical production of a commodity has to be properly graded, and of proper quality, for an exchange contract to succeed. As long as there is sufficient produce that meets exchange standards, the economic signals given by the exchange will encourage all farmers and others to improve the quality of products so that they can gain the price premium that is typically available through the exchange.

3.3 Traceability and exchange trading

In 2008, the Ethiopian Commodity Exchange faced opprobrium from the international coffee community.[20] By "commoditizing" all Ethiopian coffee, the exchange had cut the link between producers and buyers, making it impossible for the latter to identify and buy the coffee they wanted. A year later, a partial solution had been found, and to all appearances, most coffee buyers had been pacified. EXC had managed to adapt its trading system so that it could meet the picky demands from international buyers while still giving producers the benefit of a competitive sale.

Exchanges are traditionally set up to enable efficient trade for bulk commodities. By grading the commodities delivered into exchange-approved warehouses, exchanges make it possible for buyers to procure 'unseen' commodities from buyers they had never dealt with. This creates large efficiencies: farmers can be sure that if they deliver commodities of a grade specified by the exchange, there will be a buyer, at a competitive price; and traders can dramatically widen their reach. The exchange sets common standards that allow buyers and sellers to interact without high coordination costs, in the same way that a national

[20] See for example Coffee in retrospect: how ECX demolished "direct trade" in Ethiopia's specialty coffee trade", http://poorfarmer.blogspot.nl/2012/03/coffee-in-retrospect-how-ecx-demolished.html

agreement on electricity plugs creates certainty that a new electrical appliance can be immediately plugged into a house's electricity supply. But while this is a big step forward, a part of the market is already moving beyond this.

In effect, in today's market place there is a growing demand for identity preservation, for the traceability of commodities from producer to consumer.[21] First, it gives the buyer greater control over the quality of the product, in an environment where some consumers are willing to pay high premiums for perceived quality uniqueness. Second, only with traceability is it possible to meet the many other ideals of the modern consumer. Has the commodity been produced without child labour? Have workers been paid decent wages? Was the commodity produced organically? Was it produced in a way that is good for the environment, *e.g.*, under shade trees that give refuge to birds? For all these aspects of production, and more, certain consumers are willing to pay a premium price. If an exchange is to enable a producer to get the best price possible for her product, it has to make it possible for these invisible characteristics to remain attached to the product when it is offered on the exchange. In the past, it was believed that this is impossible – exchanges would only be good for bulk commodities. However, in principle, modern technology can make it possible.

The ECX, for example, responded to the outcry of the specialty coffee trade by creating a separate platform for specialty coffees.[22] Instead of bulking all the coffee that arrived at the exchange, ECX developed (with US assistance) a sophisticated system for measuring many quality aspects of coffee. With the resulting quality certificate in hand, producers and local traders could offer their coffee on the monthly auction organized by ECX's Direct Specialty Trade platform.[23] International buyers pre-register for the session, and prior to the bidding they can participate in a cupping (coffee tasting) session. Contracts are concluded on an the FOB price basis in US$, directly between buyer and seller; 85 per cent of this price has to go to the producer. The contracts are registered with the National Bank, and ECX publicizes the prices. The transaction is not covered under ECX's clearing system. The platform did not work as ECX had hoped. Only six lots were sold in the first auction and nine in the second; in 2011, no auctions were held at all. Exporters continued being unable to process their own specialty coffees. ECX is reviewing its system to make it more operational.

While traceability may in principle be made to work on a spot exchange, would it also be possible on a futures market? After all, goods are supposed to be fungible until the delivery period starts, it is not certain whether there will be any delivery or not, and the quantity delivered and the delivery location are standardized. If any premiums are to be paid for qualities that exceed the standards, the premiums would be standardized, not a reflection of market conditions.

One way that the two markets – for standardized and specialized commodities – could be merged is through the "exchange of futures for physicals" (EFP) facility which many exchanges offer: buyer and seller sign a contract for delivery at some time in the future of a commodity in which the price is set as a reference price (*e.g.*, the July coffee contract) plus a premium which they negotiate directly. The two parties then inform the exchange, which assigns a long position to the seller and a corresponding short position to the buyer. Both can then close out the contract when they desire (before the set date in of July). Another way would be if there are two separate exchange platforms: one for the standards products, one for the differential in price between the standard product and the specialty product. For example, a farmer who wishes to use his price risk can sell a futures contract. A few months later, he decides he will close out his position by delivering his commodities to the exchange. He could then sell a "premium quality certificate" for the volume of his deliveries through a separate platform. The buyer of the certificate can, if he also has a long position on the exchange, then take delivery of the premium quality commodity. This requires good logistics from the exchange (using bar codes and the like), but it is well feasible.

[21] There are in effect several different requirements for premium markets. Traceability is a general precondition, and the only one that could relatively easily be incorporated into a commodity exchange environment. Traceability means that the product can be traced from farmer to ultimate buyer, and that there is a system in place to check against commingling by farmers of their crop with that of others. Traceability may be sufficient if one is just concerned about product quality. However, further certifications require more controls. For organic certification, all actors in the chain (from input supply to farming to transport and storage) need to follow organic procedures, which in practice means that the supply chain needs to be completely separate from that of other commodities, so that no commingling can take place. For certification as a socially responsible and environmentally friendly product, one has to be able to check the labour conditions throughout the supply chain. If the product is to have a fair trade label, then fair minimum prices have to be paid to growers, and there has to be a long-term relationship between buyers and sellers – which is incompatible with the principles of a commodity exchange.

[22] See for a description ECX, ECX Direct Specialty Trade (DST), 4 January 2010.

[23] At least, that was the intention. When the trading system opened, the coffee was stripped of its origins, and thus sold only on the basis of its quality characteristics. Also, buyers cannot taste ("cup") the coffee themselves prior to their purchase.

3.4 Price transparency and price volatility

There are three issues related to prices which affect the viability and usefulness of an agricultural futures market: the volatility of prices; the transparency of prices and of the price formation process; and the integration of prices, among regions, with the world market, and along the marketing chain.

Many of Africa's commodity sectors show a lack of correlation with international market prices as well as high volatility. Processing companies are relatively hardest hit by the high price volatility, as their processing margin is very vulnerable to price swings on both the raw material and output side. However, it also hurts the other participants in the market chain.

With development partner support, agricultural price information systems have been developed throughout Africa. This greatly boosts the chances of success of an exchange. In return, when people can make trading decisions on the basis of price information, they will be willing to pay for such information, thus helping to make the price information systems financially sustainable.

3.5 The potential for speculative involvement

Speculators provide essential liquidity to an exchange. Short-term speculators make it possible for hedgers such as processors or traders to place their orders easily: they can expect to be able to buy or sell at the price that is quoted at the moment that they instruct their broker to buy or sell. In an exchange without such liquidity, there can be large "slippage": the futures market price may have to move considerably to enable the trade to take place, causing unexpected losses to a hedger. Longer-term investments also provide an important form of liquidity, acting as a counterweight to large physical market buyers and sellers and allowing a much smoother price behaviour over time, although their behaviour can lead to sharp price movements in the short run.

Typically, between fifty percent to eighty percent of the volume on a commodity futures exchange is generated by what is most commonly known as "speculators". "Non-trade related participants" or "investors" would be a better name, as a significant number of them uses a particular commodity futures contract as part of a deliberate risk-reducing portfolio investment strategy, while on the other hand, the so-called "hedgers" (such as trading companies) often put on purely speculative positions.

Simplifying somewhat, speculators can be divided into two groups, both of which supply valuable services. On the one hand, there are individuals and increasingly, computer programmes (called algorithmic trading engines) that enter into and exit positions very actively, many times a day; their positions are normally closed out before the end of the trading day. Generally, they act directly on the exchange, without passing through a broker; their transaction costs are therefore low, and they can make profits even on small market movements. On the other hand, one has individual speculators or institutions who take longer-term positions, trying to benefit not from small movements in the market but from large market trends. They trade through brokers, and generally keep their positions for longer periods. In more developed markets (Europe, US) the majority of this second group consists of large institutions (such as mutual funds, hedge funds, investment funds, pension funds and the like).

For emerging exchanges, speculative interest needs to come from local players: international speculators only come once a market has become very liquid. This may well be a challenge. There is a scarcity of financial futures markets or even large electronic stock exchanges from which a mass of speculators could be recruited. Deliberate action will be necessary to stimulate the emergence of this sector. Institutional investors are also needed. There are many on the continent, *e.g.*, pension funds or insurance companies. However, under current regulations many would not be allowed to invest in commodity futures. Exchanges should work with such institutions to develop products that they could trade.

3.6 Banks' involvement in the commodity sector

Banks perceive agriculture as risky, and few African banks are heavily involved in the sector. Foreign banks traditionally dominated import- and export-related financings. However, with the global financial crisis and the liquidity crunch of European banks, things are changing. The once predominant share of European banks in trade finance for Africa has more than halved over the past year. This gives good prospects for local banks to gain market share – if they know how to deal with the risks of financing commodity transactions.

An agricultural futures market could breach the gap between the agricultural and financial sectors, both directly and indirectly. Indirectly, an agricultural futures market would make loans to producers, traders and processors less risky.

Exchanges could also offer trade finance-related products (see Box 6). A few African banks have developed expertise in using western commodity exchanges (for example, Tanzania's CRDB, under a World Bank project to provide access to risk management markets for coffee and cotton farmers). Most of South Africa's banks are very active on SAFEX, in commodity as well as financial futures, and in varied roles (from direct use to supporting their clients). A number of Ethiopia's banks have linked successfully with ECX. New exchanges should develop a compelling business case for banks to be part of the exchange initiative; it may well be advisable to open exchange shareholding to banks.

Box 6
Repo trading - securing finance for commodity producers

Where an economy is disorganized and markets are imperfect, the presence of an exchange can impose discipline on the commodity sector. This is most often used to improve marketing and risk management possibilities, but it can also be used to provide a new source of commodity finance, in effect linking farmers, agro-processors and traders directly to the capital market. This has been done by Colombia's National Mercantile Exchange (BMC), through its repo system. While there have been implementation problems, overall the system has worked well.

BMC offers three kinds of repos:

- *On invoices*. For example, a commodity exporter can use the exchange to offer repos on his export revenue: he sells his export contract with the undertaking to buy it back after a certain period. This is possible for agricultural, mineral and energy products. Repos can be for 30, 60, 90, 120 or 150 days. The payment under the invoice is assigned to the exchange clearinghouse (even though, since 2010, it no longer guarantees the transaction), and the buyer of the physical products has to acknowledge the assignment.
- *On commodities in stock.* This has been used for a wide range of commodities, such as coffee, rice, wood, potassium chloride, rum, polypropylene, cotton, coal, maize, fertilizers, milk powder and palm oil. The commodities are stored by a commodity producer, processor or trader under the control of a warehouse operator who has been accredited by the exchange. It can be in a public warehouse, or it can be a field warehousing operation, where a collateral manager takes temporary control over a processor's or trader's warehouse. The warehouse operator issues warehouse receipts to the depositor who transfers them to an exchange broker. He then asks the broker to sell the warrant, simultaneously signing a repo which commits him to buy it back at a given price after a specified period. The purchaser knows that he will be entitled to a cash sum at a defined point in time, with the payment guaranteed by the broker and further underwritten by the physical goods in the storage facility. The sum paid by the winning bidder is channeled to the depositor of the goods. Not only does the depositor (farmer, processor etc.) have access to more financing than would otherwise have been available, but that finance is also provided on better terms due to the reduced level of risk faced by investors.
- *On future commodity receivables.* In this case, securities (in the first years of operation) or repos (since 2005) are structured around future receivables for livestock and poultry producers. To give an example, a poultry farmer who meets a set of criteria stipulated by the exchange enters into a forward contract with a processing plant. He then cedes the rights to payment under the contract to a broker, and the plant confirms the assignment. The farmer also mandates the broker to enter into repo contracts on the exchange. The funds paid by the investor enable the farmer buyer to buy one-day-old chicks, and cover the costs of feeding them until they are ready for sale. These instruments provide an interesting and safe investment tool for the capital market (including for individual investors – repos are traded in values of around US$ 1,000), and have halved the costs of finance for producers.

4. The current situation with respect to African commodity exchanges, and the moves ahead

This chapter gives an overview of the current stage of development of commodity exchanges and commodity exchange projects in the continent (a more detailed country-by-country description can be found in Annex 1).

While Africa was late in entering the modern commodity exchange space (1994, after a gap of several decades), there is now no longer any lack of exchange initiatives. A count of African exchange initiatives shows that there are, or have been, exchange initiatives of some sort in 28 African countries (see table 3). In two of these countries, this goes little further than a website, of which the government may not even be aware. In a quarter of the cases, the concept was discussed and studied by private sector groups or commodity exchanges, but it did not move beyond this into the planning stage. In three of the countries, the exchange is only a physical market place where buyers and sellers are brought together by an NGO in an effort to catalyze new flows of trade. However, in more than half of the countries, there is already an active exchange, or the path towards an exchange has moved into the planning and development stage, often supported at the highest level of government.

Two exchanges have reached reasonable volumes, in futures trade (SAFEX in South Africa) or spot trading (Ethiopia) – trading respectively over 210 million tons (mostly grains) and almost 600 thousand tons (mostly coffee) in 2012. GBOT in Mauritius is trying to become an offshore destination for global exchange trade. ACE in Malawi is developing from a small volume of trade to a more ambitious reach, trying to build a regional market on the back of warehouse receipts; something that Nigeria's ASCE exchange, which is struggling to show any kind of volume, can for the time being only strive for in the future. UCE in Uganda and ZAMACE in Zambia are trying to build trade on the basis of electronic warehouse receipt systems. Some exchanges ventures – in Kenya and Morocco (and an initiative in Malawi which had its demise when development partner funding stopped) – only provide market information, although they may aspire to facilitate transactions in future. There are some one-off exchanges which are more like trade fairs, organized to bring buyers and sellers together in one place (in Burkina Faso, Mali and Niger). There are also ambitious pan-African plans (Bourse Africa) or regional ones (in the ECOWAS and East Africa regions), as well as more national plans than ever before (Ghana, Kenya, Rwanda, Sudan, Tanzania, Zimbabwe, not to mention talks in some other countries). The annex gives an overview of these various initiatives.

All this activity makes Africa the world's current frontier for commodity exchange development, attracting the interest of some large international commodity exchange groups – the Chicago Mercantile Exchange, the world's largest commodity exchange, is increasingly engaged with South Africa's SAFEX; India's Financial Technologies group, which has in its midst the world's second largest commodity exchange, MCX, has two commodity exchange projects in the continent; NASDAQ/OMX, a major exchange and exchange technology group, is part of another regional initiative.

The exchanges that are operational or have seen significant investments towards becoming operational vary widely in their (intended) scope of actions. (see table 4). Contract enforcement, warehouse receipts and clearing are now within the scope of most. However, only a minority has the ambition to move towards futures trading. As discussed further down, this may be a mistake, condemning the exchange to trying to survive at a low level of activity.

4.1 Aspiring for a pan-African exchange

In line with the wish expressed by Africa's policy makers to have a pan-African exchange to encourage regional trade, over the past ten years there have been a number of ambitious pan-African initiatives.[24] The first pan-African exchange initiative was PACDEX (Pan-African Commodities & Derivatives Exchange), work on which started in the early 2000s. PACDEX envisaged a franchising model.[25]

[24] The description in this section only discusses initiatives that appear to be real. There are also a number of "virtual exchanges", which exist as a website but, despite making strong claims as to their business, do not appear to have clear regulatory approval to operate as a commodity exchange, nor to do any trade. This includes the two African exchanges of Dubai's Pride Group, the Mercantile Exchange of Madagascar (http://www.mexmalagasy.com) and the African Mercantile Exchange (http://www.africanmex.com, incorporated in Swaziland) – both are referred to in table 3. The latter's website claims that the exchange was set up in 2005, and that it offers electronic trading in a range of commodities; yet, there is no sign that it has any real members or has done any trading.

[25] Anthony Adendorff, Applying the franchising concept to commodity exchange development: the Pan-African Commodities & Derivatives Exchange, in UNCTAD, The World's Commodity Exchanges: Past, Present and Future, Geneva 2007.

Table 3
African Exchange initiatives

Country	Status of initiative
Botswana	Regulator has issued an exchange license to Bourse Africa, which aims to provide continent-wide exchange services using a service centre approach, tying national multi-asset exchanges together.
Burkina Faso	Seasonal physical commodity exchanges (commodity fairs), bringing buyers and sellers together, have been organized by an NGO for over a decade.
Cameroon	Private sector interest in setting up a regional exchange. Does not appear to have moved beyond the concept stage.
Côte d'Ivoire	Interest, now and in the past, of several commodity industry bodies in setting up an agricultural commodity exchange.
Democratic Republic of Congo	Private sector interest, with government support, in setting up a multi-asset exchange that would start with commodities.
Egypt	The home of Africa's oldest commodity exchange, which was disbanded on its 100th anniversary in 1961. Securities Exchange has studied the possibility of starting commodity futures. Project appears currently stalled.
Ethiopia	Home of the first well-capitalized commodity exchange project in the continent north of South Africa. Highly publicized, and with certain provisos, relatively successful, having reached a total trade of US$ 8 billion from its inception in 2008 to early 2013.
Ghana	A private sector initiative to set up an exchange has been active since the late 1990s. The government is now supporting the creation of an exchange, and the Securities Exchange Commission has commissioned several studies to guide its implementation. The exchange is to be national, but with an explicit provision that it can be part of a regional or pan-African network.
Kenya	Attempt to create an open outcry exchange in the late 1990s failed; the venture now survives as a market information service. In 2012, the government issued a tender aiming at approving a commodity exchange. Despite attracting a large number of viable offers, the government stalled the process, deciding to study the matter further.
Libya	In 2008, the stock exchange commissioned a study on the creation of a commodity exchange, which would target local, pan-African and Mediterranean markets. The project is currently inactive.
Madagascar	Purported home of a commodity exchange which, however, does not appear to have any presence beyond its website. Set up under a Letter of Acceptance by the country's Ministry of Commerce and Industry.
Malawi	Home of the African Commodity Exchange (ACE), the continent's most successful low budget exchange, which is trying to scale up its trading through greater use of warehouse receipts, and has set up a link with the Zambian exchange permitting regional grain trade. One competing initiative has failed, but another new competitor is moving ahead with its own initiative.
Mali	Seasonal physical commodity exchanges (commodity fairs), bringing buyers and sellers together, have been organized by an NGO for over a decade. Government has discussed the concept of a national exchange for grains and gold.

Mauritius	Home of an active multi-asset exchange with global aspirations, currently trading crude oil and gold alongside a range of financial assets.
Morocco	Several exchange projects in the past, but currently inactive other than some discussion on a possible leather exchange.
Niger	Seasonal physical commodity exchanges, bringing buyers and sellers together, have been organized by an NGO for several years.
Nigeria	A parastatal commodity exchange has been in existence for over a decade, but has failed to develop significant volumes. It is currently trying to expand using warehouse receipts.
Republic of Congo	Private sector group, with support from the government, has developed a concept paper for an exchange that would initially trade petroleum and oil products.
Rwanda	The country's President has announced the setting up of a commodity exchange (promoted by a major global investor and using NASDAQ/OMX technology) that would be headquartered in the country, but play a regional role within the East African Community.
Senegal	Home to a private sector commodity exchange project that targets the countries of the UEMOA (West African Economic and Monetary Union).
South Africa	Home of the largest commodity exchange in the continent.
Sudan	The Stock exchange is studying the possibility of setting up a modern commodity exchange.
Swaziland	Purported home of a pan-African exchange which, however, does not appear to have any presence beyond its website. Set up after permission from the Minister of Finance, and authorized to start operations as a self-regulating entity until its planned regulator, the Financial Services Regulatory Authority, starts operations.
Tanzania	The country's President has announced that Tanzania is to have a commodity exchange. Work is ongoing.
Togo	Meant to be the headquarters of the ECOWAS regional commodity exchange, the *Bourse Régionale des Produits Vivriers*, a UEMOA project that is still pending. Currently has an internet-based agricultural exchange, which however does not appear to be active.
Uganda	A mostly government-owned exchange is active, but focuses for the time being on the warehouse receipt system.
Zambia	A private sector-driven open outcry initiative saw some volumes in the 2000s, but fell into problems because of government intervention in the grain markets. Exchange is now being revived, focusing on the use of warehouse receipts.
Zimbabwe	The home of the first commodity exchange to be created in Africa in the 1990s -- a private-sector owned open outcry exchange that was disbanded after a few years when the government took control over grain trading. A new government-driven exchange is in the making.

This would comprise a hub in Botswana from which a world-class common exchange and back-office platform would be managed, and various national exchanges using the common platform but offering front-ends (that is to say, trading screens) and products tailored to the national market. PACDEX planned to use warehouse receipts for its delivery mechanism. Despite considerable work, the initiative, which relied on active support (through the African Union) of African governments did not gather sufficient momentum and was discontinued.

A more recent initiative is ACFEX (Africa Commodities and Futures Exchange), which was created in 2010, partly in response to a commodity exchange tender from the government of Kenya.[26] It presents itself as a Pan-African multi-asset derivatives exchange for agricultural, financial, metals and energy contracts. Like the earlier pan-African initiatives, it aims to provide outsourced exchange services (what it calls white labeling services) to national exchanges, permitting them to gain access to modern technology at a radically reduced cost. It also aims to offer brokers outsourced front-end solutions, including through proximity servers. In line with other initiatives, it puts much weight on an electronic warehouse receipt system – with as one interesting innovation an animal repo financing contract. ACFEX is intending to use its own proprietary platform for agricultural products[27], metal, energy, currency, single stock and equity index futures. It has signed memoranda of understanding with Zambia National Farmers Union (ZNFU) and Farmers Union of Malawi (FUM), and also had Côte d'Ivoire and Rwanda as priority countries.[28] Currently, in the absence of large promoter firms, the initiative appears to be moving ahead only slowly.

The most ambitious current initiative is Bourse Africa, a project of over US$ 100 million. Bourse Africa is a multi-asset exchange, proposing to offer commodity spot contracts as well as commodity futures, alongside stock and stock derivatives, currencies and other financial products. It is an initiative of India's Financial Technologies group, which includes a number of exchanges, the main one being the Multi Commodity Exchange of India, the world's second largest commodity exchange after the Chicago Mercantile Exchange.

Bourse Africa is headquartered and licensed in Botswana, from which it intends to operate a network of exchanges throughout the continent. It offers a franchising model, with the hub providing common services and contracts, and national exchanges offering relevant contracts on tailored front-end trading screens. The contracts will be traded on one common platform, permitting in effect national exchanges to share the costs of the technology and common services (*e.g.*, the technically complex task of managing the trading platform each day, clearing, international marketing, development of training materials, market information services etc.) The exchange hopes to start trading in 2013. It intends to offer a wide range of contracts, in the short run including spot and futures contracts for commodities, and futures on African currencies. The exchange model permits the creation at a relatively low cost (for each country) of world class national exchanges, regulated by their national regulators that are still effectively linked (to the extent permitted by the regulators) into one common network.

The Global Board of Trade (GBOT) in Mauritius, also part of the Financial Technology group, can probably best be described as a global initiative rather than an African one – the exchange aims to become a major offshore financial center. Still, among the products that this multi-asset exchange hopes to introduce are pan-African contracts, in the first phase in currencies, although commodities could be added at a later stage.

There are two further recent ventures that could develop into pan-African exchange ventures. One is Africa Exchange Holdings, set up in September 2012 by Berggruen Holdings (a part of the Nicolas Berggruen Charitable Trust), the Nicolas Berggruen Institute on Governance, the Nigerian investment firm Heirs Holdings, the Tony Elumelu Foundation, etc. Its goal is to support capital market development by transforming existing commodity and stock exchanges and establishing new entities. It will work on agricultural and other commodity, equity, and energy markets, and also support ancillary infrastructure such as the warehouse receipts system. It hopes to manage eventually a pan-African network of exchanges. The first exchange it set up was EAX in Rwanda (see below). Further such ventures are planned, including, reportedly, in Nigeria.

The second venture prospective pan-African exchange is Eleni LLC, a company set up in January 2013 by Eleni Gabre-Madhin, founder CEO of the Ethiopia Commodity Exchange, with investments by Morgan Stanley, IFC and the 8 Miles Africa fund (set up by Bob Geldof).

[26] http://www.acfex.net

[27] Cotton, cashew nuts, wheat, coffee, cocoa, rubber, cattle, cow milk, rice, yam, wheat, maize, sorghum, palm oil, groundnuts and cassava.

[28] Jacob Maaga, Post-harvest losses reduction – an exchange perspective, presentation at The Partnership to Cut Hunger and Poverty in Africa/World Bank, workshop on Improving Food Security by Reducing Post-Harvest Losses, Washington D.C., 20 September 2011.

Table 4
Scope of Africa's exchanges and exchange initiatives

Country and exchange	Contract enforcement		Warehouse receipts		Clearing	Spot trading		Futures trading	
	Quality	Arbitr.	EWRs	Regulate		Act	PI	Act	PI
Botswana: Bourse Africa	X	X	X	-	X	-	XE	-	X
Burkina Faso: *bourses céréalières*	-	-	-	-	-	X		-	-
Ethiopia: ECX	X	X	X	X	X	XE		-	X
Ghana: GCX	X	X	X	X	X	-	XE	-	X
Kenya: KACE	-	-	-	-	-	X		-	-
Malawi: ACE			X	-		XE		-	-
Malawi: AHCX	?	?	X	-	X	-	XE	-	?
Mali: *bourses céréalières*	-	-	-	-	-	X		-	-
Mauritius, GBOT	X	X	-	-	X	-	-	X	
Niger: *bourses céréalières*	-	-	-	-	-	X		-	-
Nigeria: ASCE	X	X	X	-	X	XE		-	-
Rwanda: EAX	X	X	X	-	X	-	XE	-	X
Senegal: BRPB	-	X	-	-	-	-	XE	-	X
South Africa: JSE	X	X	X	-	X	-	-	X	
Uganda: UCE	X	X	X	X	X	XE		-	
Zambia: ZAMACE	X	X	X	X	X	XE		-	-
Zimbabwe: COMEZ	X	X	X	-	?	-	XE	-	-

Quality: denotes that the exchange has imposed a system of grades and standards, and has the facilities to enforce these.

Arbitrage: denotes that those trading on the exchange are bound by the exchange's rules, and conflicts are handled through the exchange's arbitrage system.

EWRs: denotes that the exchange uses an electronic warehouse receipt system

Regulate: denotes that the exchange is the country's regulatory authority for warehouse receipts.

Clearing: indicates that the exchange has a system to handle the financial flows and exposures that come with commodity trading, in order to strongly reduce or eliminate counterparty risk.

Act: denotes that the exchange provides spot, resp. futures trading as of early 2013. XE indicates that this trade is on an electronic platform, X that it is through direct negotiation between buyer and seller.

PI: denotes that the exchange plans to introduce commodity spot, resp. futures contracts.

The company will incubate and support the formation of commodity exchanges across Africa, envisaging, ultimately, investments of US$ 200 million in exchanges and related ecosystem ventures (*e.g.*, warehouse receipt systems).

4.2 Sub-regional initiatives

In both West and East Africa, regional organizations have been considering the creation of regional exchanges.[29]

The ECOWAS CAADP plan, adopted by its member states in January 2005, foresees a number of actions to develop regional markets for agricultural products. Perhaps, incidentally, it followed a decision in 2004 by the West African chapter of the International Cooperative Alliance to create the "African Inter-Cooperative Commodity Exchange".[30] ECOWAS's plans include, among such actions as the development of warehouse receipt systems for regional trade and the financing of warehouses, the creation (in cooperation with UEMOA) of a regional exchange for agricultural products. A feasibility study was done by UEMOA in 2010. This recommended that a *Bourse Régionale des Produits Vivriers* be set up, as a commercial enterprise but with UEMOA and its member states, BCEAO (the Central Bank of the West African CFA franc countries) and market participants as its shareholders and a Council of Ministers as its Board. It was to consist of a central exchange (headquartered in Togo) and eight national branch exchanges. Both spot and futures contracts are to be traded; a commission fee of 1.5% of the value of transactions was proposed. The study recommended that the national exchanges be hosted by country's chambers of commerce and industry.[31]

This feasibility study and its recommendations are in several ways quite peculiar. They suggest that governments should take the lead in creating and managing an exchange. The approach is highly bureaucratic, suggesting, *inter alia*, that five years of planning should precede the creation of the exchange. International experiences of how an exchange can be developed are largely ignored. So perhaps fortunately, there appears so far little follow-up on the recommendations from UEMOA or ECOWAS member states. However, a private sector group did set up, in 2011, the *Bourse Régionale des Produits de Base* (BRPB). BRPB aims at providing commodity exchange services in UEMOA countries, by offering an electronic trading platform.

The possibility for a regional exchange for East Africa was first discussed in the COMESA secretariat in 2002-2003. The idea of such an exchange, trading agricultural products, livestock and fisheries was received favourably. Interestingly, COMESA staff did not feel that there was any need for the introduction of specific legislation for the establishment of an exchange.[32]

It would, however, be another East African regional organization which, in 2009, moved forward with the idea. That year, the East African Community (EAC) secretariat signed an MoU with the Nicolas Berggruen Institute for the establishment of a regional commodities market. It would bring together a number of national trading places on one trading platform. Following this, it included the creation of an efficient regional commodity exchange, with an estimated US$ 50 million price tag, in its 2011-2015 Food Security Plan.[33] The next step in the project came in January 2013, when Rwanda's President announced the creation of the East Africa Exchange (EAX) in his country. The investors – initially for US$ 10 million – are Africa Exchange Holdings (see above), with a small stake for a Rwandan investment fund. EAX is planned to become operational in the third quarter of 2013.

EAX aims to start offering auction facilities and spot trading for both agricultural and non-agricultural commodities, and develop futures trading over time. It will use NASDAQ OMX's X-stream Trading and Clearing platforms, which is compatible with global industry standards. Its first trade was done at the end of March 2013: the auction of 2,800 tons of beans on behalf of the Ministry of Agriculture and Animal Husbandry.[34] It is planned that the exchange becomes fully operational by June 2013, with Rwanda, Kenya, Tanzania and Uganda as target countries.

[29] In addition, a private group has floated the idea of a commodity exchange for the Central African region, called African Board of Trade and headquartered in Cameroon – see Goura B. Dang, *Projet de Création d'une Bourse Régionale* (CEMAC) de *Produits de Base, Atelier pour la creation d'une bourse régionale de produits de base*, UNCTAD, Yaoundé, 27-29 October 2009.

[30] Pan African Organization for Sustainable Development, West African Regional Cooperatives Workshop on Cross Border Trade and Market Access – Process Analysis, Accra, 26-28 July 2004. The report noted that a similar initiative was underway in Southern Africa and that it was anticipated that ultimately, the two exchanges would merge into a single Inter-Cooperative Exchange.

[31] *Atelier de validation de l'étude sur la mise en place d'une Bourse Régionale des Produits Vivriers*, http://www.apcam.org/cikela_50_octobre_2010.pdf

[32] Goggin and Longhurst, 2005.

[33] East African Community, EAC Food Security Action Plan (2011 – 2015), Nairobi, Kenya, February 2011, objective 6.

[34] The EAX auction system was not yet in place, so the ministry's auction rules and systems were used.

4.3 National developments

The national exchange discourse has been dominated by ECX. The funding made available by development partners for this initiative dwarves the grants for all the other national initiatives combined. The exchange has become a routine stop for high-level visitors to Addis Ababa, and from the extensive press coverage, they appear to have liked what they saw. The exchange has been held up as an example for other countries, including by senior African policy makers.

ECX was developed from a research project by the International Food Policy Research Institute (IFPRI). This research showed the inefficiencies in Ethiopia's grain sector, and suggested that a commodity exchange could be a valuable tool to help remove these inefficiencies. In 2005, Ethiopia's government gave the research's author the mandate to develop such an exchange, and the country's top-level officials then followed the progress of the project personally. With strong government support (re-assigning, for example, some of the development partner funds available for agricultural development, to this new priority), ECX was established in 2006 and became operational in April 2008, trading spot contracts.

Grains – the original focus of the exchange - were rapidly superseded by coffee. The government essentially moved the business of the existing coffee auction into ECX, making trade on ECX obligatory for virtually all coffee exporters. The exchange developed an intricate warehouse receipt systems, which permitted efficient trading of most coffees (with the exception of specialty grades, as discussed in section 3.3 above). By the end of February 2013, the exchange had traded US$ 8 billion worth of commodities. It had indirectly reached over 2.4 million small farmers. Its SMS service for price information had well over 150,000 subscribers.

In many ways, ECX's performance has been impressive:

- ECX has proved that a modern exchange can operate in Africa, and that it can sink its roots into Africa's traditional agriculture. ECX has demonstrated that it is not an innovation for which somehow, Africans are not ready. While originally, many of the managers were expatriates, the exchange is now mostly managed by locally-recruited talent. Farmers and traders have had no difficulty understanding what the exchange was about, and adapting their behavior to the new, much more disciplined trading system. The improved price information is used enthusiastically.
- ECX has demonstrated that in an African context, an exchange can deliver significant development gains: transaction costs in key commodity chains have fallen, and farmers (except, at least for some time, those who produced premium-quality coffee) saw their prices improve. ECX estimates that their share of the FOB price has doubled, from 30 to 60 per cent.
- ECX has demonstrated that an exchange does not have to wait for a semi-perfect physical market, but that it can help build such a market: warehousing infrastructure and grading systems have much improved, farmers have responded to transparent quality premiums by improving their product quality, and the national market has become better integrated.
- ECX has shown the power of combining an exchange platform with a warehouse receipt system. Earlier, this was mostly a theoretical concept in Africa – South Africa's experience remains poorly known – and having it demonstrated in practice will facilitate the formation of alliances between exchange initiatives and warehouse owners in other countries.
- ECX has shown that with favourable government policy, an exchange initiative can develop fast.
- ECX has put commodity exchanges onto the development partner agenda. Earlier, development partners did support exchange projects, but with sums that were insufficient to undertake any serious effort. Development partners may now be ready to fund larger projects.
- ECX created support of the political class for a market mechanism that is dominated by private sector participants. Thanks to a large extent to ECX's promotional efforts, many African leaders no longer see organized markets as a tool for large traders to dominate their economies, but rather, consider it desirable to have an exchange and emulate the example of ECX.

However, the last two achievements also have their negative side: inspired by the ECX experience, governments may crowd out private initiatives, partly stimulated by readily available development partner funding for government-driven efforts.

Furthermore, there are certain factors that may make it difficult and probably, undesirable to fully replicate the ECX model in other countries. The massive development

partner support from which ECX benefitted[35], perhaps not even the smaller amounts that would be necessary for a private-sector initiative that uses the best-available technology, may not be available for other countries. Other governments may not wish to force participants in key commodity chains to use an exchange: ECX is in effect a single marketing channel for key export crops, as the Government of Ethiopia made it obligatory (with a 20-year prison term for those avoiding their obligations) for all coffee, sesame and pea bean export trades to be conducted through the exchange floor, with only limited exceptions (for cooperative unions and large commercial farmers).

In all, ECX operates in a somewhat uncomfortable balance between the market and government intervention. If the exchange is to remain viable in an environment where its use is no longer obligatory, it has to be permitted to evolve and innovate, particularly by developing its product range, to include commodity futures as well as financial contracts. It can be hoped that exchange management can sufficiently impose itself vis-à-vis a government with strong interventionist tendencies.

Africa's largest national commodity exchange, SAFEX (part of the Johannesburg Stock Exchange) predates ECX by a decade, but despite having much larger trading volumes, it has been eclipsed in popularity by ECX. It offers highly efficient and liquid trading in futures contracts for a range of agricultural commodities, as well as a platform for trading warehouse receipts. SAFEX's agricultural futures contracts were created to fill the gaps left by the abolition of the country's grain market board, and they have well served this function. Initially, farmers, used to the government's safety net, were wary of becoming involved on a financial platform, but they have now largely adopted the various exchange instruments. The government was initially skeptical, and when prices rose strongly for the first time after the exchange's start, there was pressure on the government to intervene in the exchange's price formation process; but it resisted this pressure and permitted the exchange to continue functioning normally.

SAFEX was for a long time not that innovative, but this has changed in recent years. The exchange has introduced a trading platform for grain silo receipts. It has introduced a series of contracts linked to large global exchanges, thus providing South African investors and hedgers access to the global market place. It has introduced a contract linked to Zambian maize prices – the first time that it makes such a foray beyond the country's borders. SAFEX is likely to become exposed to competition for pan-African exchange initiatives, and it appears to be strengthening its position to pre-empt possible threats.

Box 7
ACE's warehouse network

In 2011, ACE issued its first warehouse receipt, from a warehouse managed by a private sector company. At the end of 2012, the total warehousing capacity from which receipts could be issued added up to 82,500 tons. In addition, one of the private warehouse companies operates a network of satellite warehouses. No warehouse receipts could be issued from these warehouses. However, farmers and others can deposit goods in these aggregation centers, and if the grain meets the required standards, the company will swap this grain against quality-checked grains that are stored in the approved warehouses in the cities – for which its issues warehouse receipts in the name of the party that deposited the original grain.

Source: Morua, 2012

In the shadow of ECX, a number of other national exchanges have developed in sub-Saharan Africa. There are more failed commodity exchange initiatives in Africa than those that are still operational, and most of the latter are struggling to survive. Still, there are many more new initiatives.

The main operational commodity exchanges are in Malawi and Nigeria, and while they are currently loss-making, both have ambitious plans. Malawi's main exchange, the Agricultural Commodity Exchange for Africa (ACE), is aiming to create a regional market by linking warehouses in several countries as delivery platforms, and linking the national exchanges that oversee these warehouses in terms of trading and clearing (see Box 7). Nigeria's commodity exchange is not only planning a name change, but is starting a comprehensive restructuring effort that is based on the development of a strong electronic warehouse receipt system. Three West African countries

[35] No official figures are available, but estimates are that costs were above US$ 50 million, with some estimates exceeding US$ 100 million, not counting the costs of the government making available to ECX for free the warehousing and certification infrastructure that had been developed with earlier development partner assistance. Initial development partner funding in 2008 was reportedly US$ 24 million.

(Burkina Faso, Mali and Niger) have organized trading fairs that could be seen as proto-types for exchanges. However, there seem to be no plans for their further development towards providing services other than creating a seasonal meeting ground for buyers and sellers.

There are further national exchange initiatives in all of Africa's sub-regions. In several countries, these initiatives are prominent, and driven by government agencies – this is the case of Ghana, Kenya, Tanzania and Zimbabwe; and one could also include a new exchange initiative in Malawi, promoted by the state-owned tobacco company, in this group. In Morocco and Egypt, there are private sector plans, with much less clarity on how plans will be implemented – indeed, with little indication that these plans are moving forward.

4.4 Common challenges

Both existing and planned exchanges face a number of common challenges. One important challenge is the **role of the Government**. If a government is hostile to the idea of a commodity exchange, it is impossible for the private sector to move ahead with exchange plans. This has been a problem in the past for some national initiatives, but now is much less so. However, it will remain a problem for sub-regional and pan-African exchanges, which depend on government's willingness to allow an exchange to operate in their countries even if the technology framework is elsewhere.

For national initiatives, the more common problem now is too much government interest, to the extent that government entities wish to take the lead in setting up commodity exchanges. The role of the government should be to set out the minimum requirements under which it is willing to license an exchange; then license all applicants that meet these requirements; and then work together with the various promoters in a positive vein to help create the conditions for success (including a full set of regulations). It could be a minority shareholder in an exchange, but should not have a controlling stake.

A second challenge is to obtain the **support of large traders**. They may not uniformly welcome an exchange in an African country: poor market infrastructure discourages competition, while a lack of market transparency may enable large traders to extract large margins. In order to ensure such traders' support, the benefits that the exchange offers have to outweigh the disadvantages. This is best done by explicitly involving them in the process of exchange development, stressing such benefits as new procurement opportunities, the possibility to speed up the transaction cycle, greater possibilities to enter into forward contracts as these can be guaranteed through an exchange clearinghouse, and new arbitrage opportunities (many of the large traders are already active on western exchanges).

A third common challenge is related to **technology costs.** Considering the past two decades of exchange development in Africa, there is no clear trend when it comes to exchange technology. The early exchanges either used little technology (trade could be organized through a blackboard), or depended on home-grown trading software. For example, when SAFEX was created, the exchange promoters contacted several platform vendors, but found that both investment costs and maintenance charges were too high for the local market conditions. So SAFEX developed its own software using local programmers. The companies that were setting up the financial futures market (with which SAFEX started) were strong enough to support this, and the resulting software package was adapted to the needs of the agricultural futures market when it was introduced a few years later. Only a few years ago, SAFEX moved to globally compatible technology. Other, more recent initiatives, including Ethiopia's exchange also rely on homegrown technology (although ECX is now looking for international technology to replace its current system).

The leading commodity exchanges in India – among the fastest growing in the past decades – defined themselves as technology companies. In Africa, exchange initiatives that used little technology have tended to fail – perhaps not because of their level of technology, but because this was indicative of an overall lack of funds to properly develop an exchange. For an exchange to be successful, it needs to be able to offer prospective market participants significant new opportunities, rather than marginal improvements, and such game-changing innovations are easier when they are backed by strong technology.

The costs of globally-compatible commodity exchange systems (including the central trading engine of an exchange, the clearing software, electronic warehouse receipt software and the various softwares that brokers use) have fallen rapidly in recent years. It may be difficult to convince potential international market participants to develop the interfaces necessary to link into a homegrown exchange software platform, whereas they may already have the interface for global systems. For these reasons, it is worthwhile for national exchange initiatives to consider how best to move to international standards by making a

choice between two steps – starting out with their own proprietary software or moving at once to global standards by buying or leasing an international platform (on a pay-as-you go or revenue sharing arrangement).

All commodity exchanges struggle with their **delivery mechanisms,** and this has been true also in Africa. It is generally difficult for African exchanges to find reliable delivery partners. Even if there are well-managed warehouses in the country, they may well be used for proprietary trading and storage by their owners, who may not be keen to start offering a warehousing service to third parties. SAFEX in South Africa was a fortunate exception to this rule. Most African exchanges thus have to become deeply involved in developing a viable warehouse receipt system. Finding the right way to do so has proven difficult. Should the initial focus be on developing a warehouse receipt law? Not necessarily so – warehouse receipt systems have worked well under contractual arrangements – but nevertheless, this was what several exchanges did, partly encouraged by some development partners. The proper approach is probably for an exchange to develop its own warehouse receipt system (in electronic format – see Box 8), and regulate it under contractual arrangements. Simultaneously, the government can interact with the exchange to develop appropriate regulation that will enable the warehouse receipt system to be opened up to users other than the exchange's clients.

Finally, a common problem – true also for exchanges in other parts of the world – is **how to achieve growth momentum**. An exchange is interesting for potential users if there is liquidity, permitting users to trade when they

Box 8
Paper or electronic warehouse receipts?

Warehouse receipts are traditionally in paper form, and they need to have security features similar to banknotes. They need to be printed sequentially numbered, on paper with watermarks and other (expensive) protections against counterfeiting; and the distribution of the receipts has to be controlled, so that only properly "certified" warehouses receive them – and they then have to protect them from theft. Then, once a receipt has been issued to a depositor, further measures are needed to protect against fraud. For example, to avoid double pledging of the receipts by the depositor (to secure loans), the receipts should be registered into a central database. Such a database, when accessible through the internet, makes it possible, for example, for a bank or trader to verify whether a receipt has already been pledged or not, or to verify whether a warehouse has issued receipts beyond its capacity. To enable transactions, the physical receipts have to be physically transferred between buyer and seller, between owner and bank, from any party to the warehouse – and each transfer carries risks, including the risks that the receipts arrive too late and thus do not permit the owner of the receipt to take delivery of his goods on the day he expected. Furthermore, for regulatory reasons receipts must be stored safely for many years, even when long-expired.

All this is costly, inefficient and unnecessary. As long as there are no legal or regulatory obstructions, electronic warehouse receipts can replace physical receipts, avoiding all of the disadvantages of the latter. Several highly secure electronic warehouse receipt systems have been developed over the past years, and have built up successful track records. These systems are available at relatively little cost, well within the means of even a small commodity exchange

Apart from avoiding all the disadvantages of physical receipts described above, and strongly reducing the variable costs of using warehouse receipts, electronic receipts also enable new uses of warehouse receipts. For example, a secondary market for warehouse receipts can develop, permitting traders to optimize the locations of their stocks. A secondary market for loans guaranteed by warehouse receipts can develop, reducing the costs of borrowing. The exchange settlement process can become much more efficient. For example, it would become much easier to re-tender a commodity if the recipient of the delivery order is unhappy with the details of the delivery (*e.g.*, location). This, in turn, would make futures markets look much more attractive for people active in the physical market.

Electronic receipts are also easier to monitor, both for statistical purposes and for determining a chain of events. They can be "tagged" to indicate desired characteristics of the underlying commodities, *e.g.* that they are produced in a sustainable manner. Also, they are easy to store for long periods – and remain easy to retrieve.

want without unduly influencing market prices. But a new contract starts with no liquidity, which is not attractive to potential users. Exchanges generally overcome this chicken-and-egg problem through a raft of measures:

- Ensuring support for the contract from leading commercial interests, which promise to input orders even if there is little or no liquidity on the exchange. In practice, such promises often have little value.

- Get an anchor buyer or seller, such as a government agency, which commits to execute a significant share of its business through the exchange.

- Ensure support from professional market makers, that is to say, companies that continuously quote bid and ask prices on the exchange, managing the resultant risks through a computer programme.

- Give financial incentives to early participants in the contract (*e.g.*, a percentage of the exchange's trading fee income over a period of 1-2 years).

Most exchanges in Africa have only done the second, and this only recently and mostly limited to one anchor buyer, the World Food Programme (see Box 9). It should be possible to do better:

- Start off with contracts for which there is a large interest (*e.g.*, currencies), even if this is not the ultimate driver of those who took the initiative for the exchange.

- Make the exchange broad-based from the beginning, *i.e.*, in addition to commodity market participants, also have banks and large investment institutions among shareholders, have brokers who have a clientele interested in the securities market among their clients, etc.

- Get commitments from other large buyers, and perhaps also sellers (*e.g.*, fertilizer companies, wholesale distributors of oil products) to channel part of their trade through the exchange.

- Involve professional market makers. The necessary skills and software programmes may not be available in the country, but could be obtained through cooperation with international market makers.

- Be willing to give up part of the future profits of the exchange in order to rapidly build up liquidity. Normally, the exchange will sign contracts with a number of market makers which specify the latter's obligation in terms of providing a tight bid-ask offer. Depending on how well they met their obligations, a certain percentage of the exchange's trading fees for the month will be paid to the broker – for a period of two or three years.

Box 9

Structured demand: how large buyers can help commodity exchanges can take off

Colombia provides a good example of how large buyers can help commodity exchanges to grow. Government rules mandate that all public entities (from municipalities to the army to schools and prisons) have to buy bulk commodities, above a certain value, through the country's commodity exchange. This eliminates procurement-related corruption and reduces the costs for the buyers – and probably, also leads to better prices for producers. In Africa, no single government as yet mandates similar use of a commodity exchange in their country. However, the largest single buyer of food commodities in the continent, the World Food Programme (WFP), has started procuring through some of Africa's commodity exchanges.

In September 2008, WFP started a programme to increase its procurement directly from smallholders, buying from farmers' organizations, structured trading systems (commodity exchanges and warehouse receipt systems), small and medium traders and local, well-established food processors if these are procured from farmers' organizations. Following this, it started buying through exchanges in Ethiopia, Malawi and Zambia, and through warehouse receipts (which are regulated by the Uganda Commodity Exchange) in Uganda; it also buys at Mali's cereals fair.

Even so, WFP does not restrict its role to that of a buyer only (WFP, 2011). It also:

- supports the development of networks of warehouses to be linked to exchanges, investing in building or rehabilitating warehouses (Uganda) as well as village level depots/collection points (Tanzania, Uganda, Zambia), and equipping such warehouses or collection points with cleaning and drying equipment on a cost-sharing basis with the private sector.
- Supports capacity building for targeted farmers' organizations to meet quality requirements necessary to access certified warehouses and helping to link these organizations to the exchanges (in all four countries).
- Engages in policy dialogue with governments and regional bodies, advocating for the reduction of government intervention in staple food markets, as well as harmonization of regional quality standards and grading systems.

WFP buys on the exchange through a broker or, in the case of Malawi, with the exchange itself as its agent, using a reverse auction mechanism. It expresses a desire to buy a specified amount of a commodity of a specified grade at a specified delivery location, but does not specify price. Suppliers, including farmers' organizations, compete on price in an open online trading session. As long as the best offered price is below the ceiling price previously authorized by WFP's headquarters, the transaction can be concluded.

WFP works with the exchanges to strengthen the ability of smallholders to sell through the exchange. In Zambia, for example, it buys through a number of private sector-run district warehouses which are connected to village-level community sheds, where farmers can aggregate their supply. The district warehouses are certified by ZAMACE, and the community sheds are supported in a number of ways: ZAMACE conducts training sessions on grain grading, handling and storage; the sheds are inspected for technical defects; ZAMACE leases maize shellers, scales and sieves (financed by WFP) to the shed managers. In other countries such as Ethiopia, WFP also contributes to the rehabilitation and expansion of warehouses.

From its start in September 2008 to June 2012, 17 per cent of WFP's P4P purchases were through commodity exchanges in Ethiopia, Malawi and Zambia; another 2 per cent was through Uganda's warehouse receipt system (World Food Programme, Summary P4P Procurement Report: Sept 2008 – June 2012). In some instances, this was for regional trade: for example, WFP's Mozambique office procured grain through Malawi's ACE. There were virtually no defaults on deliveries through the exchanges.

Where an exchange is active, governments should consider building on the WFP experience and follow the Colombian example, requesting public entities to make bulk purchases of staple commodities through their country's exchange. Other large food buyers should consider doing the same – as one NGO, Land O'Lakes, has already done in Zambia.

5. The regulatory response – how to develop an appropriate legal and regulatory environment

Exchange regulators have a double responsibility. The first one is to ensure the safety and soundness of the commodity exchange system. This encompasses four elements:

- Market integrity regulation: to ensure that the prices on the exchange properly reflect the supply and demand conditions of the underlying physical (or asset) markets.
- Prudential regulation: to ensure that commodity exchanges and the other parties that form part of the exchange system (brokers, clearing banks, etc.) are financially sound and able to meet their market obligations. This includes capital rules, internal controls, qualifications of key staff, inspections, etc. The regulatory process should also provide the regulator with information necessary to identify potential problems early on.
- Business conduct regulations: to protect consumers, especially retail clients. This includes risk disclosures, staff training requirements, etc.
- Market stability protection: ensuring that commodity exchanges and related parties do not cause a systemic risk for the rest of the economy. The exchange regulator may share this responsibility with the Central Bank.

Secondly, the regulator has to foster the growth and development of commodity exchanges, including by promoting innovation, permitting new markets to develop, and representing the interests of the exchanges and their stakeholders towards other parts of the government. This requires the regulator to be responsive, and its regulation has to be appropriate (the regulator needs to offer value for money).

This chapter is mostly on the first responsibility, not because it is more important, but because it requires much more detailed discussion.

5.1 The principles of regulating spot and futures commodity exchanges

In most African countries, there is no legal document or law which rules the creation and operation of commodity exchanges or futures markets, and neither is there such a legal document or law ruling the trade in derivative instruments. Instead, there are a number of fragmented rules and regulations which affect, or could affect, a commodity exchange's structure, ownership and instruments. Many issues may remain unregulated.

In the short run, this does not need to be a problem, as long as there is enough political goodwill to permit an exchange to operate. As experiences in 19th century USA, and more recently Hungary and South Africa have shown, even in the absence of a proper legal and regulatory framework, a commodity exchange can be structured in such a way that legal roadblocks are avoided, and ambiguities are taken care of within the self-regulatory framework of the commodity exchange. However, this situation is not optimal and can, in the medium-to long-term, hamper the growth of an exchange and its possibilities to expand into new products. This is particularly so if there are powerful interests in a commodity sector that do not welcome the transparency that an exchange brings (see Box 10).

The character of an exchange as a frontline regulator, however, implies that it is not necessary to elaborate a complete regulatory regime before exchange development can start. Rather, it would be advisable to manage processes of exchange development and regulatory development simultaneously. This can be done by the government first setting the general conditions that an exchange would have to meet; then calling for expressions of interest from parties that believe they meet these conditions and are keen to set up an exchange; and then working with the approved initiatives to develop the regulatory system before exchanges actually start trading.

The conditions to be met by successful applicants to a request for expression of interest would in particular include the following:

- The proposal needs to contain a sound argument on how diverse interests – growers, processors, exporters, importers, speculators, brokers, banks – will be attracted to the exchange.
- The exchange should envisage the creation of an on-line system of trading.
- The proposal needs to provide for efficient clearing, settlement and guarantee systems.
- The promoters should provide an action plan under which delivery of commodities on the exchange will be through a, preferably electronic, warehouse receipt system;
- The proposal has to set out in a convincing manner how a system of well-organised and capitalised brokerage houses will be created.

Box 10
The limits of self-regulatory powers

A commodity exchange changes the rules of the game. Companies that once had privileged access to information find that their counterparties have become more empowered. Many of those with strong vested interests will prefer the certitude of the profits that come with one-sided market power to the uncertain earnings from the new opportunities that an exchange may offer them. The early experience of the US exchanges show such opposition from vested interests, and illustrates how government can help overcome this (examples based on Stephen Craig Pirrong, The Efficient Scope of Private Transactions-Cost-Reducing Institutions: The Successes and Failures of Commodity Exchanges, The Journal of Legal Studies, Vol. 24, No. 1, January 1995).

In its early years, particularly in the 1860s and 1870s, the Chicago Board of Trade was facing numerous difficulties with the grain elevators in the cities – theft, fraud, manipulation of the measurement system, manipulation of market information and the like were rife. Many elevator companies did not only store for third parties but also engaged in grain trade, and swapped depositors' grain for their own lower-graded purchases. They fraudulently underreported (on arrival at the silo) or overreported (at delivery from the silo) qualities and weights. They sometimes deliberately let depositors' grain rot to manipulate grain prices. The Board of Trade made many attempts to tackle these problems, but with little or no success: the elevators refused proposals to organize the systems for inspection and weighing, to report on the amount and quality of grain in store, to register warehouse receipts in order to reduce fraud. The Board of Trade reacted by bringing its cause to the legislative forum.

From 1865 to 1872, it lobbied actively for a number of new laws, with success despite active opposition from the elevators. This resulted in new rules for transport and storage of grain, exposing the elevators to third-party inspection of silos as well as reporting obligations.

In Western markets, recourse to the state to impose discipline on commodity market participants has been quite rare. In most cases, there was a joint interest in improving grading, contract discipline etc., and when there was not, exchange participants and the exchange itself were able to force better standards of behavior on undisciplined traders, brokers, warehousemen and the like without having to rely on new government regulations. The Chicago case was different because a large number of very diverse market participants – around 800 at the time – were confronted by a small number of elevators that extracted great rents from the status quo. It was difficult for so many actors to organize joint action against the elevators, and easy for the elevators to subvert individual opponents. But the situation in the erstwhile Chicago grain market may well resemble that of many African commodity markets now – a small number of powerful players who have no interest in more transparent, more equitable markets interact with a large number of much smaller market participants. Lawmakers, therefore, may have to play a larger role in creating the conditions for successful exchange trading than they did in the West. The challenge, however, will be for lawmakers to do only what is strictly necessary, not more.

- The proposal has to detail the planned arrangements for real-time price and trade information dissemination.

- The promoters need to plan for transparency in operations and decision-making.

- The proposed exchange has to have reliable, effective and impartial management, and preferably a demutualised form of organization.

- The proposal needs strong financial backing, preferably including institutional investors. However, the equity share of the lead promoter should not be restricted; if the government desires to have a restricted ownership pattern (e.g, the largest shareholder should not have a share of more than 26 percent), such restrictions should become applicable only after the exchange has been developed to a sound level, say after 5-8 years.

Successful applicants would normally be given a provisional license, which after a set period would become permanent, as long as the promoters delivered on the promises in their proposal.

Commodity exchanges of any kind need regulation. In the case of spot markets, this can mostly be regulation by the exchange itself, while in the case of futures markets government regulators play a larger role. The broad questions to ask when establishing a regulatory system is to know the purpose of regulation, why regulation is needed, when and where it is needed and what are reasonable (and attainable) goals of regulation.

Market integrity and efficiency, financial safety and integrity, and customer protection are the decisive elements for the success of any regulatory framework. In this respect there are large differences between spot markets and futures markets:

- Market integrity on a spot market entails fair, equal access of all market participants to the market – which for a contract with delivery ex-warehouse primarily means access to these warehouses. Warehouse operators should be prevented from abusing their control over the delivery process to delay deliveries or refuse to accept goods. On the other hand, market integrity on a futures market relates to fair access of clients to the exchange and the prevention of unfair trading behavior (including manipulation attempts).

Market integrity is the extent to which a market operates in a manner that is, and is perceived to be, fair and orderly and where effective rules are in place and enforced by regulators so that confidence and participation in the market is fostered.

Market efficiency refers to the ability of market participants to transact business easily and at a price that reflects all available market information. Factors considered when determining if a market is efficient include liquidity, price discovery and transparency.

Definitions according to IOSCO

- Efficiency on a futures market is served by just having one standard contract traded – a broad range of grades of product could be delivered against the contract, perhaps with premiums and discounts as compared to the standard grade, but this only become relevant to the delivery period. On the other hand, a spot contract is a delivery contract, and buyers need to know exactly what they are buying – thus, the exchange may trade a wide range of varieties of one commodity, and the integrity of the exchange's grading system is critical.

- Contracts on the spot market have short lifetimes (a few days at most), and the financial risks are thus much less than on futures markets where contracts can have a lifetime of months or even years. Therefore, on a spot market it may be reasonable to ask a relatively small, fixed guarantee – say, 5-10 per cent of the value of the commodities traded – whereas on the futures market a much more intricate and demanding system of guarantee payments is required. The latter is normally handled by a specialized clearing department of the exchange, or a separate clearing corporation (which may be owned by the exchange, or is an independent company servicing several exchanges).

- Spot markets are meant for delivery. They do permit participants to take market positions during a short period, but knowing that delivery may be difficult to avoid, only those with active involvement in commodity trade are likely to be involved. These do not require the same level of protection as small customers on commodity futures markets, who may be trading without much understanding of the underlying physical market conditions. There is also much

less leverage on spot markets, and there are few opportunities for intermediaries to develop products that are too difficult for clients to really understand.

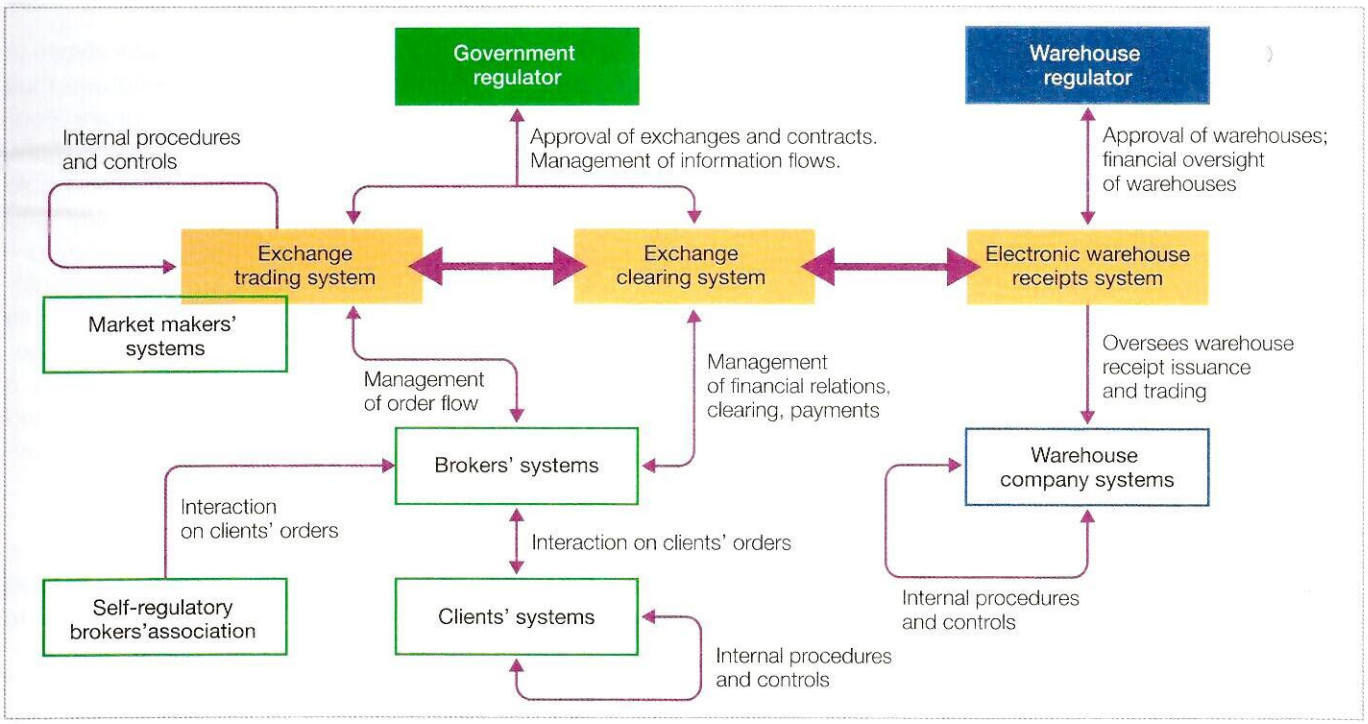
Futures market are much more complex than spot markets, and for this reason, as well as a greater concern about protecting customers, regulation is much more complex. The principles of the regulation of commodity futures market are no different from those expressed by IOSCO on regulation of secondary securities market.[35] Regulators have to ensure the integrity of trading by:

- requiring that the establishment of exchanges and trading systems (this refers to organized market places that may fall short of a full exchange) is subject to authorization and oversight;
- maintaining fair and equitable rules;
- promoting transparency of trading;
- detecting and deterring market manipulation and other unfair trading practices;
- seeking to ensure the proper management of large exposures, default risk and market disruption; and
- reducing systemic risks.

These principles lead to a series of regulations. For example:

- If the establishment of exchanges is to be subject to authorization, this implies that there is a law under which the exchange can be authorized, with clear criteria for its approval. And oversight requires a regulatory authority that is able to exercise it.
- Fair and equitable rules need to be written (with the regulator verifying that indeed, the exchange rules meet the required standards), but then need to be enforced, which implies a whole set of customer protection rules as well as complaint procedures.
- Transparency of trading is expressed, by IOSCO, primarily in terms of "timely access to relevant information", and the main regulatory concern is that some market participants may be privileged by the

Figure 1
Major system components of an agricultural or metals futures market



[35] IOSCO Objectives and Principles of Securities Regulation 20 July 2010, available at http://www.iosco.org/library/pubdocs/pdf/IOSCOPD329.pdf.

exchange over others. In a time of extremely fast electronic trading, receiving information a few milliseconds earlier can make a large difference On the other hand, regulators should be aware of the fact that market participants will invest in receiving better information faster, and should not unduly restrict such investments as this would effectively hurt the liquidity of the exchange.

- Detecting and deterring market manipulation gives rise to a large number of regulatory actions. "Deterring" in commodity futures markets is to a large extent done by properly formulating contract specifications, and in particular, delivery mechanisms; but it also means market participants must know that the exchange as well as the regulator has many tools to punish manipulation attempts. It can also imply regulations on the allowed size of positions. Detecting manipulation attempts is a matter of analyzing data – giving rise to data reporting requirement for the exchange, and investigative powers to gather further data in case of suspected manipulation.

- Default risk and market disruption can occur when the financial securities provided by the exchange are not enough to safeguard participants' positions. This risk, together with the risk of systemic failures when a futures contract collapses, can give rise to regulations on margining level.

As indicated, these are just examples. All these regulations are expressed in laws, statutes, rules, procedures etc., and enforced by different regulatory agencies.

5.2 Regulating futures markets: a division of responsibilities

In the case of a futures market, an optimal regulatory structure consists of separate regulatory systems covering different parts of the exchange system – the exchange as a self-regulatory body (the frontline regulator), its government oversight agency, the regulator of the warehouse receipt system (in the case of agricultural and metal commodities[37]), and the self-regulatory body of brokers.

The exchange's self-regulatory system is critical; operating within the legal and regulatory framework set by the government and supervised by a government regulator. However, it works best if it functions alongside self-regulation by the brokers, and independent regulation of the warehouse receipt system – exchanges can encompass both roles under their own regulatory powers, but this is not ideal. Figure 1 below gives an overview of the regulatory processes involved in exchange trade; each component should be supervised by the most competent regulator.

Multiple levels of regulation help balance the different and often conflicting interests in exchange operations:

- Client interest: Clients want an exchange that is safe to use, and that generates prices that really represent underlying market conditions. Yet, while they would like the exchange to be well-regulated, they may dislike regulatory intervention in their own operations, including those that would force them to become more transparent.

- Government interest: The government has a broad interest in avoiding that exchange prices are manipulated by a small group, and in ensuring that the exchange does not collapse; and sometimes, for reasons that could be economically justified or not, it may have a more narrow interest in ensuring that the exchange does not show prices that are "too high" or "too low".

- Exchange interest: Making rules clear to all market participants and applying them uniformly improves brokers' integrity and customer protection, thus giving incentives to end-users to trade on these markets. However, exchange owners and managers want enough regulation to create client trust and empower them to act against dangers to market integrity, but not so much that operations are disrupted.

[37] Energy markets are more complex, involving delivery through electricity cables, gas and oil pipelines etc., but the principle remains the same – there should be a regulator for these different delivery mechanisms.

5.3 Laws and regulations specifically pertaining to commodity exchanges, and the securities law

One out of three scenarios is likely to apply in a country:

- There are no specific laws, and commodity exchanges are treated as any other company under corporate law.

- There are laws and regulations for securities exchanges which are considered to apply also to commodity exchanges. One reason could be that a futures contract, including for commodities, may be defined as a security, and therefore by default falls under the purview of the country's securities regulator.

- There is a law specific to commodity exchanges (*e.g.*, a Commodity Exchange Act).

An exchange is a self-regulatory organization, and as long as it involves only a limited number of expert users, can operate quite well even in the absence of a broader regulatory framework – as exchanges in Hungary and South Africa have shown. The main risks are twofold. Firstly, in the absence of specific laws, there may be ambiguity about the laws and regulations that will apply – in particularly, whether the transactions on the exchange will be upheld in case of conflict, or may be judged unenforceable. Secondly, a company may present itself to the public as a commodity exchange, and collect deposits for trading. In this scenario, customers are not protected against deception and fraud.

It may be noted that at least two companies that present themselves as "commodity exchanges" (both part of the same Middle East business group) have been set up in African countries without any specific legal regime for such exchanges (in Madagascar and Swaziland), both with government permission; and in the second case, with the explicit authority to begin operations even before the regulator, which is being set up, is ready. While there may be no indication that these are used as vehicles to fraudulently attract client funds, those countries' regulators may wish to consider whether this is a desirable situation (IOSCO principles suggest it is not – see Box 11). In many countries, it is illegal to use "exchange" or "commodity exchange" in the name of a company unless if this company is specifically licensed for that business.

Applying the securities laws and regulations to a commodity exchange, its brokers and clients has a number of obvious advantages:

- The laws and regulations have stood the test of time. They are likely to be reasonably well-understood, including by the courts, and there is a body of jurisprudence to guide with interpretation.

- The operational procedures to ensure compliance are well-embedded in the internal processes of various groups involved in the securities market, including some (such as brokers) who may be interested in becoming involved in the commodity exchange.

- There is a regulator with experience in implementing the laws and regulations, with a budget and experienced staff.

On the other hand, laws and regulations made for a securities exchange are not optimal for a commodity exchange – there are significant differences between the two markets, and they need to be regulated differently. Securities regulators may not have the right knowledge, without being fully aware that they are applying the wrong tools to regulate a market that only on its surface resembles a securities exchange. For example, in a commodity exchange, the approval phase of a contract is very important; if the wrong contract specifications are approved, the contract could rapidly fall prey to manipulation. The margining system is different. Insider trading is treated differently. Furthermore, a securities regulator may have little interest in advancing the interests of a new commodity exchange – after all, it is already regulating a prestigious stock market, and why risk to be burdened with the oversight of a market which is prone to political and public scrutiny? Therefore, if a commodity exchange is to be regulated under the regulatory framework set for the securities exchange, one should a) add a specific set of rules specific to commodity markets (*e.g.*, on how to manage the delivery process, or identify and handle cases of suspected market manipulation); and b) create a strong, sufficiently independent body to oversee the commodity exchange, either as part of or alongside the securities regulator.

Increasingly, African governments are looking at the possibilities for developing a new, separate law for commodity exchanges. The obvious advantage is that it can be tailored to the specifics of this market, but there are also important disadvantages and risks that will have to be mitigated to the extent possible:

Box 11 IOSCO principles for a self-regulatory organization (SRO)

"The regulator should require an SRO to meet appropriate standards before allowing the organization to exercise its authority. Oversight of the SRO should be ongoing.

Moreover, once the SRO is operating, the regulator should assure itself that the exercise of this power is in the public interest, and results in fair and consistent enforcement of applicable securities laws, regulations and appropriate SRO rules.

As a condition to authorization, the legislation or the regulator should require an SRO to:

- have the capacity to carry out the purposes of governing laws, regulations and SRO rules, and to enforce compliance by its members and associated persons with those laws, regulations, and rules;
- treat all members of the SRO and applicants for membership in a fair and consistent manner;
- develop rules that are designed to set standards of behavior for its members and to promote investor' protection;
- submit to the regulator its rules for review and / or approval as the regulator deems appropriate, and ensure that the rules of the SRO are consistent with the public policy directives established by the regulator;
- cooperate with the regulator and other SROs to investigate and enforce applicable laws and regulations;
- enforce its own rules and impose appropriate sanctions for non-compliance;
- assure a fair representation of members in selection of its directors and administration of its affairs;
- avoid rules that may create uncompetitive situations; and
- avoid using the oversight role to allow any market participant unfairly to gain advantage in the market.

- The pro-active mindset that comes with the wish to develop such new legislation may come together with a desire to have hands-on control when it comes to setting up and managing the exchange. Thus, the legislation may become overly interventionist. For example, in terms of approving an exchange, the best system is that the government sets the criteria that an exchange needs to meet, and then invites interested parties to apply for a provisional exchange license. All those who meet the criteria should get such a license; and all those who manage to make an exchange operational within the timeframe set in the criteria should get a permanent license. However, some African governments who have been working on a commodity exchange law seem to believe that they should pick a winner: only one company will get a license. All the healthy benefits of competition are thus lost, and the country will lose years if it turns out that the winner that was picked is unable to perform. There are other potential fallouts of an interventionist mindset; for example, the idea that the regulator, not the exchange should be the innovator when it comes to new contracts. It would be better for the regulator to have a clear process for approving contracts, rather than limit the range of contracts that an exchange is permitted to offer. An exchange should be allowed to innovate – if it believes there is a market for weather futures, or for an index related to the average number of hours that ships wait before being loaded at a port, then let it experiment.

- Lack of expertise and misconceptions may lead to mistakes and oversights in regulation.

- A focus on the public benefits of an exchange may take attention away from what an exchange needs to do in order to grow to a size where it can start benefitting the public. For example, the government may want to have largely public ownership of the exchange, which is unlikely to create a proper environment for growth. It may want an exchange to be not-for-profit; it may want to micro-manage the contracts that an exchange can introduce; or may want to restrict the services that an exchange is permitted to provide, making it dependent on third parties (*e.g.*, depository organizations, clearing corporations) which may not be interested or able to provide the required level of support.

- Prospective brokers and clearing members of the commodity exchange may well be active already on the securities exchange. While one could insist that such companies create subsidiaries for the specific purpose of trading commodities, one should still avoid that because the regulatory regimes for the two markets are so different that it may lead to confusion. This would greatly help in the approval process of the brokers and others permitted to trade on the market, and brokers' certification. Common standards also make regulatory compliance and audits cheaper for such brokers.

- Protecting customers against abuses and fraud by their broker is critical for the reputation of the exchange. It requires experience and means to properly supervise brokers. The securities regulator presumably has the experience, and the tools to intervene. It can annul a broker's license, fine brokers, halt an exchange's transactions and appoint temporary administrators, and can refer cases to the criminal courts. Such practices can simply be expanded to include commodity futures market when the time for this is appropriate. Otherwise, it could take a commodity regulator a long time to build up similar enforcement capacity. To avoid the resulting problems, even if there is a separate commodity exchange law, regulatory cooperation with respect to the enforcement of the law on broker-client relationships would be most useful.

5.4 Regulating the different market users

Regulators (whether they represent the exchange or the government agency) have to keep in mind the particularities of the different groups that may be using an exchange.

- *Hedgers:* Those who try to lay off the price risk that they are taking in their physical market operations (*e.g.*, producing, processing, trading, and others). In theory, they will lay off each risk as it arises. In practice, they are likely to try to improve their results by short-term speculative decisions. For example, they will anticipate, or wait a bit, in entering into a futures or options position, so as to be able to realize a better price. When using, say, futures to manage the risk of a sale in three months time, they will not maintain the futures position continuously, but rather, will trade in and out of the position within certain days in order to profit of the "wave" behaviour of futures prices. In any of these cases, hedgers do best in liquid markets, in which they can readily move sufficiently large volumes without much affecting prices.

  As long as they behave as hedgers, these market participants are by and large of little worry to regulators. However, large hedgers may start behaving as manipulators. Thus, regulators have to ascertain that hedgers do not abuse the privileges that they have (*i.e.*, their exemption on position limits) and their potential control over deliverable supplies to manipulate markets.

- *Speculators of the traditional kind*: Those who analyze information (either fundamental information, on the supply and demand situation of the underlying physical market; or technical information, that is the information contained in the actual orders and trades in the futures market) to identify when traded prices are different from equilibrium prices; and then, trade in order to benefit from these discrepancies. By their trades, they help prices move to their equilibrium (*e.g.*, if they think prices are too low, they will buy, which raises prices). Also, as they tend to be active continuously (new information arrives continuously), they provide much of the liquidity that hedgers need. Furthermore, they are the natural enemies of manipulators, who try to move prices away from their equilibrium.

However, there are three issues with these speculators that are of regulatory concern. Firstly, do they understand the risks that they take? Regulators generally put the burden of ensuring that this is the case on brokers. Secondly, markets move fast, and speculators may have difficulty processing new information rapidly enough. Thus, typically, prices overshoot, and then correct. This leads to higher volatility, and when the overshooting is strong, can cause unwarranted margining burdens on hedgers. The typical tools that regulators use to mitigate this negative impact are circuit breakers, which stop futures trading when prices on a day have moved more than a certain percentage. Thirdly, in certain cases the government may wish to move prices away from their equilibrium; for example, to stop its currency from falling, or to keep grain prices from increasing. As the Bank of England discovered in 1992 when it tried to protect the pound from falling, it is very difficult to defeat speculators when the latter have market forces on their side (this left George Soros a billion dollars richer). So, if it is important for governments that an asset's prices move in a certain way, even if not justified by market fundamentals, it should not permit futures trade in such an asset.

- *Speculation of the portfolio kind*: There are also positions (generally, long) taken by investors who are involved in commodity markets because doing so improves the risk-return ratio of their overall investment portfolio. A significant portion of these positions are related to the hedging of over-the-counter index funds: investors buy notes and bonds in these funds, which have a return that is directly related to the underlying prices of a portfolio of commodities. Energy has the largest weight in these portfolios, followed by metals. The futures market trading that corresponds to portfolio investments reflects overall economic conditions, not the particular supply and demand conditions of the underlying markets. For example, when new research shows that pension funds should invest five percent of their assets in commodity markets, this will lead to new demand for commodities which will drive up prices. When a large investment fund has a rule that five percent of its assets should be in commodities, and the prices of its other assets (*e.g.*, real estate) fall, then in relative terms the value of the commodity assets has increased, and it has to sell commodities to return to a five percent asset weight.

  The possible effect of index funds on commodity prices is of serious concern to regulators in developed markets. While it is debatable whether there is a real reason for this concern[38], it is not of much relevance to African regulators. As noted, index funds are most active in energy and metals, both asset classes with essentially global prices. If energy and metals contracts are traded on African exchanges, they are most likely to be either gateway contracts (*i.e.*, contracts that have been specifically designed to provide local access to international contracts such as the NYMEX crude oil contract traded on Safex), or will be linked to the international contract through arbitrage. Local index funds will not have much impact on prices. Local commodity contracts will not be of much significance to index funds, and their role can be controlled through the same position limits through which other speculators are controlled.

- *High-speed algorithmic traders*: They trade at high speed so as to benefit from price discrepancies. Overall, they improve market liquidity and thus make use of the markets easier for hedgers – although this liquidity can rapidly dry up in times of strong price movements. The regulatory concern is that one or more of the algorithms might be faulty, which could lead to over-trading. The regulatory response should be at the exchange level: ensuring that all algorithmic trading engines that are used on the exchange are tested and approved; linking these trading engines to specific Internet Protocol (IP) numbers; and ensuring that trade from these IP numbers is closed down if the number of orders per second becomes too large.

- *Arbitrageurs*: These trade on two or more markets simultaneously so as to benefit from price discrepancies between these markets. Take for example that a gold futures contract is traded locally, in local currency. Arbitrageurs will simultaneously trade in the local gold contract, the international gold contract and the exchange rate if there is a price discrepancy. Arbitrageurs contribute to exchange liquidity and help prices move to proper levels, and their activity pose no particular regulatory concerns. In effect, regulators should promote this group by permitting margin offsets between the different futures positions.

- *Manipulators*: These are traders who try to move the market away from equilibrium levels. The most common form of manipulation is based on obtaining a dominant position in both the physical product and the futures contracts of a commodity ("corner"), and then using that market power to force prices to higher levels around contract expiration ("squeeze"). Such manipulations were very frequent in the early years of futures exchanges in the West (for example, 121 such manipulations in grains and meats have been documented in the USA between 1868 and 1921). African regulators should be prepared to prevent manipulation attempts, which require close scrutiny of the exchange's delivery mechanism. This is further discussed in the delivery section below.

[38] A recent review found that index funds do not have a significant impact on commodity prices. "Our overall conclusion is thus consistent with most of the previous literature: there seems to be little evidence that index-fund investing is exerting a measurable effect on commodity futures prices. [...] even if one could demonstrate an effect of index-fund buying on commodity futures prices, it would be a separate challenge to explain how this could also end up changing the equilibrium spot price. We conclude that it is difficult to find much empirical foundation for a view that continues to have a significant impact on policy decisions." (James D. Hamilton and Jing C. Wu, Effect of index fund investing on commodity futures prices, 8 April 2013, http://dss.ucsd.edu/~jhamilto/commodity_index.pdf)

5.5 Customer protection: defending consumers against unscrupulous brokers

Customer protection has two main components: protecting consumers from unsuitable products (*e.g.*, unduly complex, highly leveraged instruments), and protecting them from abusive brokerage practices. The former is mainly a problem for over-the-counter markets. The second, however, is a common problem for (but not necessarily on, as will be discussed further down) commodity exchanges, and has been so for a long time.

Exchanges and regulators have a common interest in protecting exchange users against unscrupulous, fraudulent "middlemen". These middlemen, brokers, are therefore heavily regulated. They have to be approved both by the exchange and the regulator, and often also by their self-regulatory organization. Their staff needs to meet certain qualifications – all those who trade generally have to pass broker examinations. Their books are regularly audited. Their patterns of trade on the exchange is analyzed, to identify undesired practices such as front-running (in which a broker gets a client order, for example to sell, but then first sells his own contracts before those of the client; with the result that the client gets worst prices than he should have received, while the broker closes out his position with a profit as the sale of the client's contracts causes prices to fall). The forms that they are allowed to use are proscribed. These are just a few of the instruments that exchanges and regulators use to protect customers.

In emerging markets, the larger problem is often with middlemen who pretend to trade on a securities, currency or commodities exchange, but in reality, do not. Exchanges only protect investors (through their Investor Protection Fund) if the investors' trades are in effect placed on the exchange; but for off-exchange trade, the investor has no cover.

Such middlemen are called bucket shops, after their practice in the USA over a century ago of throwing trading tickets (indicating the trades placed by their clients) into a bucket and at the end of the day, pulling some out to decide to whom to award winnings. They tend to use aggressive sales tactics, and often engage in affinity fraud (where the fraudsters prey upon members of groups that are poorly assimilated into modern financial markets, such as certain religious or ethnic communities, language minorities, the elderly or professional groups; the fraudsters will profile themselves as members of the group). Internet currency trading is a more recent popular bucket shop practice. It is a business that hurts many small investors, and it is also hurting the business of legitimate brokers and exchanges. Whereas a legitimate broker just passes trades through to the exchange – and indirectly benefits if his customer gains – a bucket shop operator is the counterpart of his client: every loss of the client is a gain for the bucket shop.

Bucket shops may try to attract clients by offering conditions that are too good to be true. For example, they can offer to buy or sell futures contracts at a price better than that available on an exchange, or to give part of an investment back if the investor loses. In reality, while trades are settled on the basis of legitimate futures prices, the bucket shop operator will not buy or sell any futures contracts, even if he may try to make the investor believe so, for example by giving fake trade confirmations. If the investor loses, the bucket shop gets to keep the money. If the investor wins[39], the bucket shop operator is supposed to pay him his winnings. At times, he will do so, if only to attract more clients (this may lead to pyramid schemes). However, more likely, he will try to convince the investor (sometimes with help from well-muscled associates) to leave his money with him for further trading. If too many investors ask for their money back, the bucket shop may simply disappear.

The practice is being sustained by greed and lack of understanding of the risks of unregulated trading by investors. Investors may believe bucket shops offer them better deals, and they may also prefer to use them because their trades are unregistered (and thus, not visible to tax authorities). They may even believe that their trades are placed on a legitimate exchange – some bucket shops may have a legitimate trading screen just to give this impression. Despite the efforts of exchanges to impose proper trading practices on their brokers, some may also be engaged in bucket shop operations on the side.

In Western countries, bucket shops were created as soon as commodity exchanges started growing beyond a narrow group of physical market participants. They are difficult to tackle – while they have been driven underground, they remain prevalent even after decades of efforts by regulators to eradicate them. However, they need to be contained, lest they endanger the fate of legitimate exchange trade. The experience of the early years of USA exchanges provides some guidance on what African regulators and exchanges can do.[40]

[39] Bucket shop operators had several techniques to make this less likely.

[40] Historic details based on David Hochfelder, "Where the Common People Could Speculate": The Ticker, Bucket Shops, and the Origins of Popular Participation in Financial Markets, 1880–1920, The Journal of American History, September 2006.

Thousands of bucket shops sprang up in the USA when, in the late 1870s, low-cost telegraph printers ("tickers") made it possible to get real-price information anywhere in the country. Bucket shop operators profiled themselves as providing access to financial markets to the common man. The bucket shops mimicked legitimate transactions on exchanges, with several grave consequences for the exchange industry:

- Loss of business as investors were diverted away from the regulated market – in 1887, the President of the Chicago Board of Trade estimated that they accounted for some 80 per cent of the trading that was based on ticket prices.

- Damage to reputation when, as happened with high frequency, customers were defrauded by bucket shops – customers did not make a difference between proper exchange trade and bucket shop operations.

- Regulatory risk, as government regulators had difficulty to understand the difference between bucket shops and proper brokers.

Bucket shops prospered in the late 19th and early 20th century. A report in 1906 claimed that they stole annually over US$ 100 million from Americans (equivalent to 2.4 billion in 2013 terms), mostly from people with low incomes. The largest chain had over 200 offices. Bucket shops went to great lengths to pretend that they were legitimate brokerages, outfitting their offices sumptuously. They fought court battles against the efforts of exchanges and (much less enthusiastically[41]) telegraph companies to cut them off from real time price information by claiming they had the same rights to such information as any other broker – and generally won, as judges tended to consider the exchanges' efforts as mere attempts to crush smaller competitors.

Exchanges took the lead in aggressively investigating bucket shop operations, including by hiring investigators to pose as customers; they then passed their information on to prosecutors who could charge bucket shops under anti-gambling laws. However, the more challenging task they undertook was to educate the public and policy makers about the difference between investing in bucket shops and investing in an exchange. For many, there was little difference, it was all gambling. In bucket shops, 100 per cent of all trades were settled financially, in exchanges 99 per cent were – only 1 per cent of trade resulted in physical delivery. It took decades for the exchanges to develop a sound narrative that explained why this one per cent made all the difference. It took 25 years for the Chicago Board of Trade to get a Supreme Court judgment, in 1905, that permitted it to cut bucket shops of from its price information. That same court judgment recognized the difference between speculation and gambling, agreeing that any transaction on an exchange, even if it did not result in physical delivery, provided a useful purpose. The first federal law banning bucket shops followed in 1909.

Several lessons can be drawn from this experience. One is that exchanges need to have an effective policy to publicize the benefits of speculation, so that the public at large, judges and policy makers do not confuse it with gambling. Another is that while exchanges should impose on their brokers to determine whether clients are fit for trading on an exchange, they should not try to keep small investors out of the market. A final lesson is that lawmakers should work with exchanges in combating bucket shop operations.

5.6 Regulations affecting clearing operations

There are regulations that affect the clearinghouse as an institution, regulations that affect the payment flows that are critical for a clearinghouse, and regulations that affect the relationship between a clearinghouse and its clearing members.

A clearinghouse, which is likely to handle large financial flows, may well have to be specifically licensed by the central bank. If the central bank feels this is the case, but there is no framework for such licensing, this may cause considerable delays and unnecessary costs. Besides, some of the specific elements of the oversight mechanisms may prove harmful to the successful operation of a clearinghouse, *e.g.* in terms of the mechanisms that are used to set margins. At the same time, if the central bank regulates the clearinghouse, or at least some aspects of its operations, while the securities or commodities regulator regulates the exchange, there may be issues with respect to the coordination and cooperation between the two. In all, the exchange regulator needs to ensure that it properly cooperates with the central bank, and that the latter understands the requirements of commodity exchange clearing and settlement operations.

[41] Telegraph companies were making large profits in providing tickers to bucket shops. Only when the exchanges started taking steps to develop their own price information systems that would bypass the telegraph companies did they start supporting measures against bucket shops.

Smooth and fast cross-border payment flows are important for the success of a regional or pan-African exchange – a broker may receive a margin call after midnight, and by the morning (say before 10.00) of the following day the funds have to be received by the clearinghouse, otherwise the broker's position will be blocked or even, liquidated. The technological backbone for fast money flows is now operational in much of Africa, with central banks linked to each other through the Central Bank of Mauritius. If a country is not part of this central bank transfer system, or it has currency controls in place, there are still ways for a clearinghouse to operate effectively (essentially, this would require two parallel, but linked accounts to be operated, one within the broker's country, one in the country where the clearinghouse is located), as long as government regulations do not prevent this.

In particular, for a pan-African clearinghouse, the relationship between the clearinghouse and its members can be complex. For example, the buyer may be in country A, depositing local currency with his clearing broker's country A office. This same clearing broker deposits the equivalent amount in hard currency with the clearinghouse in country B. What happens if the clearing member falls bankrupt? In the optimal situation, the customer accounts are treated under law as segregated (that is, they do not become part of the bankruptcy procedure), and the clearinghouse is able to move both the accounts in country A and country B to another broker, so that the customer is not affected. However, whether this is possible depends on a country's bankruptcy law.

5.7 Regulatory aspects of the exchange delivery process

Commodity futures contracts are different from securities in many ways. One important difference lies in the relative importance of regulatory scrutiny before the contract is approved for trading and after it has started trading. For securities, the process of approval of a stock for trading is relatively light; but once it has started trading, there is heavy supervision, to prevent things such as insider trading, falsification of corporate information, manipulation of information etc. For commodity futures, the approval process should be demanding; and if this is done well, once a contract starts trading, the chances for manipulation are minimal as the contract will be kept in check through its link with its underlying physical market.

For a company stock, there is no efficient arbitrage with the underlying physical reality of the company. Except if one is in a position to acquire a majority stake, it is impossible for someone to decide that a share is traded too cheaply, buy shares, and then go to the company to exchange these shares into underlying assets. This is different for a commodity futures contract, which is a derivatives contract. Arbitrage is possible, and if the contract is well designed, it is extremely effective. If the commodity futures trade at too high a price, people can sell contracts (pushing down the price) and, in due time, deliver physical contracts against their futures positions. If the contract trades at too low a price, people can buy futures as a way to get cheap physical commodities. The delivery specifications of the contract will determine how effective the physical market can be in keeping the commodity futures market in line with underlying supply and demand conditions. With electronic warehouse receipts – which have become the norm in most futures exchanges – this can be very effective indeed as long as all the aspects of the delivery specifications have been well-drafted. Regulators need to ensure that this is the case.

The mechanics of the delivery process, and regulatory issues

By definition, commodity futures contracts have an expiry date. There are three different ways to deal with the expiry process:

1) The most common case is that when the expiry date approaches, the futures contract enters into its delivery period, when market participants can settle their positions through physical delivery. By increasing the financial pressure on market participants (by steadily raising margins until they reach 100% on the last trading day), the exchange ensures that those still holding open positions in the delivery period either close it out financially, or get prepared for physical delivery.

2) The second possibility is that until expiry, contracts can only be offset through financial transactions. However, on expiry, all the open long and short positions are matched, and market participants have a certain number of days to arrange for delivery between them. In case of failure to deliver or take delivery, the defaulter is fined, and the fine goes largely to the party that had been matched with the defaulter. This is a somewhat rigid process, and also has a serious default risk if

prices move more than the fine, and thus it is not very popular (it is mostly used for a few contracts in China and India).

3) As in the case above, until their expiry, contracts can only be offset through financial transactions. On expiry, the remaining open positions get cash-settled, that is to say, they are closed out at a price that is determined by an outside reference price. This reference can be a physical market price, for example, the average price of the last three days before trading in five main trading centres, as polled by the exchange or by an independent price polling service. The difficulty of gathering reliable physical market prices (there is a serious risk of misreporting of prices) makes this mechanism somewhat rare. It can also be an international futures price (*e.g.* for the JSE corn futures contract, it is the average of the last 30 trades before 10:30 a.m. on the electronic Chicago Mercantile Exchange corn market, converted at the average of the Rand Dollar exchange trade as traded in the thirty minutes from 9:30 to 10:00 a.m. the same day).

The first case is worth discussing in some further detail. Internationally, there is wide variety in the start of the delivery period, but in most cases it starts around 14, 7 or 3 days prior to expiry.[42] This starting day is called the First Notice Day. During the delivery period, those holding short positions can, but do not have to, close out their positions by making physical delivery. Those with long positions can be assigned a delivery notice by the exchange.

An example of a delivery process, for a producer who has sold futures contract to protect himself against the risk of a price decline:

1. The producer delivers the commodity specified in the contract into one of the exchange's approved warehouses. The commodity is graded, and assuming that it meets the exchange quality standards, the warehouse issues a warehouse receipt.

2. When the futures contracts enter into their delivery period, the exchange clearinghouse starts imposing extra margins to help guarantee a smooth delivery process. As an example: so far, the producer had only paid, say a 10 per cent margin; this is doubled on the first delivery day, and increased by another 10 per cent on the second day; the margin will reach 100% on the last trading day of the contract.

3. Two days after the First Notice Day, the producer decides to deliver his commodities to close out his futures position. He does so by transferring (perhaps through his clearing broker), on the exchange's electronic system for managing warehouse receipts, the warehouse receipts to the exchange clearinghouse. He normally has to do this before a certain time, say 13:00.

4. That day, as any other day during the delivery period, at a fixed time (say, 17:00), the exchange clearinghouse assigns the delivered commodities to the holders of long contracts. There are different systems for this, the most common are a first-in, first-out system (those holding open positions the longest get the first delivery notices), and random allocation.

5. Both buying and selling parties will receive details on the delivery not much later. The buyer has to pay the calculated settlement amount (which will be adjusted for quantity, quality and location[43]) by the early morning of the next day, and the seller will receive the funds a few hours later.

6. Say that the quantity delivered is 50 tons; using an electronic matching algorithm, 40 tons get assigned to trader 1, and 10 tons to trader 2. They are both sent delivery notices by the clearinghouse.

7. On inspecting the delivery notice, trader 1 does not like the delivery location or the delivered grade. So the next morning, he "retenders" the delivery notice, by selling a corresponding volume of futures contracts, and immediately delivering the warehouse receipts against his new position. The clearinghouse will then assign this to another long position holder. This can only be done prior to the last trading day.

[42] The contract will specify this; *e.g.*, "the delivery period begins on the third business day of the settlement month and ends at 3pm on the third Wednesday of the settlement month."

[43] Say the contract specifies 100 bags at 60 kg each, but the total weight measured in the warehouse is only 5,990 kg; the buyer of course does not have to pay for the "missing" 10 kg. The contract may also specify that for certain grades, a discount or premium applies; and for certain locations (*e.g.*, more remote ones), a discount may apply.

8. Trader 2 finds the location and grade acceptable and decides to take delivery. Through the exchange's electronic warehouse receipt system he will have become owner of the warehouse receipts, and he can schedule a delivery time and date with the warehouse operator.

It may be clear that the delivery process is not easy to handle. If one has a long position, one may be assigned a delivery notice for a grade or location that is not desirable. In principle, it is possible to retender the delivery notice, but in practice there may not be many buyers in the market: it is likely to be well-known in the market that the commodities that are being delivered have undesirable characteristics. For a holder of a short position the risks appear less – which is true, however, only if he already has pre-positioned the commodities to be delivered in an exchange-approved warehouse. If he has not, he may suddenly find transport to these warehouses hard to find, or that the supply of the commodity on the physical market – where he planned to buy the commodities that he was going to deliver to the exchange – has suddenly dried up. One way that traders describe the delivery period is as the time when "the elephants come out to fight" – it is easy for small players to be crushed.

Should this be a concern for regulators? The safety of the exchange is handled by the exchange clearinghouse, through its margining system: there is no financial risk to the exchange, and all transactions remain fully guaranteed. The exchange will also use informal means and financial pressure (it has the ability to impose additional margins, if it sees a need) to ensure a smooth delivery process. The risk, then, is of "innocent bystanders" being hurt by the "elephant fights". There are in principle direct as well as indirect risks. The direct risk can easily be avoided by closing out positions prior to the start of the delivery period, or for say a producer, by pre-positioning commodities in an exchange-approved warehouse. There would seem no prima facie case for regulators to protect those who neglect these basic safety precautions – they are responsible for their own actions. The indirect risk is that prices on the exchange are used to set prices in off-exchange transactions. In practice, this is not the case: where physical contracts have pricing clauses that refer to futures contracts, the reference tends to be to the second contract, for the contract month directly after the expiring contract. In conclusion, government regulators should leave the day-to-day management of the delivery process to the exchange, giving it enough self-regulatory powers to do so effectively.

The importance of the delivery process for preventing market manipulation

Typically, in a commodity contract that is settled through delivery, a manipulation attempt involves a manipulator taking a large long position. Those holding short positions would normally want to close out their positions before expiry of the contract, but as the manipulator is not selling out position, futures prices are driven up, and those who are still unable to close out their positions are forced to go into delivery.

Thus, these shorts are forced to acquire large quantities of physical commodities to make delivery. The manipulator, however, will already have acquired much of the deliverable commodities. He may also block shorts from acquiring commodities and transporting them to the approved delivery locations by controlling ways of transport or access to warehouses. Prices will rapidly increase, and the manipulator tries to liquidate part of his futures position (but not so much that the price trend is affected) at these high prices.

When time for delivery comes, the manipulator acquires a large stock. He will have to sell at a loss. The manipulation will have been successful if the manipulator's gains from the futures profits are larger than the losses on selling the stocks. Historically, in most cases, manipulators failed, but there have been profitable occasions as well.

Regulators have two goals: first, have contract specifications that make manipulations less likely; and second, intervene rapidly when there is a manipulation attempt. The key factor that makes contracts prone to manipulation attempts are problems in delivery specifications which permit someone to restrict delivery possibilities; this can be triggered when there is a certain external event, such as prolonged bad weather, or problems with major producers.

Futures contracts that require the delivery of a physical commodity are most at risk of manipulation when the deliverable supply on such contracts is small relative to the size of positions held by traders, individually or in related groups, as the contract approaches expiration. The more difficult and costly it is to augment deliverable supplies within the time constraints of the expiring futures contract's delivery terms, the more susceptible to manipulation the contract becomes.

Regulators should monitor positions, understand markets and analyze prices in order to identify manipulation attempts. The exchange is the frontline regulator. It must:

- Collect and evaluate data on individual traders' market activity on an ongoing basis in order to detect and prevent manipulation, price distortions and, where possible, disruptions of the physical-delivery or cash-settlement process;
- Monitor and evaluate general market data in order to detect and prevent manipulative activity that would result in the failure of the market price to reflect the normal forces of supply and demand;
- Demonstrate an effective program for conducting real-time monitoring of market conditions, price movements and volumes, in order to detect abnormalities and, when necessary, make a good-faith effort to resolve conditions that are, or threaten to be, disruptive to the market; and
- Demonstrate the ability to comprehensively and accurately reconstruct daily trading activity for the purposes of detecting trading abuses and violations of exchange-set position limits, including those that may have occurred intraday.

If a manipulation attempt is detected, it should be immediately addressed. This is normally done by the exchange, through largely informal pressure. This essentially consists of politely-made threats that if the manipulator doesn't stop, the exchange will ensure that he makes a loss. Actions generally involve measures that broaden the range of deliverable commodities, and measures to force the manipulator to reduce his futures position.

5.8 Insider trading

Trading on inside company information is legal on commodity futures exchanges (except for trading by exchange staff and regulators). In effect, one of the goals of commodity exchanges is that companies trade on the basis of their proprietary information so that prices are made to reflect otherwise privileged information. For example, take the case of a trading company which is negotiating a large export deal. If the negotiations are successful, this will lead to extra demand on the local market and thus, higher prices. Depending on its view on the likelihood of success of the negotiations, the trading company should start buying futures contracts (which it should be able to sell at a profit once the export deal is announced). These purchases will drive up prices even before the negotiations become public knowledge – in other words, the exchange properly discovers the price.

On the other hand, information with respect to individual positions on the commodity futures exchange should be handled with a great degree of confidentiality. One important reason for this is that knowing the positions of large market participants makes it possible to derail their operations. They will have to close out their futures positions prior to their expiry, either by physical delivery or by an offsetting futures transaction, and would-be manipulators with access to exchange information can exploit the resulting weaknesses. Other data are also highly sensitive; for example, if the exchange collects price information, then it should be impossible for outsiders to know who has given what prices: such information would enable a cartel to force all key participants in a market to give incorrect price information (those who do not follow the cartel's instructions will be identified and punished).

For these reasons, commodity exchanges normally handle information very carefully. Access to the trading and clearing departments is strictly controlled. No cameras or mobile phones are allowed in these rooms, the external drives of the computers have been disabled, and printing is tightly supervised. On the exchange's computer network, there are strong firewalls around the trading data and the clearing data, with such data only visible from computers in respectively the trading and the clearing rooms – not even the exchange CEO can access them from his office. Access to these data is minutely tracked. With such concerns about data security, exchanges have natural concerns about providing data to regulators. Will regulators be able to secure data in the same way that exchanges do? Is there a risk that private data that are shared with a regulator will be made public on the basis of a Right to Information Act? In practice, it can be very difficult for a regulator to secure data. It is thus advisable for a regulator to request sensitive information only on a need-to-know basis.

5.9 Laws and regulations affecting physical trade

Africa is replete with laws, regulations and government interventions that hinder physical trade in commodities, not just intra-African trade but even, within countries. Promises to improve them in order to create effective regional free-trade zone are a standard component of policy statements, but implementation has been lagging. If there is no effective regional trading zone for physical commodities, there cannot be a common regional futures trading platform.[44]

In a number of countries, the government has retained a major role in managing and intervening in the market, through buffer stock operations and trade measures. While a commodity futures market can co-exist with government intervention in the underlying physical market, such intervention has to be predictable and rule-based.

For petroleum products, governments should keep the interests of the exchange in mind when changing regulatory specifications for refineries and importers. For example, if an exchange trades a diesel oil futures contracts which shows liquid trading up to 9 months in the future, then, if the government wishes to change the specifications of the diesel oil permitted in the country, these changes should be announced, but only become applicable after 9 months. In this way, the existing, actively traded contracts are not affected, while new contracts can reflect the new regulatory specifications.

5.10 Relevant aspects of warehousing laws

Warehouse receipts are the preferential form of settlement on an exchange. In principle, a contract can be cash-settled, but this can work only if there are reputable reference prices. This may be the case if one trades the local currency equivalent of an international contract (*e.g.*, Brent crude oil denominated in cedis), but not for products that have local or regional markets (*e.g.*, grain traded at the Dawanau market in Nigeria).

An exchange can operate a delivery system on the back of warehouse receipts even if there is no specific warehouse receipt law or warehouse regulatory agency – this has worked well in many countries, including South Africa. The exchange just has to set up its own network of licensed warehouses, and ensure that all those using the market sign up to the rules and regulations of the exchange. But laws and regulations should at least permit this.

If there is a warehouse receipt law, to a large extent, the provisions of this law will determine the relationship between the exchange and its accredited delivery warehouses. Mostly, an exchange should be able to deal with the consequences, but one potential constraint could lie in the nature of the warehouse receipt as defined in the law. For the exchange, the receipt should be fully transferable. Once the depositor has deposited his goods, and transferred the warehouse receipt to the exchange clearinghouse, he should no longer have any residual claims to the goods: the warehouse receipt should convey full title. In some legal systems (*e.g.*, in the USA), the warehouse receipt is a title document. In others (*e.g.*, in English law), it is not, but through contractual arrangements, the exchange can turn it into one (*e.g.*, the warehouse receipts traded on the London Metal Exchange are *de facto* documents of title, and are called warrants). A country's legal system should not prevent such constructions, but it could if, for example, it defines by law what title documents are, but omits warehouse receipts from the list.

5.11 Taxation and accountancy rules

Given the absence of futures trade in most of Africa, taxation and accountancy rules naturally do not reflect the needs of such trade. The most common problems that are likely to occur are the following:

- Improper Value Added Tax (VAT) treatment on exchange transactions. If each individual transaction on an exchange is subject to VAT – sellers would have to pay VAT, but can then claim VAT back on purchases – this would irreparably damage futures exchange trade. Delays in VAT reimbursement claims may be long and the paperwork involved cumbersome. So subjecting exchange transactions to VAT would drastically increase transaction costs and reduce the incentives for trade. No VAT or other government levies should be imposed on futures trade. VAT can be levied once physical delivery is made, though. This is the system in most countries, including South Africa, where SAFEX is permitted to trade wheat futures and options on a VAT-exclusive basis, and VAT is only applied on physical delivery.

[44] For a regional futures markets, price differences between different locations have to be fairly stable. Unpredictable government interventions lead to unpredictable price differences.

- Asymmetrical treatment of physical trade and hedging-related futures trade. Hedging is part of normal trade operations, and should be treated as such for taxation purposes. The profits and losses on futures market operations should only be treated as speculative gains or losses if these operations are unrelated to any physical trade transactions.

- Accountancy regulations (including the rules on audits) need to incorporate hedging as a legitimate business activity. If they do not, a company's profits and losses will be incorrectly reported, and incorrectly allocated to different parts of the company's operations.

These are well-known problems, and sufficient experience is available in other countries to avoid them – but this requires decisions from the competent regulatory authorities to act towards this objective.

5.12 Summary overview of regulatory responsibilities of exchanges and regulatory agencies

Table 5 summarizes the main responsibilities of exchanges, as self-regulatory authorities, and government regulators when it comes to the oversight of exchanges and other regulatory roles.

Table 5
Overview of regulatory responsibilities of exchanges and regulatory agencies

Area	Use	Regulatory implications
Exchange licensing		• Provide temporary licenses to all exchange initiatives that meet the conditions set out on an invitation for Expression of Interest, and then give a permanent license to those that implement promised systems and practices within the set deadline; • Do not give the semblance of licensing an exchange without then working with the exchange to develop a proper system of self-regulation and regulation.
Process of developing rules and regulations	• Develop rules and regulations for approval by the relevant regulatory agency	• Fully accept the role of an exchange as frontline regulator, and give it the powers thus required; • Work closely together with exchange initiatives to develop the details of laws and regulations, for the exchange itself as well as for warehouse receipt systems.
Market integrity	• Ensure proper performance of the delivery process, including by supervision over warehouses that act as delivery points; • Design strong contract specifications; • Supervise market performance, in terms of logical behaviour of prices; • Monitor against manipulation attempts; • Take action against manipulation attempts; • Ensure a level playing field for all participants.	• Scrutinize contract proposals made by exchanges to ensure they are sufficiently safe from manipulation attempts; • Continuously analyze markets and prices, and in case of problems, instruct exchange to intervene when the exchange fails to do so; • Work with exchange to ensure a level playing field.

(continued on following page)

Prudential regulation	• Set net worth and other criteria for exchange brokers; • Regularly verify adherence of brokers to these criteria, including by surprise audits.	• Net worth criteria for exchanges; • Coordination with other financial regulators to ensure bans on improper brokers are enforced across financial markets; • Introduction of a settlement guarantee fund.
Client protection	• Formulate, implement and enforce a wide range of client protection rules and regulations; • Scrutinize detailed trade data to detect potential client abuses; • Supervise the handling of the customer complaint process (if not handled by a self-regulatory brokerage association).	• Scrutinize the manner in which the exchange handles the analysis of detailed trade data; • Oversee handling by exchange of the customer complaint process; • Introduction of a customer protection fund; • Work with other authorities to combat bucket shops.
Protecting the stability of the financial system	• Ensure proper operation of the clearing and settlement process.	• Understand clearing arrangements, and properly supervise the exchange's clearinghouse; • Coordinate market stability protection measures with the Central Bank; • Coordinate with foreign regulators.
Market promotion/ advocacy		• Fully acknowledge the role of promoter of the exchange initiative(s); • Pre-empt policy issues by undertaking and publicizing well-designed studies on potentially unpopular price movements. • Interact with other government departments to develop new laws and to ensure rules and regulations are harmonized in a manner favourable to exchanges

Conclusion and recommendations

More than ever before, African countries are initiating commodity exchange projects[45], and many millions of dollars are currently spent each year on commodity exchange development in the continent. The level of ambition has risen: most national projects envisage modern exchanges that meet global standards – something that comes at a cost of at least US$ 10 million – which is a far cry from the shoestring budgets on which some of the past exchange promoters had to develop their projects (*e.g.*, Malawi, Zambia, Zimbabwe's first exchange ZIMACE). Governments, the private sector and development partners appear ready to invest the required funds. There are also several even more ambitious regional and pan-African initiatives – something that, as the East African Community has estimated, requires at least US$ 50 million (this may be too high an estimate given the recent developments in exchange technology and cloud computing). Exchange projects have been publicly announced by Heads of State (*e.g.*, Rwanda, Tanzania). Though with varying speeds, Governments appear to be scrambling to adapt their regulatory regimes.

At the same time, there are skeptics about the usefulness of promoting exchanges in the continent, or their chances of success. One analysis of exchange projects in Kenya, Malawi, Uganda and Zambia[46] finds that these were "ill-conceived and/or premature. It is the reason why none of the exchanges have lived up to the expectations made for them. They have not improved the marketing system for the vast majority of actors in the industry. At the same time, they have reinforced the position of the most powerful actors in the industry and introduced a 'closed shop' of membership to large volume trade in agricultural commodities. Although these programs were introduced only a comparatively short time ago, it is clear that they are all going in the wrong direction to ever meet their theoretical objectives."

One might equally argue that these exchanges were set up and developed on tiny budgets that, in any case, would never have allowed them to meet their objectives, that they suffered from wrong business models (*e.g.*, a focus on grains) and were confronted with unfavourable government policies.

Another study[47] identifies 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. Somewhat different weaknesses were found in a case study of ZAMACE[48], which concluded that the exchange failed to take off primarily because:

1) It had a limited capacity to enforce contracts. In the high-risk trading environment in Zambia, market participants had invested in long-term relationships as a way to manage market risk. The exchange had to be able to offer at least the same perceived level of risk mitigation. This would have required it to be able to screen market participants and keep out risky trading partners; and to enforce in an effective way the contracts that companies entered into on the exchange. It was unable to do either.

2) It provided insufficient incentives to develop competitive brokerage services. The exchange was unable to recruit participants outside of the traditional grain trading community. All of the brokers on the exchange were also traders in the physical commodity, leading to a potential conflict of interest and discouraging new market entrants. The visibly low volumes on the exchange discouraged third parties (*e.g.*, banks, securities brokers) to invest in developing commodity brokerage services.

3) The costs of operating on the exchange exceed the benefits for many potential participants. An exchange is largely a fixed costs, with participants making small returns on each transaction. As ZAMACE markets were thinly traded, costs exceeded returns; and because ZAMACE had to recoup at least part of its costs, membership fees and trading fees had to be kept high in relation to the actual business that members and users could do on the exchange.

4) The exchange was perceived as a vehicle for manipulating markets, rather than as a forum to achieve price discovery. Trade on the exchange was very low, and dominated by a handful of market participants. Others feared the potential for collusion between these participants, and thus remained on the sideline.

[45] The African Commodity Exchange Forum (ACEF), established in 2010 as an information-sharing platform that aims to identify ways to make African exchanges more efficient, includes thirteen African exchanges and exchange start-up initiatives from Ethiopia, Ghana, Kenya, Malawi, Nigeria, Uganda, South Africa, Sudan, Tanzania, Zambia and Zimbabwe. This does not count the (sub)-regional initiatives, and initiatives in countries like Mauritius, Senegal and Togo.

[46] Robbins, 2011.

[47] Rashid *et al.*, 2010.

[47] Sitko and Jayne, 2011.

5) ZAMACE was unable to bring financial institutions into the exchange, in any way (to create a clearinghouse, develop brokerages, support companies' risk management operations, engage in cash-and-carry arbitrage, etc.).

6) There was a large degree of government intervention in the maize sector (import/export restrictions, varying tariffs, unpredictable procurement and stock releases, both at off-market prices, by the Food Reserve Agency), which all created large uncertainty in the physical market. Under such dysfunctional policies an exchange cannot function.

These various studies indicating why most exchange initiatives in Africa failed in effect provides a good starting point for commodity exchanges that want to be more successful: they should strive to avoid the pitfalls identified above:

a) They should aim for large markets (whether commodity markets or not), and if possible, target (sub-)regional markets. They should consider small, domestic commodity contracts only after they have already built up sufficient volumes in larger contracts to cover much of the exchange's costs, and to make using the exchange attractive to brokers and large investors.

b) They need to deal with weak physical and communication infrastructure (*i.e.*, by incorporating in their activities things like creation of efficient warehousing operations, and the provision on credit of VSAT terminals), and where they cannot, sidestep its effect by concentrating on sectors and market participants for which these weakness are less of a problem.

c) They need to provide strong contract enforcement. The exchange has to offer a forum where participants can "trade with trust"[49].

d) They need to target non-commodity sector companies for the setting up of brokerage firms. There are different ways to reach this goal, from the provision of a broad range of products that brokers can market to prospective investors, to the provision of a "plug and play" environment (*e.g.*, all necessary software is available on a pay-as-you go basis on the internet cloud).

e) They need to be pragmatic in terms of their contract choice, introducing the contracts that bring the greatest possible benefits to prospective users, from spot trading to futures, and including contracts whose main goal is to facilitate funding to the commodity sector. They should also consider non-core services that can provide revenue and attract users to the exchange, such as the registration of forward contracts and commodity loans.

f) Benefits need to exceed costs. One straightforward way to make this more likely is to spread the largely fixed costs of an exchange over a larger number of sectors, including financial ones – that is to say, offer a wide range of contracts, from agricultural commodities to gold and currency contracts. It is also possible to spread much of the fixed costs over an exchange over several countries, by using a service-center or franchising model (with software provided through the internet cloud).

g) Reduce the likelihood of market manipulation. Two ways to do so is to improve price information (including information on physical markets throughout the country), and have a reliable delivery mechanism that permits arbitrage between the exchange and the physical market when exchange prices move away from the real supply/demand conditions in the country.

h) Bring in the financial sector as prominent players in the exchange – including as shareholders, stakeholders in the clearing mechanism (which can be very profitable for banks given the large sums of money that are involved in the clearing process), and users of contracts.

i) Avoid contracts for commodities, and assets, with dysfunctional government policies. This may contradict the stated objectives of governments and development partners – in principle, an exchange can do the most good in the large markets for staple crops such as maize – but if governments wish such contracts to develop they should commit to stable, predictable policies.

Some of the strategic choices for exchange promoters, governments and development partners are further elaborated below.

[49] As per the original logo of the Multi Commodity Exchange of India, which had to operate in similar circumstances.

What should be the role of the government in the owning and operating of an exchange?

Governments in many African countries have started taking a strong hands-on role in the development and management of exchanges, at times to the frustration of the private sector. This approach has a number of significant risks, *inter alia*:

- Governments tend to rely on consultants who may have worked with exchanges in one or two countries, but do not necessarily have a broad experience in commodity exchange development. There is a strong risk that their recommendations are wrong – as indeed recent experience has shown in both West and East Africa, leading to the exchange development process being stalled.

- The timeline of governments tends to be rather slow – years, instead of the months that a private company would need to establish an exchange.

- Governments may look at an exchange as a public service, and thus not empower it to make the commercial choices necessary for success.

- Governments may be hostile to regional cooperation, in terms of technology, service model, regulatory cooperation and contract choice. However, few African countries have an economy large enough to support the technology costs of a full-fledged exchange. Furthermore, international participants are much less likely to build links with multiple national exchanges than with one platform shared by different countries. Skill shortages may make it advisable to share certain services (*e.g.*, training) across countries. Yet, governments may prefer models where all the components of an exchange are onshore, rendering the venture unsustainable.

- It may be difficult for a government to "let go" of an exchange that it has helped establish, with the risk that the day-to-day decision-making of the exchange then becomes subservient to short-term official goals.

On the other hand, a commodity exchange cannot function in the face of a hostile government. When the development of a successful commodity exchange is high on a government's agenda, it is more likely that an effort will be made to remove the barriers that are generally created by different ministries (in terms of trade policies, taxes, market interventions etc.) State-owned infrastructure (*e.g.*, warehouses) could be made available for an exchange's use. Parastatals may become shareholders, and could also be important clients of an exchange, *e.g.* to procure commodities or to sell the fertilizers donated by other governments.

So there is a strong argument for governments to be involved in commodity exchange initiatives, perhaps as a minority shareholder, but not as the chief architect or main promoter of the exchange. The government should also not chose the products that an exchange will trade. Ideally, in a proper public-private partnership, a government should

1) advertise the criteria that it wishes an exchange to meet; then

2) give temporary licenses to set up an exchange to those companies that meet these criteria, and work closely with them in removing policy- and regulatory-related obstacles;

3) encourage parastatals to work with the exchanges;

4) with the intellectual input of the exchanges, develop a regulatory agency and its concomitant rules and regulations;

5) give an indefinite license to those exchange initiators who managed to develop an exchange according to the criteria of their temporary license; and

6) permit the regulator to have a dual role as supervisor of the exchange(s) and advocate of their interests. The regulator needs to be given the ability to interact with different ministries to remove unnecessary barriers. The regulator also has to be mandated to express (in concrete terms[50]) the government's support for the exchange initiative to the country's private sector as well as potential international investors and market users.

[50] That is to say, the regulator has to be able to discuss things such as the repatriation of profits made when trading on the exchange, tax treatment etc.

Should an exchange focus on the (agricultural) commodities that are critical to a country, or should it be permitted to trade a broad range of asset classes?

Most initiatives in the African continent envisage agricultural exchanges, and the organizational structures that are being set up – and the corresponding governmental supervisory bodies – may make it difficult for an exchange to move away from this particular focus.

An exchange and its associated structures (brokers, supervisory agencies, news services etc.) all have large fixed costs. The more users there are, the lower the costs for each, and the best way to attract more users is to offer a broad range of contracts. An exchange should be free to use its platform for any kind of contract for which there is potential demand, as long is this does not go against government policies. Offering a wider range of products also helps to attract more brokers, who are seeing a larger potential market. Even if agricultural commodities account only for a small part of an exchange's turnover, what matters is that the contracts are offered, can be widely accessed and can be traded at relatively low cost.

The advisable approach would be for governments not to limit the scope for a derivatives exchange, except for products that are directly opposed to government policy. One legitimate example of this would be if a government wishes to control its currency exchange rate: it may then not wish to have a currency futures contract in its country. Possibly a government does not wish to have a gambling market in its country (or does not want competition to an official gambling franchise), and could then disallow futures contracts on sporting events. But by and large, an approved commodity exchange should be allowed to propose which contracts it wishes to trade, agricultural, mineral, financial or otherwise.

What's the best approach towards the clearing operations and related payment flows?

Without a strong clearinghouse, an exchange is not attractive to international users, and would not be accepted as an approved market by international regulators. So at a minimum, a government that wishes to set up an exchange that is relevant beyond its borders has to set up a process through which they can qualify a clearinghouse as a qualified central counterparty (see box 12).

There are two elements to this: the exchange promoters have to be permitted to set up, or alternatively, link up with a proper clearinghouse; and the government needs to have a mechanism through which it can vet the clearinghouse and approve it as a qualified central counterparty.

Furthermore, the clearinghouse has to be permitted to manage the related payment flows, including cross-border ones. For a large exchange, this can run into billions of dollars each day (for Ethiopia's exchange, as of early 2013, it stood at US$ 1.2 million).

What model of exchange should one chose: open outcry, with a trading floor where buyers and sellers physically meet? Or electronic, permitting trade to take place through the Internet?

The Ethiopian Commodity Exchange was the first well-capitalized exchange in over a decade to set up an open outcry exchange, buckling a global trend which had seen existing exchanges shifting from open outcry to electronic trading platforms, and new exchanges to be entirely electronic. There were a number of reasons for this – more linked to the desire to make an exchange's operations transparent to policy makers and market users than to technological constraints. But open outcry trading has a number of significant disadvantages, including higher costs, higher error rate, and reduced access.

Mobile phones and their increasingly complex applications have been readily accepted by a large portion of Africa's population. Many of them have experience in sending or receiving money by phone, or ordering goods through the internet. It is likely that such people do not require to see an open outcry exchange in action – with its hand-waving and shouting – in order to understand what an exchange is and how it can be used. It would thus seem inadvisable to forego the benefits of an electronic trading system for the somewhat marginal public relations benefits of an open-outcry trading floor. Electronic systems have also fallen dramatically in price in recent years, to the extent that the software costs of an exchange that aims to reach global standards are now likely to be much less than the exchange's human resources costs and the costs of setting up a proper delivery mechanism.

Box 12
Impact of international banking regulations on African exchanges

Following the 2008 financial crisis, bank regulators have become much stricter with respect to bank capital requirements. Among other things, they have added a set of rules determining capital requirements for bank exposures to central counterparties (such as clearinghouses) to the existing regulations of Basel II, which sets capital standards for banks (See Basel Committee on Banking Supervision, Capital requirements for bank exposures to central counterparties, Bank for International Settlements, July 2012).

Simply put, the new rules make a difference between:

A central counterparty (CCP) which is "a clearinghouse that interposes itself between counterparties to contracts traded in one or more financial markets, becoming the buyer to every seller and the seller to every buyer and thereby ensuring the future performance of open contracts."; and

A qualifying central counterparty (QCCP), which is "an entity that is licensed to operate as a CCP (including a license granted by way of confirming an exemption), and is permitted by the appropriate regulator/overseer to operate as such with respect to the products offered."

If a clearinghouse has a QCCP status, a bank can apply a risk weight of 2% to its financial exposure to the CCP. If it does not have a QCCP status, a bank must apply the "Standardised Approach for credit risk", which in most cases means a risk weight at least four times as high. Other aspects of a bank's exposure to the clearinghouse are also treated much more harshly.

In general, this is good news for clearinghouses: it means that banks can much reduce their capital requirements by moving their risk exposure on the large over-the-counter market into a clearinghouse. However, this only works if the clearinghouse has a QCCP status. Exposure to a clearinghouse without such a status will work out very expensive to a bank – it has to put too much of its capital aside.

So if an exchange in Africa wishes to attract international banks as clearing members or clients, it needs to assure that its clearinghouse has a QCCP status – as the Johannesburg Stock Exchange has already done. This requires that:

- the clearinghouse is in a country which has a regulator that is a member of the International Organization of Securities Commissions (IOSCO). Most African countries fall in this category; and
- this regulator prudentially and on an on-going basis supervises the CCP – and publicly indicates that is does so (i.e., it gives the QCCP status to the clearinghouse); and
- domestic rules and regulations are consistent with IOSCO's "Principles for Financial Market Infrastructures."

The latter includes the principles for the capitalization of the clearinghouse, and for its risk management methods. The clearinghouse has to be well-capitalized to qualify. Exchanges that are not able to put enough capital in their clearinghouse may well find themselves better served by outsourcing their clearing services to a strong independent QCCP rather than keeping clearing services in-house.

How should the introduction of contracts be sequenced? Does one start with trading in spot and/or warehouse receipt-related contracts and only move to futures contracts in the medium term, or can all start more or less simultaneously?

There are differences in approach between the different exchange initiatives, and the best programme of action is determined largely by national conditions. However, the following points can be made:

- As the experiences of many exchanges demonstrate, there is no "sequencing rule" – first spot, then forward, then futures. Decisions on sequencing have to be made pragmatically.

- If an exchange wishes to start with futures contracts or offer only futures contracts, there are two possible scenarios:

  i. The contracts are in effect gateway contracts into the international market. This would be the case, for example, for a crude oil contract that refers to the Brent oil futures contract, but is traded in local currency, or a soyabean oil contract that refers to the Chicago Mercantile Exchange contract. By offering contracts of this type, the exchange permits local companies and investors to access a key international contract (for either hedging or speculation), in their own currency and using local brokers as intermediaries. This can be a useful product, and does not require the exchange to envisage any presence in the underlying physical market.

  ii. The contracts are for products in the local/regional market. In a well-developed economy, the exchange would be able to build its contract on the existing systems in the physical market, making use of already-existing warehouses, grading laboratories etc. However, with the exception of South Africa, physical market conditions throughout Africa make it unlikely that an exchange can rely on existing systems. At a minimum, it will have to invest in a warehouse receipt system. It might use warehouse receipts only as delivery mechanism, but it may make commercial sense to actually facilitate the trade of such receipts on the exchange, including as a credit instrument.

- If an exchange wishes to start with spot contracts, this should be just a temporary phase in the exchange's development, and exchange management needs to set out a path towards a more comprehensive product offering. According to ECX's founder CEO, "Common sense suggests that it will be very difficult to attract market participation on a voluntary basis for only spot trading, when a "second best" but still functioning spot mark*et* already exists. However, in the case of futures trading, such a mechanism does not exist elsewhere, and the great benefits of both hedging for those in the physical trade and of investment gains for others will clearly attract market participation in the Exchange."[51]

- For an exchange that has developed a futures trading platform, it may be commercially attractive to use the same platform for spot trading (configured as short-term futures contracts). In an environment where most trade is risky, the risk mitigation services provided by the exchange may attract many clients.

In conclusion, there is no ready rule on how an exchange should start. There is, however, a rule on how it should end – with futures contracts. How an exchange achieves this end should be decided pragmatically, keeping in mind the need to spread out exchange costs and to achieve, from the beginning, broad participation from various market segments, including the financial sector.

What contracts should be introduced?

The trading platform of an exchange can normally accommodate a wide range of commodities.[52] Exchange management should be pragmatic in its choice of contracts, considering both the potential of different contracts and its own ability to manage their development. Regulators should permit such pragmatism. An exchange may wish to limit itself to a particular industry (*e.g.*, agricultural products, minerals), even if its technology allows it to provide comprehensive coverage (all commodities, weather risk management products, financial products such as currencies, interest rates and stock indices), but such a limitation should not be imposed by a regulator.

Commodity trade in Africa is sufficiently large to support exchange trade in many different commodities, at least if the continent's markets were integrated. In effect, many markets remain segmented, and an exchange then has

[51] Eleni Gabre-Madhin, An Eye on the Future: Can the Ethiopia Commodity Exchange Succeed Without Futures?, 31 May 2007.

[52] There are only a few cases where a tailored trading platform is needed, most notably if one wishes to trade Shariah-compliant contracts, and for electricity trading.

to target sufficiently large clusters (*e.g.*, maize in East and Southern Africa, cotton in West Africa, cashew nuts in East Africa, cocoa in Côte d'Ivoire, Ghana and Nigeria, cotton in Egypt, cassava in Nigeria). For many commodities with large markets, there are currently no exchanges to facilitate marketing and risk management.

As concerns export commodities for which there are already contracts in the western exchanges (*e.g.*, cocoa, coffee, cotton, crude oil, and various metals), an exchange has to chose between developing a new market with contract specifications that are different from those on the western exchange, and introducing a "gateway contract" which is linked to the international contract. In the first case, success is unlikely unless if the western contract has a poor price correlation with African markets (this would be the case for cotton). In the latter case, the African exchange would normally sign an agreement with the western exchange giving it the right to use its prices for settling its contracts. Introducing gateway contracts is a convenient way to rapidly attract a large pool of speculators, which will help in developing further contracts.

With respect to financial markets, there is currently an active over-the-counter market for many African currencies. But access to these markets is difficult, and most of the contracts are for short durations. Currency futures contracts will enable small and medium enterprises to manage their currency risk, which will particularly benefit intra-African trade. Offering currency futures will also make the commodity contracts offered by the exchange more attractive, as many commodity importers and exporters are exposed to both currency and commodity price risks. Furthermore, there are good opportunities in debt markets, which currently throughout most of Africa are highly inefficient (as exemplified by the wide margin between deposit rates and government bond rates). Apart from traditional debt instruments, an exchange can also offer commodity repos, short-term financing contracts for the agricultural sector that are backed by commodity stocks and commodity receivables.

How central should the warehouse receipt system be to the exchange initiative?

In an emerging market environment, the ability of an exchange to execute a proper delivery process is critical. Even though the large majority of contracts will be settled financially rather than by physical delivery, many market participants will consider the exchange as an alternative delivery platform – the exchange will have to be trusted to perform this task competently. Furthermore, having a sound delivery process keeps the exchange relatively safe from manipulation attempts. And finally, in an emerging market environment where many commodity market participants have limited access to finance, the ability to raise warehouse receipt finance on goods in exchange-licensed warehouses can be a popular Unique Value Proposition for an exchange.

For all of this to be possible, a sound warehouse receipt system is needed. But governments should not postpone the introduction of a commodity exchange while working on the development of such a system. Rather, it should make it possible for an exchange to build such a system alongside its trading platform. It is likely that the exchange will have to take the initiative in this regard. This has in several cases been recognized by African regulators which have given the exchange regulatory authority over warehouses. However, exchange trading and warehouse management are two different businesses, and for the latter to grow properly it should be disconnected from direct exchange management as soon as its development reaches momentum. One may refer to the example of India, where commodity exchanges set up the collateral management firms that now dominate warehouse receipt financing, but spun them off as separate companies after a few years. Most of these firms' transaction volume now comes from banks, not from the exchanges that created them.

What is the best regulatory model – should a commodity exchange have its own laws and its own regulator, or can it fall under existing securities law and be regulated by the securities regulator?

There is no one solution that fits all, but there are a number of mistakes that need to be avoided. This was discussed at length in section 5.3. Among other issues, a securities law is unlikely to cover all relevant issues of a commodity exchange, but could be amended. The experience that a securities regulator can bring, in particular with respect to brokerage regulation and customer protection, is important. But the question is whether the regulator will have sufficient interest in a commodity exchange, and will be able and willing to adapt its practices to the specificities of commodity exchange trading. Commodity exchange regulation should stand on its own, not shadow regulatory practices in the securities market.

Should one aim to keep the exchange focused on hedgers, or should one explicitly target the use of the exchange by a broad range of financial investors?

In many countries there are concerns about the role of non-commercial participants, the so-called speculators. There are many different groups in this category, from individual speculators to institutional investors to index funds and managed funds, and automated trading programmes. Their trading behavior is unlikely to copy that of commercial participants, and thus, some people may consider that they will disrupt the ability of the exchange to reflect the supply and demand conditions in the underlying physical market.

While it is true that non-commercial participants can have a short-term disruptive impact (in particularly, their behavior can cause short-term price volatility), they are also critical to the success of an exchange initiative. Without such participants, the liquidity of the exchange will be severely constrained: buyers can't find sellers, and vice versa. The volume of transactions on an exchange will be much reduced, forcing the exchange to charge a higher transaction fee in order to cover its cost – which in turn will further depress volumes.[53]

On a modern exchange, 80 per cent of volume or even more may well be speculation, not hedging. Speculators are an important part of the clientele of brokers, and without speculators there would be much less brokers interested in building up a network. Brokerage costs for hedgers would thus be higher, and service worse. Speculators that organize themselves (*e.g.*, in a managed fund) also have the ability to do in-depth market research on developing supply-demand conditions, and their views, expressed through their trading, help in the price discovery process.

The "cost" of speculative participation lies largely in the disruptive effect that they may have on markets, in particular when under-informed speculators make trading decisions that are not based on developments in the physical market (*e.g.*, they observe a fall in securities markets and assume that commodity markets should fall as well). However, as long as delivery specifications are well-formulated, the likely disruptive effect of speculators is limited to short periods, of a few days at most. Thus in all, it is beneficial for hedgers that an exchange also targets speculators.

How does one position an exchange: national, regional, pan-African, or even global?

In opening remarks to a Pan-African meeting of derivatives and commodity exchange regulators, H.E. Festus Mogae, former President of Botswana and Chairman of the Bourse Africa Advisory Board, noted that "the opportunity for Africa to achieve its development potential is unprecedented, and ... the international environment has changed, and continues to change, in ways that open up new possibilities, new potential and new paths to progress for our Continent. The big question ... is whether Africa is to do this as 54 separate countries or as Africa."[54]

Much of the current discourse remains national, although in several cases, authorities do recognize that in time, the national exchange should become part of a regional network. But starting with a national exchange still risks to create an non-viable venture, dependent on government and development partner money to survive. An exchange needs to be able to offer radical improvements to putative users, otherwise they are unlikely to change their current mode of operations. In order to do so, the exchange has to provide a full service package, and this is expensive. One needs good software that meets international standards for the trading system, clearing operations and broker front and back office operations. A delivery system, linking warehouses through electronic warehouse receipts, has to be set up. Price information services need to be developed. Extensive training needs to be given... Without investments in these services, it is unlikely that an exchange can succeed. At the same time, with just a few exceptions, the economies of African countries are too small to generate enough exchange revenue to recuperate all these initial investments. If a national exchange is to be viable, without heavy dependence on development partners, it is advisable to envisage it from the beginning as part of a (sub-) regional exchange.

The regional focus should apply both to technology and to traded contracts. Technology can be shared – there is no reason to charge to full technology costs of an exchange to one country alone when, through the Internet, the same platform can be operated in many countries (including in a form adapted to the local language and local preferences). Contracts can envisage regional trade and regional investment flows.

[53] As an illustration, the transaction fees – paid once by the buyer, once by the seller – are 0.2 per cent for ACE in Malawi and ECX in Ethiopia as compared to less than 0.0015 per cent on the Multi-Commodity Exchange of India. These fees are just one part of the transaction costs; other costs relate to the efficiency of executing orders, and the better an exchange's liquidity, the lower these costs will be.

[54] AfDB/Bourse Africa, 2012.

Regulators can regulate exchanges that share a common electronic platform, *e.g.* through hub-and-spoke model, through MoUs and other forms of cooperation among countries. They could create, for example, a college of regulators for an exchange with a presence in multiple countries. There are proven models for this in other parts of the world.

One important advantage of a (sub-)regional approach is that skills can be shared both at the exchange and the regulatory level. An exchange requires many highly skilled and experienced staff, including at the operational level. In the absence of similar ventures, it is rather unlikely that such staff can be recruited in the country. Much expertise would have to be brought from countries with operating derivatives exchanges, and other staff requires extensive, and expensive, training. It matters little if an exchange only has a low volume, it still needs highly qualified staff. Sharing such resources between exchanges thus makes a lot of sense.

How much of a "public good" function does an exchange serve, and thus, how much government or development partner support does it deserve?

There is a strong public good element to an exchange – in particular through its price transparency and price discovery functions – which justifies public support for its development and growth. A further "public good" of an exchange in the African context is that it is by its very nature an incarnation of a market mechanism, which can do much to educate policy makers on the benefits of the market as opposed to government control.

At the same time, an exchange has to remain a commercially viable initiative: it has to provide services for which its users are willing to pay enough to guarantee its continued operations. Government and development partner support should thus largely focus on the public good elements of the exchange, covering in particular the development of its market information system, and the various actions that are necessary to educate policy makers and help develop a proper legal and regulatory system.

In addition, governments and development partners may consider using their funding to steer a commodity exchange towards smallholders. An exchange would normally focus on the likely market participants that are easiest to reach, and tailor its contracts for their use. Development partners can cover the supplementary costs of tailoring contracts to small producers, and the awareness-raising and training activities necessary to ready them for use of the exchange.

What is the role of development partners?

Development partners can help exchange promoters make better decisions and clear the path for their growth by a number of actions:

- Play a catalytic role in incubating new approaches, and disseminating best practices and innovative ideas related to commodity exchange development (including by developing guidelines and other publications).
- Support the review process of policies, laws and regulations in order to create a supportive environment for commodity exchanges; and help train the regulators.
- Support training- and awareness-building programmes on the functioning of commodity exchanges and their use, including for banks and farmers' organizations.
- Give technical advice to private sector groups and governments interested in establishing a commodity exchange.
- Support applied research in this area.
- Support pilot projects in this area, *e.g.* to test new approaches to reach farmers (*e.g.*, through innovative information and communications technologies).
- Consider investing in African commodity exchange initiatives. Among other things, this will help strengthen the possibilities for fruitful cooperation between an exchange and national governments.

Summary of recommendations

Recommendations with respect to the development of a proper legal/regulatory regime have been summarized in Chapter 5. The table below summarizes recommendations in other domains. African Ministers of Trade already elaborated a fairly extensive set of recommendations for the private sector, African governments and development partners in the Arusha Plan of Action on African Commodities, November 2005.[55] These were endorsed by African Head of States in 2006, which also called upon Member States to implement the commitments contained in the Declaration and Plan of Action.[56] As these recommendations remain valid and have already been accepted (albeit not yet implemented) by African governments, the first part of the table is quoted from the Plan of Action. Further recommendations contained in this guide follow in the section thereafter.

These recommendations are aimed at any African country, whether low income or middle-income. As it is recommended that the process of exchange development be driven by the private sector and supported by governments and development partners, one may suppose that the relevant private sector companies adapt their particular approach to the specific conditions of their country.

Table 6

Summary of proposed actions for private sector, governments and development partners (with a particular reference to AfDB)

For the private sector	For governments	For the development community
As per the recommendations of the African Ministers of Trade in the Arusha Plan of Action on African Commodities, November 2005		
• Develop and support commodity exchange initiatives; • Develop the necessary skills to understand commodity exchange operations, and build up the institutional capacity to engage in such operations; • Support a public relations and awareness raising campaign to make the public aware of commodity exchange operations; • Be willing to interact with governments to identify and remove barriers to commodity exchange establishment and operations; • With respect to those interested in initiating an exchange, adopt a partnership model – cooperating not just with a broad range of private sector interests (including banks, warehousing companies and collateral managers), but also with government entities; • To reach as large a part of the population as possible; and thus, be willing to work with African governments and the international community to bring exchange services to a comprehensive range of countries and groups.	• Commit to the establishment of commodity exchanges and call upon AU to establish a forum for discussions on the implementation of commodity exchange initiatives, and in particular, to enable private sector parties to discuss such initiatives, their requirements and potential obstacles; • Provide a forum for the review of exchange performance (once operational), in order to highlight the problems met, identify remaining obstacles that governments are in a position to remove, and identify the specific supportive actions through which the public interest can best be served; • Co-organize, with interested groups, including the private sector, regional and national workshops and conferences on commodity exchange issues, and provide support to such events; • Sponsor the writing of technical papers on the practicalities of commodity exchange development in the African context, including a set of "best practices" and guidelines with respect to areas such as currency controls, intra-regional trade, ownership rights and taxation of commodity exchange transactions.	• Support the review process of policies, laws and regulations in order to create a supportive environment for commodity exchanges; • Support training- and awareness-building programmes on the functioning of commodity exchanges and their use; • Support the development of guidelines and sets of "best practices" in this area; • Give technical advice to private sector groups interested in establishing a commodity exchange; • Support capacity-building programmes focused on domestic banks (as intermediaries between exchange users and the exchange) and farmers' associations (as exchange users); • Sponsor applied research in this area; • Support pilot projects in this area, *e.g.* to test new approaches to reach farmers (such as mobile phone networks and free wireless Internet networks); • Consider investing in African commodity exchange initiatives.

(continued on following page)

[55] African Union, 2005.

[56] African Union, Decisions, Executive Council, Eighth Ordinary Session, Khartoum, EX.CL/Dec.236-277 (VIII), 16-21 January 2006.

For the private sector	For governments	For the development community
Additional recommendations in this guide		
• Be pragmatic in the choice of contracts to be traded, whether agricultural, mineral, energy or financial; • Consider to provide supplementary services, *e.g.* registry functions; • Adopt an electronic trading system that meets global standards; • Ensure that the exchange has a strong delivery system, including through use of an electronic warehouse receipt system; • Ensure that the exchange enables participants to trade with trust; • Overcome possible resistance from large traders by explicitly involving them in exchange development; • Ensure that banks play an important role in the exchange initiative; • Design proper ways to achieve growth momentum, including through use of market makers, and a structured demand approach; • Position the exchange ambitiously, at the least targeting a sub-region, and be open to innovative models in this regard (*e.g.*, franchising technology).	• Support but do not lead exchange initiatives; • Create the conditions (in terms of payment flows and the regulatory oversight necessary to establish a "qualified central counterparty" for a strong clearinghouse; • Do not unduly delay exchange initiatives while developing legislation for exchange and warehouse receipt system; rather, develop the expertise to license an exchange initiative, and then work with successful candidates to elaborate laws and regulations; • Commit that government entities and parastatals will use the exchange for the purchase and sale of bulk commodities; • Commit to stable policies for commodities in which the government wishes to see healthy commodity exchange trade developed; • Empower institutional investors to participate in exchanges. • Support (sub-)regional rather than national models	**At the national level:** • Provide support that enables exchanges to become more inclusive; • Disseminate best practices and innovative ideas; • Support the development of electronic warehouse receipt systems. **At the regional level:** • Support intra-regional cooperation on exchange development; • Include measures to promote commodity exchanges in work focused on strengthening intra-regional trade. **Particularly for AfDB:** • Adopt the recommendations above; • Consider investment in exchange initiatives and related ventures such as electronic warehouse receipt systems; • Promote intra-regional coordination and cooperation with respect to exchange development. • Help improve awareness among and training of regulators and policy makers.

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Bourse Africa, Botswana	www.bourseafrica.com
Bourse Agricole Togo	bourseagricoletogo.com
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Global Board of Trade, Mauritius	www.gbot.mu
Kenya Agricultural Commodity Exchange	www.kacekenya.co.ke
SAFEX, Johannesburg Stock Exchange, South Africa	www.safex.co.za
Uganda Commodity Exchange	www.uce.co.ug
Zambia Agricultural Commodity Exchange	www.zamace.org

Glossary

Arbitrage The practice of buying and selling contracts in different markets in order to profit from differences in prices between the markets.

Arbitration The process of settling disputes out-of-court. Arbitration decisions should be binding on the participants in commodity exchanges.

Broker A firm (brokerage) or a person that executes the trades. Its income results from the commissions it charges customers for executing trades. The broker is a member of the exchange, and is regulated as such.

Cash and carry arbitrage Simultaneously buying physical commodities and selling a futures contract, to profit of an overpriced futures market. The commodities can be delivered against the futures contract after storage for the required period.

Cash settlement Refers to futures contracts that are settled in cash on expiry (instead of through a physical delivery), at the current price in the market. The formula for deriving this "current price" is set in the contract. It can for example be based a published index (eg., rainfall), an international price converted at the current exchange rate into a local price, or a weighted average of the prices quoted in the last few days of the contract in the main physical market places.

Central Counterparty Clearinghouse (CCP) An entity through which futures and other derivative transactions are cleared and settled. It is also charged with assuring the proper conduct of each contract's delivery procedures and the adequate financing of trading. A clearing organization may be a division of a particular exchange, an adjunct or affiliate thereof, or a freestanding entity. Also called a clearinghouse, multilateral clearing organization, centralized counterparty, or clearing association. The CCP performs its role by becoming the buyer to every seller and the seller to every buyer through the novation of contracts at the time an order is matched by an exchange. The CCP manages the counterparty risk through taking 'margins' – collateral of various forms - from the approved counterparties, relating to the positions that counterparty has opened on the exchange.

Clearing The procedure by which an organization – usually called the Clearinghouse – assumes the role of buyer and seller to all transactions in a particular market.

Clearing member A member, shareholder or other entity that pledges to protect the clearinghouse against the default of other members. Clearing members are accountable for the trading activities of their customers; they retain the right to liquidate open positions held by any customer that fails to deposit sufficient margins.

Contract When referring to the trade on an organized exchange, the contract is the unit that is traded, as defined by the exchange. Typically, a contract specifies at least the volume, the quality and the date of delivery, leaving the price open for the buyer and the seller to establish. A contract may be given a name base on the month in which delivery is due, such as the "December contract for white maize."

Delivery The process of tendering and delivering a physical commodity under the terms and conditions of the futures contract and other markets regulation. In most derivatives markets, the clearing member short initiates the deliver process by tendering warehouse receipts or other allowable instruments (*i.e.*, shipping certificates) to the Clearinghouse in satisfaction of its open sales contracts. The Clearinghouse in turn assigns the deliveries to the long holding the oldest purchase contracts. Delivery is completed with the transfer of ownership and final payment.

Derivatives	A financial instrument, traded on or off an exchange, the price of which is directly dependent upon (*i.e.*, "derived from") the value of one or more underlying securities, equity indices, debt instruments, commodities, natural phenomena such as weather (*e.g.*, a rainfall index), other derivative instruments, or any agreed upon pricing index or arrangement. Derivatives instruments are risk management instruments that enable participants to 'hedge' against risks – including commodity price risk, foreign exchange risk, and interest rate risk. These may be traded on an exchange platform, or bilaterally between counterparties, with the latter known as the Over The Counter (OTC) market.
Derivatives market	Any market transacting in derivatives instruments. The primary purpose of a derivatives market is to transfer risk to another party.
Exchange	A central marketplace with established rules and regulations where buyers and sellers meet to trade futures and options contracts or securities.
Forward contracts	Bilateral transactions that specify the delivery of physical commodity to a particular location at a forward time period.
Futures	Exchange-traded securities which constitute an agreement to purchase or sell a commodity or asset for delivery or cash-settlement in the future: (1) at a price that is determined at initiation of the contract; (2) that obligates each party to the contract to fulfill the contract at the specified price; (3) that is used to assume or shift price risk; and (4) that may be satisfied by delivery or offset. Futures contracts are serial, *i.e.*, listed in sequential intervals (normally by months) and are standardized in terms of quantity, quality, and expiration. Unlike forwards, futures contracts undergo a clearing process by the exchange clearinghouse. A futures contract imposes an obligation on the purchaser (the "long") to buy a specified amount of an identified grade or form of a commodity at an agreed upon date in the future. The seller of this contract (the "short") is obligated to make delivery at the date specified. Because the terms of futures contracts are standardized, the obligations incurred by the parties may be offset through the purchase or sale of an equal and opposite contract instead of through physical delivery.
Futures exchange	Any market transacting in futures contracts. Many futures exchanges transact in other derivatives such as options or swaps. The terms futures exchange and derivatives market are often used interchangeably.
Hedge	The temporary purchase or sale of derivatives to offset a change of valuation of an underlying asset.
Hedger	A trader who enters into positions in a futures market opposite to positions held in the cash market to minimize the risk of financial loss from an adverse price change; or who purchases or sells futures as a temporary substitute for a physical transaction that will occur later. One can hedge either a long physical position (*e.g.*, one owns the physical commodity) or a short physical market position (*e.g.*, one plans on buying the physical commodity in the future). For example, a producer performs a short hedge by selling an amount of futures equivalent to his expected production. Similarly a processor wishing to protect himself against the risk of rising prices performs a long hedge by buying futures in advance of physical purchasing requirements. Hedges should be liquidated when the physical transaction is completed.
Liquidity	A market that experiences a high volume of trades is said to be "liquid." This is generally a good condition in that markets with lower liquidity tend to be more erratic, those wishing to buy or sell contracts may find it difficult to find counterparties (in particular for larger volumes), and the costs of trading are higher. Illiquid markets also tend to favour the non-commercial market participants over hedgers.

Long	Someone has a "long" position if he purchases a futures contract, enabling him to make a profit on the contract if the price of the commodity increases.
Margin	A performance bond deposited with the Clearinghouse by a clearing member (the clearing member is generally obliged by regulations to demand the same or higher deposits by the clients on whose behalf they are holding the position). Margins include "initial margins" that are deposited in advance of trading and "maintenance margins" that fluctuate with the valuation of the open positions maintained by the member. Initial margins vary among the various markets, but are usually less than 10 percent of the notional value of the contract. During times of high price volatility, exchanges often raise margin levels to guard against default.
Options	Exchange-traded securities or OTC instruments which a contract that gives the buyer the right, but not the obligation, to buy or sell a specified quantity of a commodity or other instrument at a specific price within a specified period of time, regardless of the market price of that instrument. The price at which the right is bought and sold is called the option premium.
Over the counter market (OTC)	A market in which buyers and sellers engage in bilateral transactions. OTC markets are less regulated than derivatives markets. OTC transactions are increasingly cleared through clearinghouses.
Repo	Short for repurchase agreement. The repurchase agreement is formed when one party sells, or puts up collateral for a loan, a security to another party and then agrees to buy it back at a predetermined future date and price. A repo is issued for the purposes of short term borrowing. While legally, they are sale-and-buy-back agreements, from a financial perspective, they are essentially short term loans taken against collateral (physical commodities, invoices, future receivables) and used for a variety of reasons, including liquidity management (the maturity of the loan can easily be made to match underlying cashflow needs) and reducing financing costs.
Short	The holder, or the holding, of a futures position that makes a profit if the price declines. Essentially, it amounts to selling a contract one did not previously own. Typically, a producer who wishes to hedge his crop would "go short" by selling futures: if prices on the physical and futures markets fall, his loss on his crop will be compensated by his gain on the futures position.
Spot market	Also called 'Cash market' or 'Physical market': for the immediate physical transfer of an asset, which may include a commodity, a stock, a bond, etc. In the context of commodity trade, "immediate" is taken to mean less than a certain number of days (e.g., 3 days, 11 days...)
Swap	The exchange of a sequence of cash flows that derive from two different financial instruments or assets. An exchange of a "fixed" for a "floating" interest rate agreement is an example of a swap. Swaps trade as bilateral agreements in the over the-counter-market and as derivatives on regulated exchanges.
Weather futures	Weather risk management instruments – futures, options and a range of over-the-counter products – provide coverage for a series of weather-related risks: rainfall, temperature, wind strength, cold days, number of hours of sunlight. In all these cases, an index is made available (e.g., number of millimeters of rainfall in location X), and people can take a position in this index. Payouts, then, will follow the development of the index. For example, if a farmer sells rainfall futures, and rainfall falls below the index, he will receive X amount for each mm that the rainfall has fallen; if the correlation between rainfall on this farm and the index is good, this will compensate him at least in part for the yield losses that he resulted from the low rainfall.

Annex Country profiles

Benin

The review of the country's investment plan for agriculture, in the framework of CAADP, contains a recommendation to develop a national exchange for Agricultural commodities, and participate in the development of a regional exchange.[57]

Botswana

Home to two pan-African exchange initiatives, first PACDEX, then Bourse Africa. While the PACDEX initiative has faded away and Bourse Africa is still not operational, the country has developed a sound infrastructure for regulating an international exchange and its clearing operations.

Burkina Faso

A NGO, Afrique Verte, has since December 1991 organized "*bourses céréalières*" – which can be translated as cereal exchanges or cereal fairs – in Burkina Faso to enable direct meetings first farmers' associations of surplus and deficit regions, then incorporating also traders, transporters, processors and others to facilitate cereals trading among regions. Volumes remain small (around 12,000 tons in 2009, 1,000 tons in 2011), in particular when compared to the volumes in Mali (over 50,000 tons traded at the main exchange event), where the same NGO organizes similar exchanges/fairs.[58]

These physical exchanges are interesting not so much for their volumes as for what they indicate in terms of the benefits of better-structured relationships in the commodity supply chain. There is clearly a demand from market participants for better structured trade, a demand that a well-structured electronic exchange platform can attempt to meet.

Cameroon

In Cameroon, discussions on the creation of a national commodity exchange, which would grow to become a reference point for Central Africa, started in 2009.[59] In 2012, Cameroon's Chamber of Agriculture, Fisheries, Livestock & Forestry brought together some 400 producers representing the various regions of the country, who discussed how to set up a proper price information system, and how an exchange could help them market their produce. Apart from providing an electronic trading platform, the exchange would operate a warehouse receipt system as well as a real-time market information system, and set up a grading and quality control system. Its first focus would be on coffee and cocoa. There have been so far no concrete steps towards implementation.

Côte d'Ivoire

Although there is a semi-government body called the "Cocoa and Coffee Exchange" (*Bourse de Cacao et de Café*, BCC), in reality this body does not function as an exchange but rather, as a taxation agency. But over the years there have been regular calls for the creation of a real exchange, particularly for the local (pre-export) part of cocoa, coffee trade and most recently, cashew nut trade. Such trade would be based on warehouse receipts.

In 2012, the African Capacity Building Foundation started a feasibility study with the International Cocoa Organization on establishing a cocoa commodity exchange, which would be the launching platform for a regional commodity exchange.

[57] NEPAD, *Revue post-compact du PDDAA, République du Benin, Rapport Pays, Septembre 2010*

[58] See for an overview Afrique Verte's presentation on cereal exchanges at http://www.syngentafoundation.org/__temp/Bourses_ce%C2%B4re%C2%B4ales_Haidara.pdf

[59] UNCTAD, 2009b

Egypt

Established in 1861, the Alexandria cotton exchange was the world's oldest cotton futures market, starting a decade before the New York Cotton Exchange. It became and remained for over 90 years one of the world's leading exchanges, trading spot and futures contracts in not just cotton but also cotton seed and cereals. It had a largely international character: of the exchange's 35 registered cotton brokers in 1950, only two were Egyptian.[60] This did not endear the exchange to the new, nationalist Nasser regime which gained power with the 1952 Egyptian Revolution. The exchange was closed for three years in 1952, and after being allowed to trade intermittently over the next years, it was finally disbanded in July 1961 (the year of its centennial celebration).

The idea of reviving the exchange has been discussed on and off, starting in the 1990s, but has not yet led to any concrete initiatives.

In 1994, the Egyptian Parliament passed a series of laws to liberalize the country's cotton sector. These included a law authorizing the establishment of a Spot Cotton Exchange. A Spot Cotton Exchange was opened in Alexandria, but no efforts were made to execute any trades on or through the exchange. This law has since been abolished.

In the mid-2000s, as the country was going through the liberalization of is economy, Egypt's Ministry of Investment expressed an interest in establishing a commodity exchange by the end of 2007. USAID commissioned a report[61] to assess the practical conditions and outline the way forward. The report finds that "in answer to the fundamental question as to whether or not Egypt can establish a futures exchange, the answer is clearly "yes". It will require good management, the resolution of a number of issues, and due coordination of organizations and resources."

Among the positive conditions are the existence of a securities exchange which can be a base for establishing a commodity exchange as well as strong securities regulator which can simply add a commodities division; experience with clearing; adequate transport and storage infrastructure (with the exception of the warehouse system and cold chains), a sound technological basis for electronic trading, and a large group of highly educated professionals with international experience, including in futures trading.

The main issues that the report identifies are as follows:

- There are still some government controls related to prices.
- There are political pressures to cause markets to function in accordance with official policy; the government should accept that it cannot treat a commodity exchange as a policy tool.
- There are still expectations on the part of some farmers that the government is the responsible party to ensure they receive an equitable price for their product.
- The physical market needs to be strengthened.
- The legal basis may need to be strengthened.

The USAID report found that the private sector (with many companies already using international futures exchanges) as well as senior government officials were strongly in favour of establishing an exchange. In a paper contributed by the Government of Egypt contributed to an UNCTAD meeting that same year, it was said that "it is planned to have a commodity futures exchange." (...) "Although Egypt will begin with a futures commodity exchange, it is hoped that development of the spot market will occur concurrently."[62]

Following the USAID report, further deliberations led to the conclusion that a commodity futures exchange should be a part of a more comprehensive derivatives market that would trade both commodities and financial instruments. A new chapter was included in the Executive Regulation of the Capital Market Law to regulate all such derivatives trade. In 2008, the country's state-owned stock exchange, the Egyptian Exchange (then still called the Cairo & Alexandria Stock Exchanges, CASE) included the possibilities for launching a commodity futures platform in its strategic discussions on the inclusion of financial derivatives.[63] CASE designed a strategy to create a for-profit derivatives exchange, at an estimated cost of US$ 40 million, with financial derivatives (futures on its stock indices as well as single stock options) to be introduced first. Commodity futures could be introduced after financial derivatives start trading successfully. There has been no further progress on this matter.

[60] http://www.egx.com.eg/english/History.aspx
[61] Browser, 2007.
[62] Government of Egypt, 2007.
[63] CASE, 2008

Ethiopia

One of the ten action points of the agricultural action plan adopted by the Government of Ethiopia in late 2003 was to study the possibilities for creating a commodity exchange. Earlier research by IFPRI, a research institute in Washington, had shown that much of Ethiopia's cereals trade was done in a manner similar to a primitive open outcry exchange system. The country had also been considering turning its coffee auction into a commodity exchange system (it converted it into an electronic auction system in 2005).

In 2005, a report published by the Ethiopian Development Research Institute recommended "an integrated commodity exchange development initiative which will include developing all the components of the system, including the warehouse receipts system".[64] Work on setting up the exchange accelerated after this. In 2006, the Ethiopian government established the Ethiopia Commodity Exchange (ECX), and received support from a range of development partners (UNDP, World Bank, USAID, Canadian Development Agency, World Food Programme) for its development. In April 2008, ECX started trading.

ECX started with an open outcry spot trading mechanism. By law, deliveries had to be based on warehouse receipts. While EXC can in principle certify third party warehouse operators, in the absence of a strong warehousing system it decided to manage all its delivery warehouses itself. On receiving goods[65], warehouse managers issue electronic warehouse receipts, which are then traded on the exchange (or pledged against bank loans).[66]

Starting with one coffee warehouse in April 2008, ECX rapidly expanded its warehousing presence, to 57 in early 2013 (the exchange hopes to spin off the warehousing operations into a separate company). While all trade is quoted in "arrived Addis Ababa" prices, a location differential is applied to the price, based on a public and regularly updated table.

ECX started trading grains (maize, wheat), with little success. It then switched to coffee, helped by a decision from the government of Ethiopia to replace the traditional

Table 7
Growth of ECX volume (in 000 tons) and value (million US$)

Commodity	EFY 2001 (2008/09)		EFY 2002 (EFY 2009/10)		EFY 2003 (2010/11)		EFY 2004 (2011/12)	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value
Coffee	48	10.4	220	363.5	238	751.7	227	826.1
Sesame	0	0.1	0	0.4	225	239.7	300	318.8
Pea Beans	-	-	-	-	40	18.0	66	28.4
Maize	-	-	1	-	6	1.1	0	0.2
Wheat	-	-	0	-	-	-	-	-
TOTAL	**48**	**10.5**	**222**	**363.9**	**509**	**1,010.6**	**593**	**1,173.5**

Source: Amha, 2013. EFY refers to the Ethiopian Fiscal Year, which ends on 7 or 8 July.

[64] Gabre-Madhin and Goggin, 2005.

[65] ECX generally receives goods by the truckload (5 tons), as the size of the country is such that warehouses tend to be quite far away from most producers. For example, ECX has several coffee warehouses in the country. Each warehouse serves many districts. Coffee is collected in each district, under supervision of a Ministry of Agriculture inspector, and bagged and loaded into trucks. The inspectors ensure that the moisture level of the coffee meets ECX requirements, and seal the trucks; they give suppliers a voucher evidencing their delivery. On arrival at the ECX warehouse, the coffee is graded, and also given a geographical indicator referring to its origin (but not very detailed – an indicator can cover several districts). After that, it can be auctioned, with a rule that what enters the warehouse first has to sold first. (Mercanta Specialty Coffee Merchants, Ethiopia Trip Report, 3 July 2012)

[66] Depositors have a limited time to sell the warehouse receipts – the sale has to be made within 60 days after the deposit for haricot beans and sesame, 20 days for coffee. When coffee trade was started in 2008, the available time was 90 days. Traders who cannot make their sales within the maximum period face hefty penalties; traders complain that this at times forces them to sell at overly low prices.

coffee auctions by ECX. The Coffee Auction all coffee trade, both for the domestic and the export markets, would henceforward have to be traded through ECX. This drove its volumes up sharply. In September 2011, it similarly received monopoly trading rights for two other export commodities (sesame and pea beans). Reportedly, the government is considering to add wheat and maize as commodities that obligatory have to be traded through ECX in 2013. Further new commodities, such as hides and leather, are also under consideration.

ECX has become Africa's largest exchange after South Africa's SAFEX. Table 5 shows the growth of its traded volume and value.

Some of ECX's achievements:[67]

- 450 Members, 7800 clients, of which 12% farmer cooperative unions. 2.4 million small farmers reached.

In 2010-11: 509,000 tons of commodities (coffee, sesame seed, pea beans, maize) were traded[68], and in 2011-12, 593,000 tons. Virtually all trade was in commodities for which use of the exchange was mandatory for all export transactions.

- In 2010-11, the exchange saw 109,500 transactions and reached US$ 1 billion trade value; in 2011-12, this increased to US$ 1.2 billion.
- By the end of 2010/11, it had established 55 warehouses in 16 locations with capacity of 2.8 million bags (approximately 168,000 tons).
- It graded, handled, stored, and delivered 4.7 million bags/year.
- The exchange had 551 direct staff by the end of 2010/11, and well over 2,000 outsourced staff.
- ECX had 8 partner banks in 2010-11: who handled large number of pay-in and pay-out transactions before 11 am on the day after trading. They have also started providing some warehouse receipt finance. By early 2013, the number of partner banks had increased to 11.
- ECX provided market data in various ways, including to rural ticker boards. Its SMS service had 156,000 subscribers, and it received 61,000 calls a day asking for price information.
- Farmers widely seek ECX price information, and many farmers report significant price improvements.

The exchange is one of the three regulatory bodies in the commodity exchange sector. Table 8 indicates the structure and distribution of responsibilities between the three.

Table 8
The three bodies governing commodity exchange trading in Ethiopia

	Ethiopian Commodity Exchange Authority (ECEA)	Ethiopian Commodity Exchange (ECX)	National Exchange Actors Association (NEAA)
Regulatory responsibilities	Approve and regulate contracts, all exchange actors (members, banks, advisors), trading and other ECX rules. Investigative powers, and the power to adjudicate cases.	Day-to-day management of exchange, and oversight over warehouse receipt system	Uphold and maintain the standards of integrity, professionalism and skills of all exchange actors. Train and test members, member audits.
Governance	Several Ministries as well as the National Bank of Ethiopia are on the Board. Reports to the Prime Minister	ECX is owned by the Government of Ethiopia. However, there is a strict separation of ownership, membership and management. Board consists of government representatives and members (mostly from the private sector).	Board members represent the various commodity sectors.

Source: http://www.ecx.com.et/Membership.aspx

[67] Compete, 2011.

[68] Trade is in consecutive separate sessions for each commodity, varying from 30 minutes to four hours in duration; some commodities (sesame, export coffee) are traded daily, others one (grain) to three times (coffee for the local market) a week (Alemu and Meierdink, 2010).

The obligation to trade through the exchange was not received enthusiastically by many coffee traders (and despite a potential 20-year prison term for not trading through ECX, smuggling increased after ECX became operational). Particularly for better quality Arabica coffees, the system originally introduced by the exchange was too rigid and slow, and failed to provide traceability between producers and buyers, causing a loss of quality premiums.[69] Improvements in the trading system were made quite slowly. Trading commissions (0.2%) are also considered high.

ECX currently operates as a spot exchange. While the country's government appears wary about permitting the introduction of futures contracts, the exchange at some time will need to introduce futures in order to survive, in particular when traders are no longer obliged to use the market.[70]

Ghana

Since the late 1980s, when the Ministry of Finance and Economic Planning first mooted the idea, there have been discussions on the possibilities for creating a commodity exchange in Ghana. There were three different private-sector driven initiatives, and a number of studies were done. A first exchange venture, the Accra Commodity Exchange, was incorporated in 1995 by a group of entrepreneurs linked to the grain sector; but they failed to get others to support the initiative. In 2008, a private promoter announced that he was launching the West African Commodity Exchange, with its headquarters in Accra. He sought investments of US$ 500 million to start the initiative. Unsurprisingly, nothing more was heard from this initiative.

The most persistent project was one, called Commodity Clearinghouse (CCH), to introduce an exchange oriented at banks which offered the trade in commodity-backed warrants (warehouse receipts). Through the exchange, banks and other financial institutions could provide financing using repurchase agreements, with the warrants guaranteeing the transaction.[71] Work on building such an exchange started in 1996 and intensified after a USAID-sponsored workshop on the "Ghana Futures Exchange" held in 1999. In September 2002Soon thereafter, CCH was given a provisional license by the Bank of Ghana to develop a commodity clearinghouse scheme that would offer trade in warehouse warrants.

CCH submitted its proposals in 2004, and the Government of Ghana decided the proposed trading scheme could be better regulated by the Securities Exchange Commission. The Government also included a "regulated warehouse receipt system", to anchor the delivery system. The exchange project was included in its 2004 budget to solicit development partners' support. But while interest of banks and commodity traders (and large producers) in the project was quite strong, regulatory issues (in particular, the definition of "securities" under Ghanaian law, which excluded warrants) hindered progress, and the critical mass for its launch was never reached. CCH decided there would be a need for an effective delivery system (a warehouse receipt system) before an exchange could work. They therefore decided to set up a subsidiary company to explore a money market-traded repo system based on a regulated warehouse receipt system that can guarantee delivery of the underlying and also help aggregate commodities into standardized storage systems.

The large number of workshops organized around the above activities strengthened the awareness of commodity exchange issues, and towards the end of the 2000s the official attitude towards the idea of setting up an exchange improved. Both the Ministry of Agriculture and the Ministry of Finance became interested in having a commodity exchange for "everything but cocoa". Starting in 2008, with World Bank funding, further studies were undertaken, including on the legal and regulatory conditions for a viable exchange and warehouse receipt system. These studies concluded that it was feasible to establish a Ghana Commodity Exchange (GCX) and warehouse receipt system.[72] In the short run, the exchange could offer spot trading facilities, as well as trade in commodity repos (ie., repurchase instruments backed by warehouse receipts) and transport-related instruments. A futures market would

[69] See for example http://poorfarmer.blogspot.co.uk/p/ecx-watch_15.html.

[70] According to its founder CEO, "Can the Ethiopia Commodity Exchange be successful in the sense that it attracts and retains significant market players, improves market performance, and expands the size and scope of the market ***without*** offering contracts for future delivery to its clients? The simple answer is No." The main reason for this is that "an Exchange that only offered spot trading would mean that the Exchange could ***not*** fulfill a central function to all Exchanges which is to address market risk. This would first and foremost compromise the fundamental value that the Exchange would offer to market actors." (Eleni Gabre-Madhin, An Eye on the Future: Can the Ethiopia Commodity Exchange Succeed Without Futures?, 31 May 2007)

[71] The idea was that after 20-25 per cent of physical commodity trade was brought into the warrant financing scheme, then the exchange could start offering a spot market; which over time could develop into an over-the-counter forward market; and after a number of years, the exchange could then look into the possibility of futures contracts or a link with a major futures exchange. (Aning, 2007)

[72] Onumah, 2010.

be developed afterwards. It was intended that the exchange eventually becomes an integral part of a regional or pan-African network. In April 2012, work on a draft legal and regulatory framework was completed.

Press reports in early 2012 referred to plans of the Ministry of Trade and Industry and the Securities and Exchange Commission to jointly establish GCX "by December 2012". This expectation was based on the premise that funds would be available from development partners and the Ethiopia Commodities Exchange would be contracted to undertake a turnkey project delivery of an exchange in Ghana. However, there was no support from the development partners for such a venture led by the Government and the initiative stalled.

On the other hand, work on introducing commodity warrants, which can lay the basis for the development of a private-sector led exchange, has progressed. The focus for piloting the CCH strategy, mentioned above, had been shifted to commodity financing and aggregation through a regulated warehouse receipt and warrantage system. The commodity asset-backed warrant scheme was designed in consonance with the local demand profiles of both the commodity trade financing requirements and the financial investment (largely, money) market yield and distribution curves. It aims to move agriculture from the current atomistic, non-industrial production and storage centers into accredited warehouses and silos, in standardized lots, graded, shelf-life certificated, insured with no loss guarantees, and financed sight unseen. In 2012, CCH arranged lines of credit for repo contracts totaling about US$ 16 million to finance for grains, coffee, and sheanuts from local banks. Its first repo was on the basis of the first issued regulated warehouse receipts of the Ghana Grains Council, to the tune of cedi equivalence of US$ 1.2 million of white maize in early 2013. In addition to this novel contract, CCH has a repo trade book value of about 8,000 metric tonnes of white maize and about 5,000 metric tonnes of sheanuts.

The repo system for grains makes use of an manual/electronic warehouse receipt system developed and operated by the Ghana Grains Council, which also licenses and supervises the warehouses involved. This emerging warehouse receipt system is expected to support the development of the larger exchange through a progressive market development.

The exchange will first trade regulated warehouse receipts (repos). The repo process will eventually develop its own secondary market, with forward trading of physicals via the repos, then the trading of the repos (through commodity-backed warrants) and related regulated services on a cash exchange. To facilitate this, CCH has been hooked into the Ghana Inter-bank Payment and Settlement System of the Bank of Ghana. Like all market instruments in Ghana and other developing markets, it takes time to build credibility, which can support volumes of trade, which then create its own secondary markets by bringing along other institutional investors into the market.

CCH is pioneering the trading of repos in the money market. It is expected that the exchange that will eventually emerge from this process would be a completely independent private stakeholder led project based on both the CCH's business model and the Grains Council warehouse receipt system.

The development of an exchange in Ghana is not expected to follow the patterns of development in other African countries, where the governments become the owner of the exchange and map out its development pathway, with the private sector just coming in as users/members. Farm production dynamics, post harvest economics, history of failures of public institutions, traditional and industrial market demands, financing requirements, etc. would dictate that government only provide the necessary support for the development of such an exchange by stakeholder private sector interests. The massive growth of the Ghana Grains Council over a short period of its existence, with membership extending to the leading banks and financial institutions, insurance companies, commodity aggregators, warehousemen, processors and traders, etc, point to the inevitability of this process.

Kenya

The first attempt to create a commodity exchange in Kenya dates from 1997, when a private entrepreneur created the Kenya Agricultural Commodities Exchange, KACE. KACE had two main components, a physical delivery platform and a "Regional Commodity Trade and Information System". The delivery platform was originally envisaged as a physical auction, conducted at KACE's trading floor in Nairobi[73], then reconfigured as an electronic bulletin board. On the board, sellers and buyers could, using the internet, "advertise" commodities they wished to sell or buy, and if the two agreed the exchange would arrange the financial and logistical aspects of the sale. Only a handful of transactions were ever done on the physical delivery platform, and the electronic bulletin board rarely led to transactions.

KACE identified several reasons why its trading platform did not succeed:[74]

- Lack of awareness on the part of potential participants about the exchange.
- Individual shareholders did not produce a high enough volume to benefit from the exchange's services.
- The commodities offered on the exchange were not graded or standardized, and therefore they failed to attract large-volume (commercial) buyers.
- The exchange did not have the capacity to provide complementary services such as storage and reliable commodity market information, especially prices in domestic, regional and world markets.
- Potential buyers lacked credit to finance purchases, and sellers were unable to leverage the value of stored commodities.

To address these constraints, KACE would have had to invest in establishing farmer/trader managed buying/education centers, in setting up a grading system, and in developing a network of warehouses through which banks could give warehouse receipt finance to depositors (the warehouses would be part of service centers, which would also provide educational services, grading facilities and price information services[75]). It would also need to create linkages with other countries in the region to enable regional trade. All of which would require significant funds, when compared to KACE's operational budget, when it was created, of US$ 50,000 a year. KACE could not afford to develop a trading platform, and thus, still in its early years, it decided to focus on the provision of market information, which was of more interest to development partners than a commodity exchange. Users pay for the information, but most of KACE's funding since has come from various development partners. KACE made another foray into providing a trading facility through a radio show, which has shown some volumes (see Box 13), but was never enough of a success to act as the basis for a serious exchange effort.

In the late 1990s, there were two other exchange initiatives. In 1998, the Coffee Board of Kenya set up the Nairobi Coffee Exchange, with an electronic auctioning system.[75] It took over the functions of the previous auction company. It aspired to become a regional hub for coffee trading, and hoped that it would be able to offer futures contracts in due time. This has so far not happened. Kenya was also the site for Africa's first internet-based commodity exchange, Africanlion – subtitled "where Africa trades". The vision of this private initiative was to "create the premier Internet Commodity Exchange to support trade in African soft-commodities such as tea, coffee, cocoa, macadamia nuts and cotton. Our strategy is to develop an Internet-based platform where African exporters and producers can offer their commodities to the world". But the trading facility it could offer never evolved beyond a bulletin board, and with no serious support from users, the company disappeared.

Most of the following decade was quiet on the commodity exchange front. In 2009, the Nairobi Stock Exchange announced plans to launch a commodity exchange the next year, to trade at the beginning maize, wheat, rice and beans. The exchange was to start in June 2010, with as other promoters the National Cereals Produce Board (NCPB), the Kenya Agricultural Commodities Exchange (KACE), and the Eastern African Grain Council (EAGC).[77]

[73] Mukhebi, 1998.
[74] Mukhebi, 1998.
[75] Mukhebi, 2000.
[76] This is not the same as an exchange trading system. In the Nairobi Coffee Exchange's auction system, coffee lots are auctioned off one by one. Prices are displayed on an electronic screen at the trading floor. Prices start high, then go down until a bid is made, and then they rise again as long as there are new bids. If there are no bids during five seconds, the latest bidder is the buyer.
[77] See Progress Report on establishment of the commodity exchange in Kenya, ECX-UNDP Knowledge Forum, 24 February 2010.

Box 13
KACE's radio trading shows

In 2007, KACE started a trading show ("market on the airwaves") on one of Kenya's regional radio channels. This show permits buyers and sellers to advertise their trades, for a small fee. KACE's Marketing Resource Centre staff in the villages must verify the veracity of a bid or offer, in terms of availability, quantity, quality etc., before it can be broadcasted. KACE staff sends the verified bids and offers to the radio programme manager, who compiles them for each week's radio show. Interested buyers or sellers can then call or SMS to respond to an offer or bid. Radio programme staff help match the offers and bids, using mobile phone calls and SMSs, and if necessary referring back to the Resource Centre staff; at the end, the two parties that are matched are left to negotiate a deal. While the radio programme is only live one hour a week, people can call at any time, and operators can then put them in touch with potential counterparties from the database of recent bids and offers. In the 2011 financial year, US$ 14 million worth of transactions were recorded – some 500 transactions per week.

Source: Karugu, 2011. See also the case study on KACE in Beverley Schwartz, Rippling: how social entrepreneurs spread innovation throughout the world, Jossey-Bass, 2012.

NCPB as well as the Kenya Planters' Cooperative Union were to use their silos and warehouses to store produce earmarked for trading at the commodities exchange. In June 2010, the promoters however announced that the plan was postponed, and that a new feasibility study would be done to test farmers' attitude towards both the grain warehouse receipt system and a commodity exchange. Ultimately, the plans did not come to fruition.

The objective to establish a commodity exchange was nevertheless included in the 2010 budget speech of Kenya's Finance Minister. A Task Force was set u, led by the Office of the Deputy Prime Minister and the Ministry of Finance, with several other ministries involved. It submitted its report in December 2010. In 2011, this led to the publication of a request for proposals, in which the Capital Markets Authority invited interested parties to bid for the right to set up a commodity exchange. Several groups participated in the tender, some of which were set up especially for the occasion[78], but several of which represented serious exchange initiatives. Nevertheless, the government decided to halt the process, and first to do an extensive consultancy process on the policy, legal and regulatory conditions for a commodity exchange. The consultant finally started in January 2013.

Kenya also hosts the "African Carbon Exchange"[79], set up in 2011 by carbon brokers and financiers with support from governmental utilities and the Ministry of Environment and Natural Resources. It aims to become an independent, for-profit exchange over time.

Libya

In 2007, Libya's stock exchange started to consider the possibility of creating a commodity exchange (the Pan-African Commodity Exchange). It was modeled after the Dubai Gold and Commodities Exchange, and would have both a Mediterranean and an African focus. One aspiration was that it would form the start of a network of African exchanges, using a franchising model. The stock exchange commissioned a study by one of India's commodity exchanges on the topic, but a number of important obstacles were identified (in particular the state of the country's banking and financial sector). Following internal disagreements in the stock exchange the project was stopped.

Malawi

Malawi has been rather active when it comes to commodity exchanges, with three exchange initiatives.

The oldest of these is the Agricultural Commodity Exchange for Africa (ACE), set up in 2004 under a USAID project with the country's main farmers' association, the National Smallholder Farmer's Association of Malawi (NASFAM). NASFAM already had a subsidiary called NASFAM Commodity Marketing Exchange – a trading company for selling farmers' products, not an exchange, but it indicates NASFAM's interest in the concept. The exchange started operations in September 2006.

[78] For example, the African Derivatives Exchange, Afridex, http:// http://www.afridex.co.ke/
[79] http://www.acxafrica.com

ACE operates in four complementary domains:[80]

- **Market information.** This was the area in which ACE started, setting up a system for collecting and disseminating price data for some 45 commodities from trading centers around the country.

- **Trade facilitation.** After a few years, the information hub began to facilitate trade between centers as exchange staff link buyers and sellers in different markets who have submitted bids and offers, using the internet. ACE initially offered only a traditional trading facility, matching bids and offers. To manage the risk of buyers' default, ACE operates a settlement account, into which buyers deposit the full contract value of their purchase before they can take delivery. However, the number of failures to deliver by sellers, particularly smallholders, discouraged trading.[81]

  In March 2010, ACE added a new trading modality specially for WFP, the "Bid Volume Only" auction, in which the buyer fixes the quantity of a specific commodity he wishes to buy, and interested sellers place offers at fixed prices online. Interested suppliers and brokers join at a trading floor two hours before the close of the auction, and start competing for the right to supply WFP. Winning sellers are informed after the close of the auction. The auction has been integrated with ZAMACE to allow WFP and similar buyers to procure regionally.[82] In May 2010, the first commercial buyer used the auction facility to procure grains from farmers' groups; after their positive experience, five other large commercial operators started doing the same.

  With this new auction system, trading volumes in 2010 reach 20,000 tons, and in 2011, they grew further to 41,480 tons, with WFP alone accounting for 60 per cent of this. In December 2012, ACE reached a milestone of having traded 100,000 tons. In value terms, trade was 1.4 million US$ in 2006, and it increased to 47 million US$ in 2009.[83] In the years after, it fell again, to US$ 9 million in 2011.[84]

- **Implementing a warehouse receipt system.** Although it had been advocating a warehouse receipt system from its inception in 2005, ACE registered its first receipt only in August 2011; it would issue three more receipts by the end of the year. In 2012, it issued 80 receipts, for a total of 6,731 tons.[85] The use of receipts was meant to boost the traded volumes: sellers can't default on their delivery if they sell a warehouse receipt. ACE's original aim was to set up an independent company (called "Indemnity Trust") which would build rural storage (1,000 tons rural silos, to be managed by NASFAM), and would provide a revolving indemnity fund.[86] While this is still envisaged at some time in the future, ACE soon focused on forging partnerships with private sector warehousing companies. In 2012, alongside three 500-ton warehouses managed by ACE and NASFAM, the exchange warehouse network comprised six private warehouses with a total capacity of 81,000 tons. ACE also operates a warehouse receipt registry, through which the public can check how many receipts have been issued, where, and if they are offered for sale, at what price.[87] ACE is discussing with ZAMACE in Zambia and UCE in Uganda to harmonize the warehouse receipt rules, so as to enable them to be traded regionally.

- **Financing goods under warehouse receipts.** As banks were slow in fully utilizing the possibilities of warehouse receipt finance, ACE has used its own capital to finance stocks that are secured through warehouse receipts, to complement the finance made available by banks.[88] Warehouse receipt finance increased from US$ 15,000 in 2011 to US$ 117,000 in 2012.[89]

[80] See Morua, 2012.

[81] Defaults are encouraged by the high price volatility in many of Malawi's commodity markets. For example, in July 2011 a farmers' group managed to lock in through ACE a price for their soyabeans of US$ 266 per ton, for forward delivery. A month later, the price had increased to US$ 562 per ton, and the farmers defaulted (ACE, Final Report to AGRA, 2012).

[82] ACE, 2012.

[83] Schach Moller, 2010.

[84] With a running cost of about US$ 160,000 a year, ACE needs a volume of 400,000 tons to break even – that is almost ten times its 2011 volume. ACE thus continues being heavily dependent on development partner funding. Since its inception in 2004, development partners have given close to US$ 2 million to the initiative (Struyf and Sommeling, 2011).

[85] Morua, 2012

[86] Schach Moller, 2010.

[87] ACE, 2012

[88] Morua, 2012.

[89] Schach Moller, 2013.

Box 14

The Agricultural Commodity Exchange for Africa (ACE) – three phases

ACE was established in July 2004, with a grant from USAID through NASFAM. The main objective was to bring more order to the market place, following the halt of the State's marketing board operations. ACE's exchange trading platform began in October 2006. Initially, the goal was to develop a regional platform. ACE quickly got members from Malawi, South Africa, Zimbabwe and Zambia, who believed that through the exchange, they would be able to buy commodities from Malawi. This created demand, which was expected – and indeed, succeeded – to attract supply. Farmers' groups indeed entered into forward contracts on the exchange. However, they soon started defaulting, because others offered more or because they were unable to accumulate the required quantities. The regional traders lost interest.

In 2008, ACE was forced to change strategy. Instead of creating a demand from the region, ACE focused, with further development partner support, on the training of NGOs, extension workers and farming associations. The goal was to create a capacity of farmers to aggregate supply and offer it on the exchange. This was successful and farmers' groups started offering bulked supplies on the market. However, buyers had no trust in their promises, so the farmers found few buyers for their produce, causing disillusion with the exchange system.

So, a demand-focused strategy did not work, and neither did a supply-focused strategy. In 2010, ACE decided for a strategy that would simultaneously create an initial demand to stimulate the farmer associations, and supply a performance guarantee to ensure farmers' delivery. ACE approached WFP to create the initial demand. As to ensuring that farmers meet their obligations, with development partner support ACE was able to invest in the necessary warehousing structure and develop the necessary procedures. Trade has indeed started to flow, with other large buyers recently following WFP's example.

Source: based on Chilima, 2011.

ACE remains loss-making, and survives only because of continued development partner support. With the exchange's commissions of 0.2 percent on its normal trading platform and 1 percent when warehouse receipts are used, its 2012 income from financing stocks and its other revenues (providing bags, facilitating transportation, diffusing market information) only covered one sixth of its US$ 240,000 cost. But 2012 was a difficult year, following a government export ban on maize at the end of 2011 (ahead of national elections). For 2013, it expects that its revenues will cover a quarter of its projected US$ 400,000 cost.

In the same year that ACE was set up, another exchange, modeled after Kenya's KACE, was set up: the Malawi Agricultural Commodity Exchange (MACE). Its main focus was on the provision of exchange information. Like KACE had done a year earlier, in 2008, it started a virtual exchange on the radio: an interactive radio programme, called Supermarket on the Air, that allowed farmers and traders to call in and place their orders live on the radio. MACE staff interacted with the callers, and in the first nine months of 2008, US$ 234,000 worth of trades were concluded.[90] Nevertheless, MACE never had much traction, and faded away once development partner support stopped.

The most recent initiative, announced in 2012[91], is AHL Commodity Exchange (AHCX), driven by Auction Holdings Limited, Malawi's leading tobacco company (partly owned by Agricultural Development and Marketing Corporation, ADMARC, a government marketing body). AHCX will open up its (rented) national network of warehouses to aggregators (including ADMARC); warehouse receipts will be issued against the deposited stocks. These receipts will then be offered on an open outcry platform, with large traders, processors, exporters as well as the food reserve agency as buyers. It is expected that grains (maize, rice) and other commodities (soyabeans, pigeon peas, groundnuts and cotton) will be traded on the platform. It opened up for registration of members in November 2012, and expects to go live in early 2013.

[90] Mucemi Gakuru, Kristen Winters and Francois Stepman, Inventory of Innovative Farmer Advisory Services using Information Communications Technologies, Forum for Agricultural Research in Africa, December 2008.

[91] AHL set to establish a commodity exchange, press release on the website of Auction Holdings Ltd., http://www.ahlmw.com/news_details.php?news_id=66.

Mali

Since 1995, a NGO, AMASSA-Afrique Verte Mali, has been organizing cereal fairs/exchanges in the country to facilitate intra- and inter-regional trade. It organizes five types of exchanges :

- "pre-exchanges" ("*pré bourses*" in French) are organized in order to inform farmers' organizations of the commercial opportunities and help them prepare for trading.[92]

- Mini exchanges are organized to facilitate trade for particular cereals along a single trading axis.

- Regional exchanges, for a range of cereals, are organized to bring buyers and sellers from within a region together

- National exchanges, organized from December to April, are to facilitate national trade

- Sub-regional exchanges facilitate regional trade; *e.g.*, in one exchange, farmers' organizations, traders and other market operators from Mali, Mauritania and Senegal are brought together.

Volumes have been growing, although they remain modest. In the main exchange, held in December 2012 in the capital Bamako and bringing together some 300 market participants from several countries, 129,000 ton of cereals was on offer, while demand added up to 272,000 tons; at the end, 44 contracts for a total of 50,000 tons (with a value of close to 6.6 million euros) was signed.[93]

In the late 2000s, the government has been in been in talks about organizing an electronic exchange in the country, based on warehouse receipts for cereals, and vault receipts for gold, but these have not led to implementation.

Mauritius

Mauritius is home of the Global Board of Trade (GBOT), a multi-asset commodity exchange set up by a large Indian Group, Financial Technologies (India) Ltd. (FTIL) – the same Group that is behind Bourse Africa, discussed above).

GBOT offers a basket of products: commodity futures and options, currency derivatives, equity cash and equity derivatives products. It is regulated by the Financial Services Commission of Mauritius, the regulator for all of the country's financial sector. It uses an electronic exchange platform a par with the systems of global exchanges, as well as clearing and settlement systems that ensures effective counterparty risk management. Its commodity trade is limited for the time being. While it offers gold, silver and crude oil contracts, most of its volume is in currency futures.

Morocco

Studies done by the World Bank around 1990 indicated that price risks in Morocco's large citrus sector were considerable, and that there was a case to be made to introduce a futures exchange. The (at that time) high costs, however, prevented any progress. The rapid bankruptcy of an open-outcry citrus exchange set up in Spain a few years must have discouraged further thinking along these lines.

Around 2001, the country's stock exchange, in Casablanca, considered the possibility of creating a commodity exchange. Nothing further was heard of this, though. A later study found that it would be preferable to introduce currency and interest rate futures first, as the development of commodity futures would require a much more sufficient effort, investment and time.[94] The stock exchange started a project to introduce financial futures in 2006, but so far this has not led to implementation.

More recently, in late 2011 the Ministry of Agriculture launched an agricultural exchange ("*bourse des produits agricoles*"[95]). For this time being, this operates as a system for collecting and disseminating price information for a large number of agricultural products.

[92] See Afrique Verte, *Guide de préparation aux bourses céréalières pour les organisations paysannes*, septembre 2008, http://www.afriqueverte.org/r2_public/media/fck/File/ Documentation/Outils_information/bourses-au-niger-pour-paysans.pdf

[93] http://www.afriqueverte.org/index.cfm?rub=-1&theme=0&categ=1&actu=218. This is up from a total volume of 120,000 tons from 2001 to 20111.

[94] Chavéz Cruz, 2006.

[95] http://www.ccis-oujda.ma/bourse_agricole.html

Also in 2011, discussions on the possibility of creating an exchange for leather and hides was started (hide futures have in the past been traded on exchanges in the USA – there was even a New York Hide Exchange). The industry association for leather investigated the possibilities in 2012, and in April 2013, the Minister of Industry, Commerce and New Technologies announced the start of a feasibility study for the creation of the exchange.[96] The goal was to have the exchange established in the city of Fez and operational by the end of 2013. The exchange is meant to help remedy the large inefficiencies in the physical market, including a lack of regulation of trading practices and quality problems.

Niger

The same NGO that set up physical spot exchanges/fairs in Burkina Faso and Mali, Afrique Verte, created similar fairs in Niger, starting in the 2000s. Two were organized in December 2010, both aiming to bring together market participants from surplus and deficit regions of the country. Transaction volumes are small – in 2009, 1,000 tons were traded on the two fairs.[97]

Nigeria

In 1986, Nigeria's government decided to abolish all the country's commodity marketing boards. This led to disarray in the physical market. To overcome these problems, an inter-ministerial committee was set up in 1989 to look into the possibilities for creating a futures exchange for agricultural commodities. While there was no follow-up from the government, one response was a private sector-led initiative: the First African Commodities Exchange, FACOMEX.

FACOMEX was set up by a number of large banks together with chambers of commerce and farmers' associations. When it was incorporated in 1992, there was no law permitting the operation of a commodity exchange. FACOMEX worked with the Ministry of Commerce to develop such a law, and a draft law was approved by the government in 1995/96. Finally in 1999, a new Investments and Securities Act was passed by the Government, which mandated the Securities Exchange Commission to register and regulate futures, options, derivatives and commodity exchanges. But when FACOMEX applied for a license with the Commission in that same year, it was refused recognition for not meeting the required capital standards. Despite internal disagreements in SEC, that refusal remained standing in the next years, even after FACOMEX had signed an agreement with the Nigerian Stock Exchange in 2000 under which the latter's clearinghouse would settle and clear the commodity exchange.

So, only when the Abuja Securities Exchange was converted into the Abuja Securities & Commodity Exchange (ASCE) in August 2001 did Nigeria get its own commodity exchange. ASCE was originally incorporated as a Stock Exchange in June 1998, with the Central Bank of Nigeria as main shareholder (with a 60 per cent equity share) and four state-owned insurance companies and banks each holding 10 per cent. Its entry into commodity trade was somewhat coincidental. ASCE had been created to provide a transparent, efficient electronic platform for the country's stock market trade, as an alternative to the rather non-transparent stock market in Lagos. It started this trade in May 2001. But with a change of government in 2001, this need was no longer felt by the country's political leadership. Thus it was decided that the Abuja Securities Exchange should overnight, as from 8 August 2001 on, be the Abuja Securities & Commodity Exchange, trading only commodities.

Meanwhile, the Abuja Securities Exchange had invested considerable sums in the development of a stock market. Among other things, it had bought the software of the National Stock Exchange of India, and had trained all its staff in stock exchange trading. Furthermore, there was no legal system in Nigeria for a commodity exchange to operate. ASCE staff felt that such a legal system was necessary, and that the new law should force government companies as well as commodity exporters to trade through the exchange.[98]

Thus, the conditions for turning the exchange into a commodity exchange were not favourable, and during many years, no serious progress was made in this direction. ASCE gradually depleted its reserves, and in the face of the unwillingness of its corporate shareholders to continue funding it, fell into bankruptcy. The corporates' 40 per cent of equity were taken over by the Ministry of Finance. ASCE continued operating as a company under administration, its shares offered for sale by the Bureau of Public Enterprises (which is responsible for the privatization of government-owned companies).

[96] *La bourse du cuir se fraie son chemin*, http://www.mcinet.gov.ma/ActualitesEvenements/Pages/bourse_cuir.aspx

[97] http://www.afriqueverte.org/index.cfm?srub=36

[98] Baba-Ari, 2010.

Efforts to revive the exchange by the Securities and Exchange Commission (the regulator) and the Ministry of Commerce (within whose ambit the exchange falls) remained for a long time without response.[99]

In 2006, ASCE started an intensive effort to get commodity trading off the ground, setting up a broad range of institutional supports for efficient exchange trading (to the extent that the exchange was able to make efforts, given its continuing low budgets).[100] The elements of this new infrastructure were as follows:[101]

a. **A trading platform**. In July 2006, ASCE started with a floor-based trading system, which was later replaced by an electronic trading system. It only offered two rather basic trading functions[102]:

   - Remote negotiation. A member of the exchange sends a message to ASCE (by phone, email or fax), requesting it to find a buyer or a seller for certain commodities. The caller specifies price, volume, quality, packaging and delivery location. Remote negation was for spot contracts, *i.e.*, delivery within 11 working days. This facility was expected to be useful for the spot trading in a number of agricultural commodities (maize, soybeans, sorghum, sesame seeds, millet and cowpea) as well as solid mineral products (in which no trade has taken place so far).

   - Auctions, meant for participants that wish to procure large quantities of commodities, or for governments wishing to mop up excess commodities after a bumper harvest. Industrial processors (beer brewers, oilseeds pressers etc.) were attracted as buyers on the exchange, and their bid volume was considerable. In 2007, for example, one buyer placed an order for half a million tons of cassava chips, but no offers were received.

   Several efforts were made to increase trading volumes, including a move of the spot trading floor to the Northern city of Kano (site of the largest grain market in West Africa), the introduction of new commodities (*e.g.*, cotton) and the addition of an electronic trading platform (permitting trade through the Internet), but volumes remained low. Almost three thousand tons of agricultural commodities were traded during the first 1½ years (this represented about 0.25% of the volume the exchange needed to break even), but after that trade dwindled away – no trade was recorded in 2008.

b. **A warehousing system.** Physical delivery on ASCE is through approved warehouses, rather than directly between buyer and seller. ASCE has accredited a number of warehouses, based on criteria such as their minimum storage capacity, the presence of a weighbridge and grading equipment, insurance cover for the warehouse and its content, experienced staff, and a US$ 1 million or higher capital of the warehouse operator. Sellers had to deposit their commodities at the warehouses, where quality and quantity were verified.

   The use of delivery warehouses was not as straightforward as hoped. One problem was that because of the country's weakly developed legal/regulatory system for warehouses and warehouse receipts, insurance companies were discouraged from insuring public warehouses. Furthermore, lack of clarity about the legal rights of holders of warehouse receipts discouraged banks from financing against inventories. Regulatory oversight of the warehouses was weak. The consequence of these issues was that there was no incentive for owners of stocks to deposit them in exchange warehouses, except when they had already agreed on a specific transaction with a buyer.

c. **A quality assurance system.** ASCE defined quality standards for cocoa, coffee, cotton seed, groundnuts, maize, sesame seed, sorghum and soyabeans. To compensate for the absence of widely-accepted commodity standards in the country, ASCE set up a system with double quality checks. In the first instance, approved assayers were to certify the quality of goods deposited at approved warehouses (farmers groups that tried to do so complained that often, the assayers did

[99] It should be noted that other Ministries were not always supportive. For example, the Ministry of Agriculture developed plans to create its own exchange, rather than collaborate on reviving ASCE.

[100] In May 2013 (This Day Live, 6 May 2013) it was reported that in the twelve years since it started in 2001, a total of only 1.5 billion Naira (around US$ 10 million) had been allocated by the government to ASCE.

[101] See also Onumah, 2010.

[102] Davou, 2006.

not show up). Then, samples of the commodity and the quality certificate were delivered to ASCE brokers, who present the certificates and samples to the assaying officer of the exchange for a second assessment of the quality prior to trading (ASCE has its own assaying laboratory. This does raise trading costs significantly.

d. **A clearing and settlement system.** ASCE members have to maintain clearing accounts with the exchange's clearing banks. They also need to contribute to the guarantee fund. Both buying and selling brokers pay a margin of 5 per cent of the value of the commodities they offer to buy or sell to the exchange, to guarantee contract performance. If a deal is struck, delivery has to be completed within 10-20 days.

e. **An arbitration system.** All transactions executed through the exchange are subject to its by-laws and regulations. All disputes from such transactions are compulsorily referred to a panel of arbitrators – members cannot take disputes to a court. Such arbitration procedures are covered by Nigeria's Arbitration and Conciliation Act, and decisions of the arbitrator are enforceable in the courts of Nigeria.

f. **A commodity price information system.** ASCE has agents in 80 market centers throughout Nigeria who collect price information in these centers. This information is disseminated by ASCE in different ways. While expensive, such a price information system is critical for the growth of an exchange in its initial stages.

To make its market more attractive to non-commodity-sector participants (*i.e.*, investors), ASCE has worked since 2009 on improving the legal and regulatory conditions for warehouse receipt trading. It commissioned the drafting of a bill on Warehouse Receipt Financing and Processing, which was presented to the Government in December 2010, and as of late 2012, was waiting to be sent to the National Assembly for its approval.

In 2011, Nigeria's government adopted a new Agricultural Transformation Agenda, in which the potential role of ASCE was recognized. Among other things, the government decided to test procuring grain for its strategic reserves through ASCE. To meet this demand, ASCE created a "policy auction" platform, which handles government and development partner agency procurements for the purpose of strategic food reserve and emergency management. In October 2012, a road map was presented to revitalize ASCE, which will be renamed the "Nigeria Commodity Exchange". According to proposals submitted to the government in February 2013, ASCE would start with the establishment of an electronic warehouse receipt system, with 18 delivery centers. Exchange trading as well would be electronic, with the exchange planning to set up 6 remote access sites. Some 16 commodities have been selected for trading, with in addition to the commodities already traded earlier gum Arabica and cassava; but only 6 commodities would be offered during the first six months.

The revitalization project of the exchange is to be funded by the government, and is supervised by a working group which brings together several Ministers, the Governor of the Central Bank, and the Directors-General of the Securities and Exchange Commission and the Bureau of Public Enterprises. The government was to work on supporting legislation, for the establishment of the exchange itself, for warehouse receipt financing and for a self-regulatory organization of brokers; and the rules of the Securities Exchange Commission are to be changed to make it the commodities market regulator. But the private sector is to be brought into the project, ultimately taking on a majority stake in the exchange and providing most of the funding for its growth.

Republic of Congo

In 2012, a concept note was written with government support to create a regional commodity exchange, with an initial focus on petroleum and oil trading, to maximise intra-regional trade in oil products. The exchange would target the Economic and Monetary Community of Central Africa (CEMAC) area.

Rwanda

In 2011, Rwanda saw an initiative driven by the Ministry of Trade and Industry to set up the Rwanda Commodity Exchange (RCX), which would begin by trading agricultural commodities such as maize, beans, coffee and tea and then expand to metals, minerals and energy resources. Discussions were held in 2011, and Memorandums of Understanding signed, both with the Ethiopian Commodity Exchange and the Nicholas Berggruen Institute.

The latter was ultimately implemented, with the East African Exchange (EAX) initiative announced by Rwanda's President in January 2013. Led by Berggruen Holdings, EAX aims to become a regional exchange headquartered in Rwanda – EAX was discussed at the beginning of this annex.

Senegal

In November 2010, after having worked on the project since 2002, a private group launched the *Bourse régionale des produits de base* (BRPB), which planned to trade, at a regional level (in the West African F CFA currency zone), millet, rice, maize, sorghum, groundnuts and cotton. The exchange planned to adopt an electronic trading platform. Sellers would deposit their produce in an exchange-approved warehouse, with the quantity and quality certified by an international certifying agency, the *Société Générale de Surveillance*. They could then offer the warehouse receipt for sale on the exchange (possible through a bank or broker). Once sold, the receipt, countersigned by the seller, is transmitted to the buyer. Buyers would have to deposit 10% of the value of the goods they intend to buy with the exchange to guarantee their offers. Once a deal is concluded, payment would have to be made within 72 hours, through an account managed by the exchange. The exchange planned to start trading rice in July 2012, but there is no information that indeed, trade has started (its website does not give any updates after May 2012).

South Africa[103]

South Africa hosts one exchange[104], SAFEX, which is Africa's largest, trading well over a hundred thousand contracts a month since 2002. Table 9 shows the volumes of its main agricultural contracts since inception.

SAFEX was created in 1988 as a currency trading platform, and in 1995 (in anticipation to the expected deregulation of agricultural trade, including the abolition of fixed-price purchases and of marketing boards[105]), introduced agricultural futures contracts. Currently, SAFEX offers contracts for white and yellow maize, bread milling wheat, sunflower seeds and soyabeans. SAFEX prices are an important reference for grain trade in several neighbouring countries.

SAFEX's commodity trade was organized through a new Agricultural Markets Division, which rapidly attracted a total of 84 members who collectively put up the commodity exchange's start-up capital of US$ 1 million. The exchange was set up as a non-for-profit mutual exchange. Its trading and clearing platforms were those used for SAFEX's financial products. In 2001, SAFEX was acquired by the Johannesburg Stock Exchange (a for-profit, publicly listed company), but retained its brand name; but the commodity trading division was renamed, to Agricultural Products Division.

SAFEX started with beef and potatoes futures contracts, both cash-settled, and both were failures (they were delisted two years later). SAFEX's first successful contract was launched only in May 1996, a futures contract on the country's main staple crop, white maize (it was launched alongside a yellow maize contract). The provisions of the 1996 Agricultural Marketing Act were to come in effect on January 1, 1997, and the grain industry needed new mechanisms. SAFEX met the challenge by setting up its contracts around a robust delivery system, using transferable silo receipts, thus simultaneously creating a proper environment for both spot and futures trade.

White maize still is the largest contract traded on the exchanges, accounting for some 40% of trading value. When the Wheat Board was deregulated in 1997, wheat futures were added. Option contracts for maize and wheat were introduced in 1998. The trading volume for maize is now 15-20 times the production volume, and for wheat, 8-10 times; these are fairly normal numbers in an international context.

Futures and options for sunflower seeds were added in 1999. In 2000, a second white maize contract was introduced to deal with maize qualities that were below those specified in the original contract (this second contract was discontinued in late 2002, but then reintroduced in mid-2006).

It can be noted that when agricultural futures trade started in South Africa, there were no applicable laws and regulations. The exchange essentially operated as a self-regulatory organization, with users having signed up to the exchange's rules.

[103] See for an extensive overview of SAFEX UNCTAD, 2009a, on which part of this section is based.

[104] A study was commissioned in early 2005 to examine the feasibility of establishing a Pan-African Metals and Minerals Exchange, potentially to be situated in Johannesburg with the possibility of trade in diamonds, gold, platinum and cobalt. amongst other commodities. The study found that for a number of reasons, such an exchange was unlikely to build sufficient liquidity (Virtual Metals Research & Consulting, 2005).

[105] Liberalization took place through a series of steps, of which the main ones were the 1996 Marketing Act which charted the liberalization pathway, and the abolition of fourteen marketing boards, including for maize and wheat, in 1997.

Table 9
SAFEX volumes in its main agricultural contracts (number of contracts, in thousands)

	White maize		Yellow maize		Wheat		Sunflower	Soybeans	Total Futures	Total Options
	Futures	Options	Futures	Options	Futures	Options	Futures	Futures		
1996	2	0	1	0	0	0	0	0	3	0
1997	14	0	7	0	0	0	0	0	22	0
1998	55	5	22	2	2	0	0	0	79	7
1999	157	43	37	8	5	2	1	0	200	53
2000	245	115	58	12	9	3	6	0	323	132
2001	564	270	78	28	24	8	25	0	691	310
2002	970	393	308	104	104	23	62	0	1444	526
2003	1155	535	250	82	187	22	61	1	1654	647
2004	970	333	229	33	201	62	56	3	1459	434
2005	807	344	199	24	221	61	78	15	1320	452
2006	866	405	165	22	265	70	69	37	1428	513
2007	956	472	269	56	378	141	64	44	1726	676
2008	860	384	337	69	470	176	165	73	1905	657
2009	687	182	312	42	379	29	128	117	1642	267
2010	773	191	314	40	442	47	89	137	1835	304
2011	864	234	377	46	450	58	157	218	2261	382
2012	915	319	392	75	545	32	105	368	2533	467

Source: Author, calculated from data available on http://www.jse.co.za/Markets/Commodity-Derivatives-Market/Commodity-Derivatives-Market-data-and-price-info.aspx#volumes
Contract sizes: white and yellow maize: 100 tons; wheat and sunflower, 50 tons; soybeans, 25 tons.

SAFEX's maize contracts are settled through physical delivery (see Box 14). This made it necessary to bring the major silo operators on board. Over time, most of the significant silo operators have indeed registered with the exchange – there are now 19 registered silo operators with in total almost 200 registered delivery points. Warehouse operators issue electronic warehouse receipts, which act as the delivery instrument into the exchange.

The agricultural futures market in South Africa remains narrow – in 2009, SAFEX reported a total of 12,000 clients for its agricultural platform. As of 2009, it was estimated that hedgers accounted for 60 per cent of open positions – with as largest users commercial farmers and processors. Speculators and arbitrageurs[106] accounted for the remainder; this is a very low percentage, compared to global commodity futures markets. The market has five clearing members, and despite problems with physical deliveries, there has not been a default. The clearing member guarantee all transactions and positions of their respective trading members and clients.

[105] Arbitrageurs try to benefit of discrepancies between spot and futures markets, or between futures contracts between two different months, or between option premiums and theoretical option values. Their actions help markets to revert to normal price relations. In South Africa, the first arbitrage fund was set up by a bank in 2003, to invest in the spread of maize from one contract month to the next.

Box 14
Evolving delivery mechanisms on SAFEX*

Initially, all physical deliveries for agricultural commodities on Safex were randomly allocated. But soon, Safex introduced the Exchange for Physical's (EFP) mechanism, which allowed a buyer and seller to reach a delivery agreement outside of the exchange, and then notify the exchange of this; the exchange would then transfer the seller's underlying Safex silo receipts to the buyer.

In 2008, Safex made it possible for long positions holders (those who have to take delivery to close out their futures position) to bid for specific locations of the Safex silo receipts that were tendered by the holders of short positions (in other words, they could only bid on silo receipts that were already delivered). The auctioning was done through the exchange's trading software.

Since, the exchange has been exploring further ways to enhance the delivery mechanism. In late 2012, it introduced a platform for market participants to trade grain at registered delivery points as represented by Safex silo receipts. The platform permits holders of long positions to bid on preferred locations (for delivery as specified for a certain futures contract delivery period). Those holdings stocks in Safex-approved silos can offer them at a premium. Trade can start before the underlying futures contract on a cash market basis. Participants do not have to have an existing futures position to participate in this market, but if they enter a successful order, they will either have to enter into the corresponding futures position before the end of the day's trading session, or they will be assigned a short or long position by the exchange.

This mechanism permits holders of silo receipts to negotiate better prices. Price discovery will become silo-specific – in other words, the mechanism provides a link between the exchange prices discovered through a large number of futures transactions, and the localized price which may be influence by location-specific factors. Buyers can use the exchange more efficiently as a procurement mechanism, by bidding on silo receipts at locations that are convenient for them.

Positions in this silo receipt market can be closed out prior to delivery, just like futures contracts. Settlement is guaranteed by the exchange's clearinghouse, with payment taking just a day (much faster than what is usual on the physical market).

* Source: Raphael Karauihe, 1 August 2012, http://www.grainsa.co.za/trading-of-safex-silo-receipts---the-next-generation-of-physical-delivery-functionality

The exchange is used by most of the large-scale producers, in part because the banks that finance them require the producers to hedge their price risk. SAFEX widely disseminates its market data, and the SAFEX price is widely used as the reference price in forward contracts, including for regional grain trade. In 2005, this enabled Malawi's government to use SAFEX options to protect itself against the risk of future price increases of its maize imports (after this, Malawi became a maize exporter and used options to protect its export prices; also, using related financial instruments, it replicated a maize buffer stock).

In 2009, a licensing agreement was signed with the world's largest exchange group, the Chicago Mercantile Exchange (CME). The agreement with CME permitted SAFEX to introduce contracts denominated in local currency that were indexed of CME contracts (maize, gold, crude oil), permitting proxy access to the international market to South African investors (strict currency controls make direct access impossible for many). The range of commodities traded under the agreement has expanded over the years; in April 2013, heating oil, gasoline, natural gas, palladium, sugar, cotton, cocoa and coffee were added. A similar licensing agreement was signed in 2012 with the Kansas City Board of Trade, and later in that year, with the Zambia Agricultural Commodity Exchange.

SAFEX is overseen by the Financial Services Board (established in 1990), which also regulates JSE. It operates under the Securities Services Act, a 2004 that brought control over the various financial markets and instruments under one umbrella. JSE's self-regulatory authority is recognized under the Act. Another Act regulates intermediaries, requiring them for example to pass a fit and proper person test before they can be licensed. Implementation of the Act is with the Financial Services Board.

Sudan

In 1992, when Sudan went through a process of economic liberalization, it was intended to create exchanges for securities, currencies and commodities. On the commodity exchange, cotton, gum Arabic, oilseeds and other export products would be traded. However, the country's powerful cotton company was opposed to the idea of a commodity exchange, and the plans to set up such an exchange thus came to naught.

In January 2012, Sudan's Khartoum Stock Exchange was given permission to launch a platform to trade commodities, starting with gold. Discussions have been held, and a Memorandum of Understanding signed, with a private group (the Pride Group). The Pride Group is an initiative with its roots in Nepal, which has set up a number of virtual exchanges around the world (*i.e.*, commodity exchanges with a presence on the Internet, but without proper oversight from the countries where the exchanges are purported to operate nor any indication of real business). Discussions between the stock exchange and the Pride Group have collapsed since, and the exchange plans to set up a new public company to act as a vehicle for the commodity exchange.

Tanzania

In June 2009, the Capital Markets and Securities Commission of Tanzania was asked to spearhead the creation of a commodity exchange in Tanzania.[107] It published a concept paper in March 2010 suggested that the government should set up an institution, named Tanzania Commodity Exchange, licensed under the Capital Markets and Securities Act. The institution, owned by the government but selling membership seats to private sector entities, should develop a business plan. Since, the process has remained remarkably government-driven and slow – somewhat surprising, as the Authority had found that the country's ambitious Agriculture First Initiative "will not achieve its objectives without a viable and properly functioning commodity exchange." In March 2012, the Central Bank issued a tender calling for consultants to review the existing legal and regulatory framework for the warehouse receipt system, cooperative and crop bodies and commodity trading; and to design a robust trading system.

In May 2012, the country's President announced that the government intended to establish the Tanzania Commodity Exchange which would initially trade cashew nuts, coffee, cotton and rice. Trading would be based on the warehouse receipt system (Tanzania is one of the few countries which has a robust regulatory system in place for warehouse receipts, and a reasonable experience in its use, primarily for rice, coffee and cotton), and envisage links with other exchanges in East Africa.

The exchange is scheduled to go into operation in June 2014; counter to international trends, it would have a trading floor.

Togo

Togo has been suggested as the headquarters of the proposed new regional ECOWAS commodity exchange. For the time being, the country hosts an internet exchange, Bourse Agricole Togo.[108] It was set up by a private entrepreneur in 2009, and offers the facility for buyers and sellers to post bids and offers - which are visible through scrolling bars. However, the site appears not to have been maintained since 2011.

Uganda

In 1995, the Bank of Uganda recommended that the possibility of establishing a commodity exchange should be investigated, as a risk management system required for the country's economic growth.[109] With support from USAID, a task force was set up to do a feasibility review; it reported in October 1997, recommending that an exchange be set up. The products that were found suitable for exchange trade were maize, beans, rice, sesame, soyabeans and wheat. Total investment needs were estimated at 6.5 million US$, and the feasibility study indicated that within five years, the exchange would become profitable. An investment plan was elaborated, and in December 1998,

[107] Capital Markets and Securities Commission, 2010.
[108] http://www.bourseagricoletogo.com
[109] Mandl and Mukhebi, 2002.

the Ugandan Commodity Exchange (UCE) was created, with as members the Ugandan Cooperative Alliance, the Ugandan Coffee Trade Federation, the National Farmers Association, the Commercial Farmers Association, and two private trading firms. The plan was to start with spot coffee trade, with buyers and sellers themselves establishing coffee quality; which was to be followed, after six months, by a proper spot exchange, in which trade was to take place using samples under supervision of the exchange. However, the incorporation of UCE was not followed by any significant investments in actually setting up the exchange.

In early 2002, the European Union financed a study that considered the case for a commodity exchange in Uganda.[110] It endorsed the idea of developing the UCE (as a private sector initiative rather than a government one, as was the recommendation of the 1997 study), and noted that there was wide agreement on its usefulness among the private sector, the government and aid development partners. The original focus should be on creating a trading floor, with clearly defined quality standards and licensed samplers and graders.[111] The government's role was to be limited to passing the warehouse receipt bill, and become a client of the exchange for procuring supplies.

While the government started covering the operating costs of UCE (even though it did not become a shareholder) and publicly endorsed the project (the Minister of Finance repeated it in his 2004 budget speech, and the country's President in a speech in July 2004), progress remained slow – between March 2002 and June 2004, only 11 contracts were traded.[112] The exchange faced several problems: the quality and quantity verification system, while costly, was not trusted by urban buyers; sellers sold commodities while they were still on offer on the exchange and UCE was contacting buyers; as there were few services provided by UCE (no system to guarantee payment, no dispute settlement procedures), buyers and sellers saw no benefits in trading through the exchange.[113]

UCE only got some traction when, in 2006, it became the beneficiary of considerable funding from the European Union. Under the new Warehouse Receipt System Act ot 2006, it became the warehouse receipt system's regulator; thus, UCE focused on developing the warehouse receipts system, with a particular focus on maize and beans (the warehoused stocks of the main export crops, coffee and cotton, were mostly managed by collateral managers[114]). In 2008, it procured an electronic warehouse receipt system from Sandbox (now the Integrated Commodity Exchange of Africa, ICX, yet another part of India's Financial Technologies group). The plan was that private sector-run warehouses would become licensed public warehouses, offering storage facilities to surrounding farming communities. They would issue electronic receipts against stored goods, which could then be offered for sale, or used as pledge against loans through UCE's electronic trading system. By handling the payment for the goods sold under warehouse receipts, UCE secured both buyer and seller against default risk (it branded this as a "settlement package" rather than a full-pledge clearinghouse).

By the end of 2009 it already had three licensed warehouses. With an electronic trading system in place UCE then started concentrating on building a network of warehouses linked to the exchange. UCE licensed the warehouses, and trained and certified samplers, weighers and graders. It calculated that 22 warehouses, of 5,000 tons each, would be necessary to break even.[115] As of 2012, seven warehouses were licensed, and it was planned to build ten more model warehouses, some of them with WFP support. The warehouses were to be linked to grain millers, and banks were to be brought in to finance warehouse receipts – as of 2012, three banks had started doing this. The number of warehouses was to reach 22 in the period 2015-2020, and during this period the exchange would also move beyond maize, beans, paddy, rice and coffee.

As of 2012, some 450 people (70% of which are farmers' groups and 30% traders) had deposited goods (a total of 9,000 tons) in the licensed warehouses and received electronic warehouse receipts.[116] Following an agreement signed in late 2008, the World Food Programme started using the UCE system as a procurement tool, buying 6,000 tons in 2012 (the aim under the agreement was for 150,000 tons over 3 years[117]). Banks have started lending against the receipts.

[110] This is the paper of Mandl and Mukhebi, 2002.

[111] Mwesigye, 2007.

[112] Onumah, 2009. In effect, these deals were arranged by UCE's manager, who acted as a broker between buyer and seller, rather than traded through the trading floor.

[113] Mwesigye, 2007.

[114] The warehouses they managed were designated private warehouses under the warehouse receipt systems Act, which can, but do not have to be licensed under the Act.

[115] Alia, 2010.

[116] According to information on UCE's website as of 3 February 2013.

[117] Coulter, 2009.

Zambia

There have been four separate private sector efforts to create a Zambian commodity exchange (five, if one includes the African Carbon Credit Exchange established by a number of private entrepreneurs in 2010[118]). The first, the Zambia Agricultural Commodity Exchange, was established by the Zambia National Farmers Union and the Commodity Research Institute in June 1994, the second exchange to start in Africa.

The exchange conducted spot and forward trade in wheat, maize and other agricultural products. It quickly traded 1.5 per cent of the domestically-produced and traded maize in the country, and became the price setter for the Lusaka market. Buyers and sellers directly put their orders through to the exchange; exchange management then brokered the deals (there were no independent brokers).[119] This relative success inspired the establishment, in 1997, of the Kapiri Commodity exchange in Zambia's central province and the Eastern Agricultural Commodity Exchange in Zambia's eastern province.

All three faded away in an environment of unpredictable government interventions in the grain market. The latest initiative, also called the Zambia Agricultural Commodity Exchange (but abbreviated ZAMACE), was established in May 2007 by a group of 15 grain traders and brokers as a non-for-profit open outcry exchange.[120]

ZAMACE provides four services:

- A commodity trading platform. Trade is through the member-brokers of the exchange, with trading hours between 10 and 12 in the morning.[121] The lowest quantity that can be traded is 30 tons. Since 2010, the exchange has a quasi-automated trading platform, which is integrated into an SMS information dissemination system. Large buyers such as WFP procure agricultural commodities through the exchange, and the government's Food Reserve Agency auctions off some of the maize that it supplies to the market through the exchange. In the years up to 2011 (when it stopped trading), it reported a cumulative trade of over US$ 78 million worth of commodities, not just crops but also fertilizers and cement. This is a relatively low volume, partly explained by the frequent government intervention in grain markets. The volume traded on the exchange is even lower than this: the deals actually closed through the exchange were only 32 per cent of this total (some 129 individual transactions), the remainder consist of transactions that members closed outside of the exchange but reported to the exchange.

- Securing the transactions that are done through the exchange. ZAMACE had a managed settlement systems, in which both parties had to put up guarantees to secure the trades executed through the exchange: the seller could use a warehouse receipt as proof of the existence of the commodity and delivery, or he could place a performance bond; while the buyer has to pre-deposit funds in the broker's account, which the broker then transfers to the ZAMACE settlement account.[122]

- The setting of grades and standards. ZAMACE has developed standards for maize, wheat, soya beans and sunflower. The exchange also invested in a grain laboratory. Its wheat standard is harmonized with the SAFEX standard, permitting in principle arbitrage between the two exchanges.

[118] http://www.africacce.com. The initiative was supported by USAID/PROFIT. As of 2012, its intended trading system was still under development.

[119] Reinecke, 1998.

[120] The initiative for the exchange was taken by the Zambia National Farmers Union and CHC, a commodity broker. The first phase was the Zambia Agricultural Marketing Company (ZAMAC), set up in 2005, which, with support from a number of development partners, created the conditions for a commodity exchange, into which it was absorbed in 2007.

[121] "The trading on the exchange is as follows:

1. An offer to sell is instructed to one of the member-brokers on the exchange
2. The offer position is posted on the exchange by the member-broker
3. This offer position is published on the exchange daily report
4. A buyer interested in the offer issues a buy instruction to a member-broker of the exchange
5. A bid position is placed on the exchange
6. This bid position is published on the exchange daily report
7. Negotiations between the selling and buying member-broker will lead to a trade."

(Gerrit Struyf and Eric Sommeling, 2011).

[122] Tembo, 2010.

- ZAMACE trains warehouse operators to manage, grade and store commodities. It has set up a network of district-level storage facilities, and supported, with help from the World Food Programme, the development of village-level community sheds, small (typically up to 60 tons) warehouses where farmers could aggregate their produce for delivery into the ZAMACE-certified district-level warehouses. In March 2013, the government appointed ZAMACE to oversee warehousing, giving it the authority under the Agricultural Credit Act to certify warehouses. Certified warehouse operators can issue warehouse receipts that can be traded through ZAMACE.

In January 2011, following massive pre-election maize purchases by the Food Reserve Agency at above-market prices, trading on the exchange ceased. In these conditions, USAID stopped its funding.[123] It became necessary to restructure the exchange. In July 2011, members were given a choice to relinquish their seats or to continue as members. After this exercise, only four members remained. The exchange was also demutualized at the end of 2012. Negotiations were held with the Lusaka Stock Exchange which was interested in taking a majority shareholding. Even a full absorption of ZAMACE into the stock exchange was considered.

After the adoption of a new, less interventionist agricultural marketing act in 2012, ZAMACE expects to start trading again in 2013. Following the new act, the level of government intervention in grain markets will be much reduced. ZAMACE has signed an agreement with Malawi's ACE, and it hopes that in 2013, in addition to re-introducing traditional open outcry trading, it will also be able to introduce trade in warehouse receipts, including for regional trading purposes. ZAMACE has also signed an agreement with SAFEX, under which SAFEX will start trading Zambian maize, wheat and soyabeans in US$. This will provide arbitrage opportunities for traders on ZAMACE, which may well drive volume growth.

As was the case in South Africa, the Zambian exchanges were created before there was commodity exchange legislation in the country. Work on such legislation, under the aegis of the Securities and Exchange Commission, started in 2009. In 2010, with support from USAID, ZAMACE started to work with the Commission in drafting the Commodities Exchange Bill, which is expected to be enacted during 2013.

In 2012, the Zambian government licensed a new exchange, the "Bond & Derivatives Exchange".[124] The exchange, owned by local banks, pension funds and securities brokers, will use a South African trading system. It plans an ambitious product offering: "Products to be traded include: corporate bonds, municipal bonds, currency futures and options, interest-rate derivatives (including swaps), equity derivatives and commodity derivatives on underlying copper, cobalt, gold, oil, wheat, soya and maize spot markets, bond derivatives market, spot bond market, spot and currency derivatives market, commodities derivatives (including metals) and the commodities spot markets (with silo certificates), agricultural derivatives market, spot equity and equity derivatives markets, precious metals derivatives market and energy derivatives market."[125]

Figure 2
ZAMACE's trade mechanism

[123] USAID funding was critical for ZAMACE. From 2007 to March 2011, USAID had provided over US$ 1 million in funding. This compared to US$ 172,800 in annual membership fees, and annual income from trading fees of US$ 42,000. (Struyf and Sommeling, 2011)

[124] http://badex.co.zm/

[125] http://www.africancapitalmarketsnews.com/1592/badex-getting-ready-to-launch-as-zambias-second-securities-exchange

Zimbabwe

In the early 1990s, Zimbabwe's government committed itself to liberalise agricultural marketing. This brought to the fore the need for strengthening the institutional framework for private sector trade, and in 1992, a policy workshop recommended to implement a commodity exchange as an alternative market for decontrolled commodities. The result was the Zimbabwe Agricultural Commodity Exchange (ZIMACE), launched by the private sector (the Commercial Farmers' Union and a stockbroker) in March 1994. Other organizations – the state-owned Grain Marketing Board, millers, traders, broking firms and others – joined soon after, bringing to 28 the total broking membership (*i.e.*, those entitled to trade directly on the exchange; others had to pass through a broker member).

The exchange provided a platform for negotiating contracts that were based on standardized ZIMACE warehouse receipts. As delivery locations, the exchange had designated certain warehouses of the Grain Marketing Board (inspected on behalf of ZIMACE by an international inspection company). For grains and oilseeds, the minimum quantity that could be traded was 5 tons; for beans, it was 1 ton, and for cotton, 5 bales. The trading mechanism was that during the daily morning trading sessions, traders were seated around tables arranged in a horseshoe shape, all facing a whiteboard where current trading positions were marked. The exchange manager and secretary maintained the board, taking bids and offers (called out by the brokers) for each commodity traded on the exchange (commodity after commodity). When there was an agreement on price, the manager announced a deal, and buying and selling brokers then had to agree on delivery modalities; the contract had to be signed directly after the trading session.[126] Brokers where liable for their clients' non-performance.[127]

ZIMACE became quite active, particularly in maize trade; wheat and soyabeans were also traded actively. it reached a volume of 550 million US$ in 2001, the last year that it operated. This was despite the large challenges that it confronted:[128]

- Poor market information, in terms of size of production, quality of production, stocks in warehouses, anticipated imports and exports etc.

- Lack of support from some of the large trading and milling companies.

- ZIMACE members, many of which were also trading companies, at times conducted trade off the exchange floor, including deals that were disadvantageous to farmers. When the exchange decided to enforce a rule that made it compulsory for all broker members to do all their physical trade through the exchange floor, several gave up their broker's seat.

- Government price controls on basic foodstuffs.

ZIMACE did not have a clearinghouse – in other words, it did not guarantee the payments on the contracts negotiated through the exchange. Contracts were however governed by the exchange's arbitration rules; in the first year, there were many arbitration cases, but as the principles of organized trade became clearer the number of arbitration cases fell.

ZIMACE was suspended in 2001, when the government gave the state-owned Grain Marketing Board a monopoly on the trading of maize and wheat.

In 2010, the government announced it was to reintroduce a commodity exchange, the Commodity Exchange of Zimbabwe (Comez). While the Ministry of Industry and Commerce was taking the lead, Comez would be a public-private partnership, with banks, farmers' unions private investors taking part of the equity. Trading will be on the basis of warehouse receipts issued by exchange operated or approved warehouses which guarantee quality and quantity of products. The exchange would use an electronic trading system. Disagreements between the Ministry of Industry and Commerce and the Ministry of Agriculture have led to the project being stalled, though. Reportedly, late 2012 the process was revived, but farmers would like the government to step back from the process.[129]

[126] These "ZIMACE contracts", in addition to quantity, quality, delivery specifications (how, where and when does the commodity change ownership?) and price also specified payment terms, transport conditions and packaging.

[127] Goggin & Longhurst, 2005.

[128] Goggin, 1998.

[129] "Farmers have urged the government to stop interfering in the setting up of the Commodity Exchange of Zimbabwe (Comez), insisting the process must be private sector-driven to ensure efficiency." (Zimbabwe: Govt urged to leave Comez, The Standard, 6 January 2013).

About AfDB

The African Development Bank is a multilateral development institution, established in 1963 by agreement by and among its member states, for the purpose of contributing to the sustainable economic development and social progress of its Regional Member Countries (RMCs) in Africa. The members of the Bank, currently seventy eight (78), comprise 54 RMCs, and 24 Non-RMCs. The Bank's principal functions include: (i) using its resources for the financing of investment projects and programs relating to the economic and social development of its RMCs; (ii) the provision of technical assistance for the preparation and execution of development projects and programs; and (iii) promoting investment in Africa of public and private capital for development purposes; and (iv) to respond to requests for assistance in coordinating development policies and plans of RMCs.

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