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An Assessment of Futures Contract Specifications for the Re-Launched Commodity Exchange of Zimbabwe (Comez)

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Abstract: This study, reviews futures contracts on a contract design approach basis. Drawing from the literature and using indicative empirics, it assesses the futures contract specifications that would enable success once the recently re-launched commodity exchange of Zimbabwe (Comez) begins trading. The study highlights a primary point that while the commodity characteristics may be suitable, coupled with a very strong and supportive economic and policy environment, failure to design appropriate futures contracts may result in poor participation by market participants, thereby rendering the exchange untenable.

Key words: Commodity exchanges, futures contracts, contract specifications/design, Comez, Zimbabwe

INTRODUCTION

Both agricultural and financial sectors have since faced many challenges since the closure of the commodity exchange of Zimbabwe (Comez) in 2002 in a move where the government monopolised the trade of grains through its arm, the Grain Marketing Board (GMB). Given the now re-launched commodity exchange of Zimbabwe, it is obvious that proposals for new contract markets would be generated by both the academia and the finance industry but unfortunately, considering the history of other markets, these proposals would lack some critical attributes that promote success, hence would fail. Silber (1981) finds that less than one third of new futures contracts introduced between 1960 and 1977 achieved an annual trading volume >10,000 contracts 3 years after introduction. Pennings and Leuthold (1999), report that by Silber's criteria, 58% of exchange-traded commodity contracts introduced between 1994 and 1998 failed. In this study, then the researchers analyse one of the attributes: The futures contract specifications that would attract market participants on the re-launched exchange basing on the fundamental assumption that the exchange would trade in futures.

This study, therefore has an ultimate goal of assessing and establishing the futures contract designs that would make the re-launched Comez thrive. The major questions that the study seeks to answer are:

- Firstly, which Zimbabwean agricultural commodities would be appropriate for listing on the local commodity exchange?
- How large should futures contract sizes be for the different proposed agricultural commodities in order to promote participation by various market players?
- Which trading system should be adopted that is ideal and appropriate for Comez?
- What would be the appropriate trading hours and price quotations on the exchange?
- How long should be the delivery window (first and last delivery days)?

MATERIALS AND METHODS

This study gives an account of how the study was carried out, highlighting and justifying the logic behind each technique used.

Data analysis was highly qualitative. The researchers used two case studies of existing and thriving commodity exchanges in comparison in an attempt to come up with recommendations on the futures contract design that would make Comez thrive. However, results obtained from a case study cannot be generalized over a wider area hence the need for empirical evidence from the concerned commodity market participants in the area of study in this case, Zimbabwe. Empirical data was obtained from different sources through sampling, questionnaires and interviews.

The 2 sets of population were used to improve reliability of the conclusion that is sample commodity exchanges and potential commodity exchange participants.

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The use of existing and thriving commodity exchanges provided a guide on the contract design that promotes success and participation by different commodity market players. For the purposes of this research study, only two commodity exchanges were selected: SAFEX and CBOT. South African futures exchange, SAFEX was chosen, since it is in the same operating region as Zimbabwe and is a vibrant futures market. In order to benchmark against international standards, CBOT was also chosen simply because it is one of the leading (in terms of volume and value traded annually) and one of the oldest commodity exchanges. On the population of commodity exchange participants, a combination of farmers, stockbrokers (particularly dealers) investment firms and agro-processing firms were sampled.

From this population, a sample was selected which was considered to be a true representation of the universe of commodity exchange participants under study.

Primary data was gathered through questionnaires, personal interviews and telephone interviews. Secondary data was basically taken from the existing commodity exchanges websites and from journals of commodity exchanges.

RESULTS AND DISCUSSION

This study gives findings and provides an analysis of currently existing and thriving commodity exchanges. It starts with addressing a sample of the research questions as gathered from both the primary and secondary sources. The key findings are outlined and analysed here under: In your own opinion which Zimbabwean agricultural commodities would be appropriate for listing on the local commodity exchange?

Most respondents were in favour of 4 grains namely; wheat, corn (maize) cotton and tobacco which received response rates of 83.33, 75, 66.67 and 91.67%, respectively. Other grains, such as rice, soyabeans and sugar were not given considerable interest for listing and received low response rates of 16.67, 41.67 and 25%, respectively. This could be attributed to the fact that respondents favoured grains that are widely and mostly produced in large quantities by most farmers in Zimbabwe. The respondents' commodities preference can be shown graphically as shown in Fig. 1. What should be the preferred size of each futures contract for the selected commodities?

From the analysis of the results, contract size of 10 metric ton or below dominated the responses. Most respondents for all the 4 grains had an above 50% preference for contract size of 10 metric ton or below for all the commodities. This was mainly because most

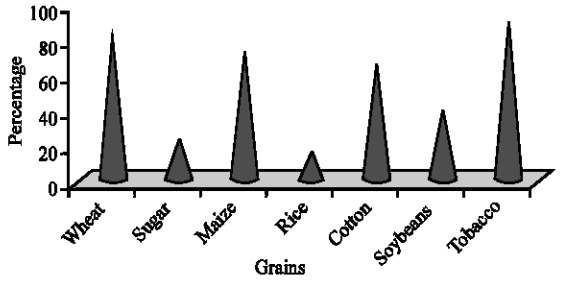

Fig. 1: Commodities preference; raw data

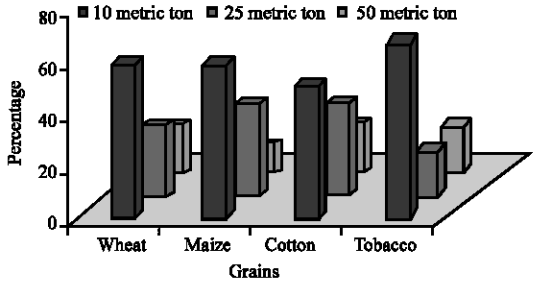

Fig. 2: Prefered contract sizes; raw data

respondents were in favour of a smaller contract size that would fit most of the exchange participants regardless of their size in terms of production, especially on the part of the farmers. This was in tandem with Parcell (2001) observation that the Tokyo grain exchange non-GMO soybean contract with the contract size set to one-third the size of the conventional soybean contract, seemed plausible for a niche market situation, i.e., smaller, higher valued, volumes being transacted (Fig. 2).

To come up with sound contract specifications for Comez, SAFEX and CBOT were analysed as case studies (Table 1).

The exchange: On a contract design approach basis, the exchange managed to come up with attractive contract specifications for each agricultural commodity as given by the sample in Table 1. These contract designs have had a significant part to play on the thriving of the exchange, since its inception in 1995 as evidenced by the following statement from one of SAFEX's officials, according to the SA times business report dated August 17, 2011, headlined commodity derivative trades up 12%. The JSE's head of commodity derivatives, Rod Gravelet-Blondin is quoted saying:

> The local commodity derivatives market continues to attract new participants eager to eliminate price risks in an increasingly volatile trading environment

Table 1: Contract specifications, futures salient features

Futures contract	White maize	Wheat	Soybeans	Sorghum
Trading system code	WMAZ	WHEAT	SOYA	SORG
Trading hours	09:00-12:00	09:00-12:00	09:00-12:00	09:00-12:00
Contract size	100 metric ton	50 metric ton	25 metric ton	100 metric ton
Contract months	Mar., May, July, Sep., Dec.	Mar., May, July, Sep., Dec.	Mar., May, July, Sep., Dec.	Mar., May, July, Sep., Dec.
Settlement method	Physical delivery of SAFEX silo receipts	Physical delivery of SAFEX silo receipts	Physical delivery of SAFEX silo receipts	Physical delivery of SAFEX silo receipts
Price quotations	Rand/tonContract months	Rand/ton	Rand/ton	Rand/ton
Last trading day	1200 h on 8th last business day of expiry month	1200 h on 8th last business day of expiry month	1200 h on 8th last business day of expiry month	1200 h on 8th last business day of expiry month
1st delivery day	1st business day of the delivery month	1st business day of the delivery month	1st business day of the delivery month	1st business day of the delivery month
Last delivery day	Last business day of the delivery month	Last business day of the delivery month	Last business day of the delivery month	Last business day of the delivery month
JSE booking fees (incl VAT)	R 12.00/contract	R 6.00/contract	R 3.00/contract	R 12.00/contract

SAFEX contract specifications analysis: Considering trading days and trading hours for the exchange, SAFEX has a favourable 3 h period from 0900-1200 h from Mon. to Fri. Unlike, the CBOT that operates 6 days a week; SAFEX is only in operation 5 days and closed on weekends. Despite its short trading week, SAFEX has been flourishing since its inception. Considering volumes and values traded on this exchange, the 3 h trading period makes it flexible for participants to partake on the exchange.

On a contract size basis, the exchange managed to give different sizes to maize, wheat and soybeans with sizes of 100, 50 and 25 metric ton/contract, respectively, basically on the basis of the perceived capacities of the participants. In a way, this would reduce the risk of small scale farmers failing to participate on the exchange as a result of them (small scale farmers) failing to make up for a single futures contract because of its big size.

The local currency, the Rand is used in price quotations per ton, making it easy for the local participants in the country to actively participate as they are not exposed to any exchange rate risk. According to Cuny (1993), a key aspect of futures market performance is the degree of liquidity in the market. Thus, the use of the Rand works to attract foreign participation by foreign investors thereby injecting foreign currency into the country. This to a greater extent has enhanced liquidity which is one of the most important ingredients in the proper functioning of the derivative markets. However, basis risk remains inherent, although its adversity effect would not be of much considerable impact.

Unlike, other exchanges around the world like the Tokyo grain exchange where there are foreign currency denominated contracts, SAFEX has no contracts that are denominated in foreign currencies. Failure to denominate contracts in foreign currencies makes it difficult, if not impossible for the SAFEX futures contracts to compete head on with futures contracts from other exchanges, say CBOT where contracts are denominated in USD.

SAFEX charges exchange fees that are attractive to market participants with a single maize contract going at only R 12,00. However, low exchange fees do not necessarily point out to an efficient and thriving exchange as the exchange may be over competed by other exchanges with higher exchange fees due to their first mover advantage but generally speaking, low exchange fees would not scare but rather lure more participants on the exchange.

CBOT contract specifications analysis: As given in Table 2, due to advancement in technology in the USA, CBOT trades electronically, this has proved to be a big challenge to most of the developing countries. At the CBOT, trades are conducted in two sessions that is one in the morning (open outcry) and one in the evening (electronic trading) spanning into the following morning. Currently, most of the stock exchanges in developing countries like in Zimbabwe have not yet upgraded to electronic trading due to technological challenges. Considering trading days, the week at CBOT is made up of 6 trading days that is Sunday to Friday with only 1 rest day for the exchange (Saturday).

Because of the level and volume of activities at CBOT, the contract sizes for its commodities are very big. Though, given as bushels per contract on the exchange the contracts equivalence in metric ton per contract for corn, wheat, soybeans and rice are: 127, 136, 136 and 100, respectively. The sizes are ideal for the exchange, since the exchange serves big participants who have the capacity to trade such large contracts and further, foreign participants, usually in the form of institutional investors are also found taking part on the exchange.

The local currency in USA, the USD $ is used in price quotations as cents/bushel, making it easy for the local participants in the country to actively participate as they are not exposed to any exchange rate risks. Since, contracts are denominated in local currency, it also reduces the severance of basis risk.

Table 2: Contract specifications futures salient features

Futures contract	Corn	Wheat	Soybeans	Rice
Trading system code	CORN	REDW	BEAN	RICE
Trading hours	Open outcry (trading floor) 09:30-13:15 Mon. to Fri. Electronic platform 1800-0715 and 09:30-13:15 Sun. to Fri.	Open outcry (trading floor) 09:30-13:15 Mon. to Fri. Electronic platform 1800-0715 and 0-13:15 Sun. to Fri.	Open outcry (trading floor) 09:30-13:15 Mon. to Fri. Electronic platform 1800-0715 and 09:30-13:15 Sun. to Fri.	Open outcry (trading floor) 09:30-13:15 Mon. to Fri. Electronic platform 1800-0715 and 09:30-13:15 Sun. to Fri.
Contract size	~127 metric ton	~136 metric ton	~136 metric ton	~100 metric tons
Contract months	March (H), May (K), July (N), Sept. (U) and Dec. (Z)	March (H), May (K), July (N), Sept. (U) and Dec. (Z)	March (H), May (K), July (N), Sept. (U) and Dec. (Z)	March (H), May (K), July (N), Sept. (U) and Dec. (Z)
Settlement method	Physical delivery	Physical delivery	Physical delivery	Physical delivery
Price quotations	Cents/bushel	Cents/bushel	Cents/bushel	Cents/bushel
Last trading day	The business day prior to the 15th calendar day of the contract month	The business day prior to the 15th calendar day of the contract month	The business day prior to the 15th calendar day of the contract month	The business day prior to the 15th calendar day of the contract month
First delivery day	1st business day of the delivery month	1st business day of the delivery month	1st business day of the delivery month	1st business day of the delivery month
Last delivery day	2nd business day following the last trading day of the delivery month	2nd business day following the last trading day of the delivery month	2nd business day following the last trading day of the delivery month	7th business day following the last trading day of the delivery month
Exchange fees	~$2.00/contract	~$2.00/contract	~$2.00/contract	~$1.50/contract

Chicago board of trades analysed: CBOT charges relatively high exchange fees. The exchange charges fees that range from $1.50-2.50 basically depending on the size of the contract. Although, this may be viewed as high exchange fees by some market analysts, it is important to realise that CBOT has a comparative advantage and enjoys leadership advantage hence its activities are not greatly affected by the exchange fees that it charges.

The futures contracts on CBOT have a delivery period that begins first business day of the expiration month. Similarly Williams *et al*. (1998), contributed a portion of the success of the Mungbean futures contract on the China Zhengzhou commodity exchange to a delivery window beginning the 1st day of the contract expiration month. This gives ample time for participants to deliver according to an agreed contract. Thus, the success of futures contracts on the CBOT may be attributed to its friendly delivery window that begins the 1st day of the contract expiration month and ends on the second business day following the last trading day of the delivery month. However, in contrast, some analyst and traders do not view this contract specification as an impediment to delivery but rather a general specification that has little contribution to the success of a futures contract.

CONCLUSION

Suitable contract sizes: The research shows that a smaller contract size is attractive to most market participants, especially farmers in emerging markets like Zimbabwe. For the thriving of Comez, it has therefore been concluded by the researchers that contract sizes for all the products be set equal to or below a size of 10 metric ton say, 5 or 2.5 metric ton, so as to facilitate active participation by various stakeholders.

Delivery location preference: Most respondents were in favour of all the 5 cities in the country to be set as delivery points. This was further explained by the respondents as primarily to reduce the costs associated with transporting the physical commodities where delivery date would be due. However, sub-standard warehouses are likely to result due to the costly nature of establishing warehouses, especially to developing markets. Nevertheless, since there are already existing warehouses owned by the government parastatal, GMB, this impediment can easily be solved by simply upgrading the warehouses to meet international standards and this would in a way reduce the costs of establishing new warehouses. Given the different delivery points, the delivery point should therefore be properly and clearly specified in a contract so as to reduce the probability of contract failure. Thompson *et al*. (1996), attributed the failure of the Minneapolis grain exchange's high-fructose corn syrup contract in part to poor delivery specifications while Powers (1967) reports that seemingly minor alterations to the specifications of the Chicago Mercantile exchange's frozen pork belly contract had a significant impact on the level of trading activity. The researchers are, therefore of the opinion of decentralising the delivery points to all the major cities in the country as this would greatly reduce transportation costs on the part of farmers. In this multi-currency system environment which currency may be best used in price quotations for the suggested listed commodities? The USD received an overwhelming support with over 75% in favour of this currency. Despite such a huge subscription to the USD, there were a few

individuals who preferred the ZAR and the BWP. However, given the great support for the USD by various prospective commodity exchange participants, researchers recommend the use of the aforementioned currency in price quotations. The use of the USD would also have an impact on the influence the local exchange would have, thus there would be an enlarged sphere of influence as other foreign commodity market participants can actually trade on our local exchange at ease, since the USD is the most widely used currency world over. However, it should be pointed out that should the local Zimbabwean currency be re-introduced under stable conditions before trading starts at Comez, the researchers are of the opinion that the price quotations be in the local currency as this is evident in nearly all commodity exchanges around the world. What would be the most appropriate and suitable business days and trading hours? About 60% of the respondents were in favour of trading days starting Monday up to Friday and close during weekends. In terms of trading times, most respondents were in agreement to the starting time of 1000 h and ending at 1200 h every trading day. However, trading days and trading hours proposed by the respondents failed to match international standards when compared to some existing and thriving commodity exchanges in developed commodity markets like CBOT. The differences can be attributed mainly to the method of conducting trade and the size of the served market. In the Zimbabwean case, trade will be basically call-over, unlike developed exchanges where they can afford electronic trade due to technological advancements. Assuming that USD is the preferred currency, how much should the local exchange charge in fees for each commodity contract? To excite trade and promote active participation by various market participants, most respondents voted for a small fee to be charged by the local exchange. A fee of $1 per contract received the majority vote. However, the respondents also highlighted the need to consider the contract size before charging a fee per contract. Thus, for example, a wheat contract of 50 metric ton should be charged double the fee charged for a 25 metric ton contract. Given this information, researchers concluded that the minimum charge per contract be set at USD$ 1 for the smallest contract and the fee be adjusted pro rata to the size of each contract but up to a ceiling fee of USD$ 2.50.

Deliverable grades and grading system: The general response on deliverable grades and grading systems was that deliverable grades should be set in line with international standards. As echoed by Gray (1978) and Williams *et al*. (1998) for physically settled contracts it is important that the delivery provisions correspond to dominant industry practice. Failure by a counterpart to a contract to meet the set contracted delivery standards should result in a discount to the price of the contract. Conversely, a better grade than the contracted standard grade should also attract a premium amount to the price of the contract. The amount of both discount and premium should be clearly stated in the contract to afford the thriving of the exchange and reduce conflict that may arise due to lack of clarity.

Respondents were, also of the opinion that in order to meet the requirements of a specific contract design, the exchange should put in place a good grading system. The exchange should hire expert assayers who are wholly independent and suitably qualified with no conflicting interests to any one of the commodity exchange participants so as to maintain good corporate governance and avoid bias.

Other factors responsible for contract failure other than contract design: It was a general consensus by all respondents that there is indeed a number of other factors other than contract design that are responsible for contract failure. Chief of them all was the need for a large and active spot market as most respondents shed the same sentiments on this factor. Other factors that were highlighted as being responsible for contract failure were legal and regulatory structure, macro-economic stability and political tolerance to cereal price movements. Most of the respondents were, however in agreement that contract design was to a greater extent a major contributor to the success of any futures contract. The salient features of the new Comez are summarised in Table 3.

Supporting futures contract design: Comez is expected to contribute to the transformation of the agricultural economy of Zimbabwe by promoting standardisation in trading, offering market-based instruments like futures to mitigate price risk and improving access to agricultural finance. In order to support the futures contract design, it is important to note that there exist some pre-requisites that work hand in hand with such a contract design and that need to be taken into account for the thriving of a commodity exchange. It is against this background that the following recommendations are also given to facilitate the success of Comez.

Quality assurance system: To counter the problem that may be brought about by poorly stated and unclearly given deliverable grades and quality, researchers recommend that Comez should have quality standards defined for all the commodities listed on the exchange.

Table 3: Contract specifications futures salient features

Futures contract	Tobacco	Wheat	Maize	Cotton
Trading hours	10:00-12:00	10:00-12:00	10:00-12:00	10:00-12:00
Contract size	5 metric ton	2.5 metric ton	2.5 metric ton	5 metric ton
Contract months	Mar., May, July, Sep., Dec.	Mar., May, July, Sep., Dec.	Mar., May, July, Sep., Dec.	Mar., May, July, Sep., Dec.
Settlement method	Physical delivery of Comez silo receipts	Physical delivery of Comez silo receipts	Physical delivery of Comez silo receipts	Physical delivery of Comez silo receipts
Price quotations	USD$/ton	USD$/ton	USD$/ton	USD$/ton
Last trading day	1200 h on 8th last business day of expiry month	1200 h on 8th last business day of expiry month	1200 h on 8th last business day of expiry month	1200 h on 8th last business day of expiry month
1st delivery day	1st business day of the delivery month	1st business day of the delivery month	1st business day of the delivery month	1st business day of the delivery month
Last delivery day	Last business day of the delivery month	Last business day of the delivery month	Last business day of the delivery month	Last business day of the delivery month
Comez exchange fees (incl VAT)	USD$ 2/contract	USD$ 1/contract	USD$ 1/contract	USD$ 2/contract

Quality certification should be undertaken at least at 2 levels: 1st by approved assayers who determine the quality of commodities intended for trading and 2nd by personnel of the Comez at its state-of-the art laboratories. Quality parameters for different categories of the commodities should be prescribed. The categories should be defined by the purpose for which the particular commodity is utilised. For instance, maize can be categorised according to uses, such as feedstock production, flour and production of infant food. Further, Comez should adopt commodity standards that are based on grading systems, either numeric (1-5 as in the USA) or alphabetic (as in South Africa) where standards are tighter for top grade commodities intended for the more quality-sensitive markets. A similar model could make the link between quality and premium prices clearer and potentially foster compliance with tighter grading standards by producers and traders.

Physical delivery system: With the major cities being concluded and proposed to be the delivery locations, Comez should designate specific warehouses as delivery locations within these cities. Hence, there should be criteria for certifying the GMB warehouses or any other prospective warehouses and operators by the exchange and this should be well laid down in the rules and regulations of the exchange. The requirements should include minimum storage capacity and basic facilities including a weighbridge and grading equipment. Thus, meeting of the warehouse requirements and the provision of such would supplement the success of the futures contracts as specifications for physical delivery in a contract would be satisfactorily met and this reduces the risk of contracts failure.

Training of key market players: The researchers recommend that Comez should offer training courses in commodity trading for staff of registered trading members including brokers, as well as for the general public. It will be up to Comez to make sure that the commodity market is more stable by ensuring that the professional calibre of personnel who participate in commodities market is up to standards. They may offer a course that may be broken down into say, 3 phases targeting different groups of personnel: Foundation, intermediate and advanced training courses. For farmers and back-office personnel within broking firms, these may only need the foundation phase of the training course whereas the commodity dealers may need to acquire knowledge up to the advanced phase of the training course.

RECOMMENDATIONS

Farmers: The atomised structure of agricultural production and marketing system in Zimbabwe would limit options for participation by smallholders in exchange trading. The commercial or large-scale farming sector in the country is under-developed, implying that unless large-scale traders participate, there would be little chance of assuring trading of significant volumes through the exchange. Thus, farmers may form groups to allow them to trade the required futures contracts should their individual produces fail to make up for a single contract. However, while co-operatives are usually recognised by law, the legal status of farmer groups remains unclear in Zimbabwe.

Commodity exchange of Zimbabwe (Comez): Comez should be heavily responsible for all the commodity contracts that would be traded on the exchange. Thus, the structure of the contracts, legal framework and dispute resolution among others should be major concerns for Comez to ensure a successful and thriving commodity exchange. As already highlighted, the contract design should be well defined and the specifications well shown in a contract and suited to the needs and capacities of the participants to avoid the risk of contract failure.

The government (ministry of finance): Since, the government, through the ministry of finance, controls the

operations of the money market, stock market and the commodity market, there is great need for the Ministry to financially support Comez pre and post start of trading. The ministry should also craft policies that promote free trading of all the listed commodities and reduce its interference with Comez allowing it to run as a quasi-private legal entity. Carlton (1984), supports this view. Researcher also observed that successful contracts are based on commodities whose prices are not heavily influenced by government-sponsored manipulation. Furthermore, for a start, the call over system of trade may be ideal but the researchers recommend that the ministry also includes in its budget, a provisional amount for the setting up of an electronic trading system. This would make Comez comparable to international standards.

Brokers: The trading of commodities on an exchange calls for qualified commodity brokers. Since, there is a brokerage opportunity in the commodities market, for already existing stockbrokers, there may be need to establish a commodities desk at their offices so, as to facilitate trade on the exchange by acting as an interface between farmers and buyers. The commodities desk should focus on 3 major aspects:

- Research in agriculture
- Structuring contracts and pricing of futures and
- Providing broking services

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