THE FUNCTIONING OF THE AGRICULTURAL FUTURES MARKET AS A PRICE FORMING MECHANISM FOR GRAINS AND OILSEEDS

Report prepared by the

National Agricultural Marketing Council[1]

For

Grain South Africa

August 2008

[1] This report was prepared by the NAMC with Proff. Johann Kirsten and Herman van Schalkwyk as council members overseeing the process. Dr Mariette Geyser and Prof André Jooste provided the technical input and analysis contained in the report. All contributions and input from individuals and stakeholder organisations in preparing this report are herewith acknowledged with thanks.

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Synopsis

GrainSA requested the National Agricultural Marketing Council to investigate concerns regarding the proper functioning of the Agricultural Derivatives Market of the Johannesburg Securities Exchange (JSE) and the purpose of this report is therefore to specifically look at their concerns.

A point that needs to be raised is the fact that many of the prevailing concerns were addressed by the Food Price Monitoring Committee's (FPMC) investigation during 2002/03. It seemed that the findings of the report were not fully appreciated since many of the findings of the FPMC are still relevant. The study found that **emotions** and **sentiment** does influence the market and that it is difficult for players to 'corner the market'. The JSE instituted position limits on speculative positions on 1 July 2003 to prevent traders from cornering the market.

This report further attempted to explore the fundamental factors that impact on the market. It was found that SAFEX is a well functioning market for grains and oilseed price forming in South Africa. Prices are influenced by supply and demand (both regional and international) and the Rand Dollar exchange rate. The study further found that deliveries from foreign origin do not impact negatively on the price of wheat. The proposed changes of the JSE on foreign wheat deliveries are acknowledged. The report however raises a concern about the basis on which the origin discounts, to account for quality difference of foreign wheat delivered on SAFEX, was determined. In order to ensure greater transparency in the market the criteria on which this discount is based should be substantiated scientifically. The NAMC therefore recommends that a study is undertaken to determine a sound and scientific basis on which such a discount is based and adjusted from time to time.

This report concludes that in theory area differentials should not influence prices negatively and that there should exist many other alternatives to farmers to market their product (in possible other geographical areas) to obtain a better price. Obviously, the argument about the number of buyers in a particular region – thus the competitive nature of the market has to be considered. When there are no alternative buyers in a region it is rather difficult for farmers to bargain and negotiate on price with different buyers and as a result farmers have no choice but to accept the price being offered (SAFEX minus location differential). The situation in the Western Cape specifically is further complicated by the fact that the major farmer cooperatives/agribusiness (who should represent farmers' interests) are shareholders in milling companies buying the major share of the Western Cape wheat crop. Given that there remains a lot of discomfort and emotion around the transport differential the NAMC recommends a stakeholder workshop where organisations, traders, and individual stakeholders can make presentations. The NAMC is willing to design the terms of reference for the presentations and act as facilitator. The goal of the stakeholder workshop will be to get inclusive input, provide a platform for discussions and lastly to establish some form of a decision on the future of the transport differential. As an interim the NAMC also recommends:

i) that the transport differential is maintained for the interim
ii) that an investigation is launched into how it is determined and whether it actually serves its purpose
iii) that the state of competition of the wheat market in the Western Cape is investigated by the Competition Commission

The report also found that price volatility on SAFEX is high, but correspond with price volatility on Chicago Board of Trade, having the same high and low phases during a marketing season and that the price volatility can be explained. The report further established that SAFEX prices are

sensitive towards reports released by the Crop Estimates Committee as well as reports released by the US Department of Agriculture and other international reports of significance.

The following recommendations are suggested:

- To create a formal mechanism whereby complaints lodged by members of the JSE are investigated and feedback mechanisms are available.
- To look at ways where information and access to information in the market are improved.
- The introduction of a 'commitment of traders' report issued by the JSE.
- Investigate speculative position limits on the various contracts and to determine whether these levels should be adapted and extended to cover other contracts than white maize.
- A study to determine 'moving average' price limits to ensure that the price limits imposed on the market represents a fair percentage of the underlying price.
- That the JSE should consider the introduction of 'mini size' contracts.
- That the JSE consider removing the trading names from the highly liquid futures contract depth screens.
- That the JSE consider publishing a market commentary report.
- That a statutory measure should be introduced forcing market participants to report any intention of imports or exports 24 hours after the deals were concluded.

1. Introduction

This report is prepared following a request from GRAINSA to the National Agricultural Marketing Council (NAMC) to investigate concerns regarding the proper functioning of the Agricultural Products Market division of the JSE (commonly referred to as SAFEX). These concerns were highlighted in a letter from GRAINSA to the NAMC included the following and reported under the following main headings:

1. The necessity of grain deliveries from foreign origin on SAFEX contracts, international prices and the influence thereof on SAFEX prices.

2. The functioning of the market, and in detail:
   2.1 SAFEX as price forming mechanism for grains and oilseeds in the South African agricultural context.

   2.2 The role of speculators in trading and the possible influence of speculators on price fluctuations.

   2.3 The volatility of grain prices.

   2.4 The influence of the location differential.

   2.5 Trading strategies or actions by traders (with specific reference to possible price manipulation).

   2.6 The effect of external factors, such as the publication of producer's intention to plant by the National Crop Estimate committee, on the volatility of SAFEX grain prices.

   2.7 Changes in prices as a result of changes in fundamental factors such as exchange rate and the Chicago Board of Trade prices.

   2.8 The necessity of delivery of grains of foreign origin on SAFEX.

The purpose of this report is to specifically look at the issues raised by GRAINSA. The authors are aware of a similar study undertaken by the Competition Commission, but the authors would like to stress that the report do not have the same mandate than the Competition Commission. The report might cover aspects not part of the Competition Commission's mandate, or the report might not cover all the aspects of that of the Competition Commission.

Many producers voiced their concerns about SAFEX and believe that the exchange is to be blamed for the low prices relative to export parity (experienced during the beginning of 2007 when the SAFEX price traded close to export parity levels) or for the volatility in prices. Allegations of the manipulation of the market have been made and the transport differential listed has been debated at length.

Most of these claims were also raised by many parties at the time of the food price crisis of 2002/2003 which led to the appointment of the Food Price Monitoring Committee (FPMC). The Committee investigated the working of the SAFEX market for grains and also interviewed all the major grain traders and the JSE in a set of hearings during 2003. It seems that the finding and conclusions of the Committee – contained in its final report – was not fully appreciated and

internalized by many of the role players in the industry. It was therefore considered to be an appropriate course of action to review and synthesize the findings of the FPMC and then implement an additional investigation to determine the cause of the more recent concerns.

The report starts therefore by giving an overview of the views expressed during the interviews and highlighting the main findings and recommendations made by the FPMC. The report then reviews the fundamental factors that impacts on the market in an attempt to shed more light on the role of the futures exchange in trading grain in South Africa. Subsequently the report highlights other factors and/or actions that can influence the market and prevailing issues and concerns from market participants.

2. Overview of findings and recommendations of the FPMC investigation

During 2003 the Food Pricing Monitoring Committee received a number of complaints regarding trader behaviour on the agricultural derivatives market of the JSE. Complaints to the office of the Deputy-Minister also came to the Committee's attention. The tremendous fluctuations and volatility in the agricultural commodity markets also led to concerns expressed by many grain farmers at a recent GRAIN SA congress (2007).

In its 2003 investigation the Food Price Monitoring Committee was asked to determine what actually took place in the commodity markets between December 2001 and April 2003. Role players in the market were therefore requested to provide the Committee with their understanding of price trends in the markets for white and yellow maize, wheat and sunflower. Comments were invited on the following issues:

- An assessment of the main reasons (excepting commonly known factors such as world prices and the exchange rate) which led to the rapid increase in commodity prices during 2002 and the rapid decrease in prices during early 2003 (pinpointing any trader behaviour or practices that contributed to these extraordinary runs).
- An explanation of the factors (events, information) that determined trading positions in the aforementioned period.
- An indication of price trends and trades (mentioning of specific days) that were not in line with the fundamentals. (For example: all fundamentals indicated that prices should go up but prices went down!).
- Any information on import and export deals that were reported but never were realised.
- An interpretation of the effect that the monthly crop estimates and the information on stock holding in silos and on farms had on the price trends in the markets.
- Suggestions on regulations that should be put into place by the JSE to reduce unnecessary speculation and adverse trader behaviour on the agricultural derivatives market.
- Opinions on portfolio managers using the agricultural derivatives market as a way of balancing their portfolio and spreading their risk.

By the deadline of 30 May 2003, only 6 written submissions had been received in addition to a response from the CEO of the Agricultural Products Division of SAFEX. This response is included in Box 1; it provides useful information about the events in the agricultural commodity market during the period in question and gave rise to the issues during that period, as well as the questions investigated. A subcommittee of the FPMC reviewed these submissions and then decided to invite certain traders to provide oral evidence in camera during the week of 17 – 20 June 2003. Fifteen representatives from institutions trading on SAFEX, or trading physical grain

were interviewed.

Box 1: Useful information regarding the agricultural commodity market during the period 2001/02 (Submission to the Food Price Monitoring Committee by the Agricultural Products Division, JSE Securities Exchange South Africa)

Background

The fundamental objective of a commodity derivatives market is to provide participants in the market with an effective price determination mechanism and an efficient price risk management facility. In the absence of a derivatives market within a deregulated commodity market (where price is not controlled), participants in the market are subject to unscrupulous pricing behaviour and to massive price risk. A derivatives market sends out clear and transparent price signals to the whole market and enables market participants to hedge the risk inherent in commodities. The prices on a commodity derivatives market are determined by the interpretation of the information available to the market at any given point in time and are based on the principle of willing buyer, willing seller.

The price of grain, particularly that of white maize, on the South African commodity derivatives market is determined by the interpretation of the information related to the following factors:

- the domestic supply and demand situation;
- the regional supply and demand situation;
- the international supply and demand situation and international prices;
- the exchange rate.

Based on the information available at the time, and the interpretation thereof, the price of grains, particularly that of white maize, started to increase around June/July 2001. A brief synopsis of the most pertinent of the above noted fundamental factors would serve to substantiate price movements in the period mid 2001 to date.

Factor	June 2001 – Mar 2002: Price rise to maximum levels	April 2002 – Dec 2002: Continued high price off maximum levels	Jan 2003 to date: Fall off in prices
Domestic Supply	Reasonable supply	Crop estimate figures underestimated by 1mt. Reports of poor crop perspectives	Realisation that carry over stocks are in the region of 2m tons (SAGIS figures). Indications of 17% greater plantings of white maize and follow up increased NCEC crop estimates
Domestic Demand	Largely unchanged	Largely unchanged	Largely unchanged
Regional Supply	Reports of shortages as a result of drought and political unrest in Zimbabwe	Shortages as a result of poor harvests	Crop prospects looking better in certain countries
Regional Demand	Reports of extensive demand requirements in the upcoming season as a result of crop failures and political unrest	Continued reports of extensive demand requirements	Realization that regional demand was probably exaggerated and that "aid" maize had taken the place of potential commercial exports
International	Largely unchanged,	Increased from around	Largely unchanged in the

prices	Ranged between 200 and 205 c/bushel	200 to 240c/bushel	region of 240c/bushel
Exchange Rate	Rand weakened significantly to the US$ from 8.00 to 12.60 (in Dec) and then strengthened to 11.60	Rand strengthened from 11.50 to 9.10, but most media reports suggested the strengthening would be short-lived	Rand strengthened significantly from 9.10 to 7.20

It must also be noted that a market does not only trade on fundamental factors, but on perceptions and sometimes emotions. The situations during the specific time periods, as indicated above, created an atmosphere in which participants in the market took decisions which could easily have been motivated by the perceptions of those fundamental factors pertaining in the market. A derivatives market consists of various participants, notably hedgers (those wishing to manage price risk) and speculators (those prepared to take on risk with the objective of making a profit.) Speculators are necessary to the efficient functioning of a market in that they provide added liquidity to the market and added opportunity for hedgers to lay off risk.

2.1 Summary of the 'evidence' presented to the FPMC during the Interviews held in 2003

Various market participants and industry leaders were interviewed by the FPMC. They represented:

- SAFEX,
- Large milling companies,
- Traders, and
- Stock held by silo-owners, farmers, grain pools, and stock kept as part of a strategy

The various opinions are summarized below:

2.1.1 SAFEX opinion

SAFEX gave evidence on 2 specific issues and made some recommendations during the hearing:

> *SAFEX trading rules:* The CEO of the agricultural derivates division of the JSE (SAFEX) accepts that there were gaps in the SAFEX rules for trading (this is an important acknowledgement by the CEO already in 2003 and should be seen in context of the concerns raised in the request to the NAMC in 2007 mentioned in the introduction of our report), specifically limitations on trading position limits. Rough estimates of the price increasing effect of the lack of position limits on the size of trades and their volume range from 2% to 10%. SAFEX maintains that position limits will resolve this problem in much the same way that speed limits aim to control speeding.
>
> At that time the CEO believed that SAFEX prices remained high for a long period because of sentiments in the market that was created by amongst other speculation on movements in the exchange rate and weather conditions. By implication, they feel that the lack of position limits did not play a substantial role as the other factors that influence the SAFEX price indicated a higher SAFEX price. The CEO recommends that greater investment needs to be made into the National Crop Estimates Committee (NCEC).
>
> *Recommendations:* The CEO pointed out that if the State were to operate a strategic reserve on SAFEX, it would also be subject to position limits. He was not able to provide

any guarantees that position limits would work effectively. SAFEX was aware of the risk that trading entities may be split up under the maximum ceilings, but the CEO did not make any commitments to improved monitoring and reporting.

2.1.2 Large milling companies and their maize trading activities

According to traders acting on behalf of the grain millers, and also based on the normal market gossip, the concern was that millers instructed their traders to 'buy at all costs' during 2002 because they believed there was going to be a shortage of maize and, consequently, they feared losing their brand-based market share. To some extent this appears to have led to a situation where large mills locked part of their overall maize grain purchases at high SAFEX prices compared to prices available to smaller millers who only entered the milling industry once prices dropped in early 2003.

Large millers aimed to save on option premium costs and therefore got involved in 'exotic' options (e.g. barrier options). Possible losses experienced on barrier options are more likely as a result of a lack of experience in managing barrier options and not as a result of the market. Prices may have overshot on the futures market because of what was happening on the options market. There is a lack of trader skill and expertise in using exotic options.

2.1.3 Big trader dominance during 2001/2

Several traders reported on aspects of the trading activity of one large trading house that was described as 'the market leader' in 2002. This particular firm was well-known to the trading board and had adopted a controversially large position in support of the higher maize prices from May 2002 onwards, a position that most traders and market participants believed and followed. The firm's activities were supported by its ability to trade on behalf of the Joint Municipal Workers Pension Fund with backing from ABSA. The size of the position held by this firm led to a situation where it was improbable that other market participants would counter their position. Details regarding the disciplinary hearing and judgement in this matter are given below:

The Disciplinary Tribunal, chaired by the retired Judge President of the Transvaal Provincial Division of the High Court, the Honourable Mr Justice CF Eloff, found as follows:

1. The Firm, WJ Morgan (Senior) and WJ Morgan (Junior) were found guilty on the following counts of:
contravening Rule 16.10 of the Derivatives Rules of the JSE, by committing an act or engaging in conduct likely to bring the JSE into disrepute, in that they:

1.1.1 cheated, defrauded and deceived a client ("the Client");

1.1.2 engaged in manipulation or misleading acts or practices regarding the price of an exchange contract or trading in that contract;

1.1.3 behaved in a manner prejudicial to the interest of the public, derivatives members and the Client;

1.1.4 committed acts which were considered to be dishonest, fraudulent or dishonourable; and

1.1.5 were parties to or facilitated or entered into trades which had dishonest or unlawful motives;

1.2 contravening Rule 15.30.2 of the Derivatives Rules of the JSE, in that they bought or sold investments for or from their own account to or from the Client;

1.3 contravening Rule 15.50.4 of the Derivatives Rules of the JSE, in that they failed to avoid

any conflict between their interests and those of the Client;

1.4 contravening Rule 15.50.2 of the Derivatives Rules of the JSE, in that they failed to observe high standards of integrity and did not place the interests of the Client above their own; and

1.5 contravening Rule 15.50.3 of the Derivatives Rules of the JSE, in that they did not act with due skill, care, diligence and good faith; and The Firm was found guilty of contravening Rule 5.10.3, in that it allowed unauthorised persons to trade on a dealer's password.

In consequence of the above findings, the Disciplinary Tribunal imposed the following penalties:

* The Firm, WJ Morgan (Senior) and WJ Morgan (Junior) were ordered, jointly and severally, to pay a fine to the JSE in the aggregate amount of R3 000 000;

* The Firm was ordered to pay a fine of R50 000 to the JSE and its membership of the JSE was terminated;

* The Firm was directed to terminate the position of WJ Morgan (Senior) as a director and/or employee and/or affiliated officer by virtue of the Tribunal's finding that WJ Morgan (Senior) is not a fit and proper person to hold such a position;

* The Firm was directed to terminate the position of WJ Morgan (Junior) as a director and/or employee and/or affiliated officer by virtue of the tribunal's finding that WJ Morgan (Junior) is not a fit and proper person to hold such a position;

* The Firm, WJ Morgan (Senior) and WJ Morgan (Junior) were ordered, jointly and severally, to pay to the JSE the sum of R300 000 in respects of costs.

The Firm, WJ Morgan (Senior) and WJ Morgan (Junior) ("the appellants") lodged an appeal in terms of section 19 of the Act against the conviction and the sanctions imposed on them by the Disciplinary Tribunal. The Chairman of the Appeal Board was the retired Judge President of the Cape Provincial Division, The Honourable Mr. Justice G. Friedman. The appeal was heard on 7 and 8 September 2004.

The Appeal Board handed down its decision on 4 October 2004 and ordered as follows:

1. The appeal is dismissed and all the orders made by the Tribunal are confirmed.
2. The Appellants are ordered to pay, jointly and severally, the one paying the others to be absolved, the total sum of R 175 000 to the JSE in respect of costs.

Box 2: An extract from the written response from one SAFEX trader

"There are essentially two points of departure when drafting a response to the request for submissions. One is to comment on the issues / questions from the perspective of each being a question simply asked to elicit a response and gain insight into the workings of the market. The other is a background which I do believe is relevant in this case, being that this is somewhat of a fishing expedition in the hope that a party (be it a market participant or an exchange member) will, or will not, be found holding a "smoking gun", enabling much of the blame for spiralling food price inflation to be laid before the door of an identified, or identifiable party, or parties.

I will to some extent comment from these perspectives separately as each has some value. Certainly there is certain activity that possibly resulted in **short term** price moves, which would otherwise not have resulted – but whether or not these moves were not justifiable is another question altogether. Ultimately the market both dictates and indicates whether a price move is justifiable and sustainable.

To a point the rallies of late 2001 / early 2002 were justifiable – after all the market continued to fuel the move. At a point, however the market move became unsustainable and the market "fell of its own weight" so to speak.

As with any "bubble" (boom or bust type activity) as evidenced throughout market histories (The South Sea Bubble, Tulip mania and even the Tech Stock Boom), moves become exaggerated as the market moves too far. Euphoria or gloom (greed or fear) sees exaggerated moves based on human emotion, which determines how far prices move. This may not be what a purist fundamentalist would be hoping to hear, but it is my firm view that price action is primarily a function of the emotional response of people (market participants, or representatives and decision makers working at market participants). Human involvement is the only constant factor of markets and is therefore the only determinable factor – one is assured of human nature, always. Accordingly, prices will always overshoot to both the upside and the downside.

Market activity is the end result of all factors <u>influencing all market participants</u> and their views at that time, such factors acting in concert to translate to certain price action / price levels. Accordingly, it is important to realise that any attempt to single out individual factors as the "cause" of a specific price move is in reality an exercise in futility. Various factors may have contrary effects and the price is a function of all of these factors. Nevertheless, and for fear of creating the impression that I view this information gathering exercise of the FPMC as "futile", I believe that this process is necessary and desirable, even if only to confirm what many actively involved in this market have known all along. It is necessary to determine that markets will run their course – and that it is necessary and desirable to permit the operation of free markets to achieve this. To realise also that the benefits involved in such activity are in balance with the negatives and in fact outweigh them.

The very existence of a market assumes that there are participants with opposing views – if all participants at any time expect prices to increase there will be no sellers and hence no trade, and similarly if a decline is expected, there will be no buyers. It is the opposing views that make trade possible. I will embellish upon this later.

It should also be realised that commodity markets are notoriously volatile and prone to extreme moves. This is readily verified by an examination of the international grain exchanges. That being said there are certain factors worthy of mentioning although an objective quantification of the effect of these factors on prices may be impossible. Rather there should be a realisation of the fact that these factors **MAY** have had an effect on prices and, **IF** deemed appropriate, regulation or action with regards thereto becomes possible, although the benefits of such regulation and their implications as a whole would require careful consideration. I will not delve deeper into this aspect herein.

The Food Pricing Monitoring Committee should not - it is respectfully submitted – be too concerned with the exact effect of each market factor historically, but rather in ensuring that market efficiency is not compromised by certain structural, or market issues and that potential for undesirable practices by market participants is avoided. **It should also be considered that regulations already exist to limit and control the behaviour of members and market participants".**

Box 3: Why could prices on SAFEX overshoot or fluctuations be exaggerated? A trader's perspective

Price overshooting is usually created when arbitrage is not possible – i.e. if trade is constrained. Factors, which inhibit the functioning of the principles of arbitrage, could, theoretically, contribute to unusual, extreme, or extraordinary price moves – either up or down. Structural issues in both government regulation and SAFEX rules **MAY** have had the effect of limiting arbitrage opportunities during the price run of early 2002, with the former (government regulation) more so than the latter.

During this period, domestic prices on the SAFEX derivatives exchange traded above theoretical import parity prices and accordingly the local grain prices in the physical market (as an alternative to the prices on the board) followed. This was because imports were not feasible due to the non-approval of the importation of genetically modified grain (this immediately moves one to GM free markets which generally carry a premium). Levels of BT11 "contamination" permitted, together with the certification required for imported corn was originally a limiting factor and saw many argue that importation of white corn would never be possible.

In theory, arbitrage opportunities mean that domestic consumers (or traders) who are long of physical stock will sell this grain into the domestic (or another market) and replace these stocks with cheaper grain from elsewhere. The above situation hampered the free application of the principles of arbitrage by market participants who were unable to import cheaper grain, and sell domestic grain, thereby forcing domestic prices down. Arbitrage opportunities would therefore operate (and eventually did so) via the physical grains market irrespective of the SAFEX Rules.

The SAFEX rules (recently revised with effect from the September 2003 Futures Contract) initially permitted delivery of only 100 mt (or multiples thereof) of grain, as reflected on a silo receipt issued by a recognised silo-operator in respect of stocks of **AFRICAN ORIGIN held at a SAFEX registered silo** on a SAFEX short position. This meant that utilisation of the principle of arbitrage in this regard (i.e. on SAFEX positions) was also removed – i.e. you could not for example purchase US white corn and deliver this on a SAFEX position.

In fact, even with the current revision of the SAFEX Rules one would in all probability struggle to deliver US corn (particularly white corn) to a SAFEX registered silo and have the silo operator segregate this stock as required (i.e. separate storage from other origins). Limited storage capacity and the very limited demand for such segregation would in theory make such storage prohibitively expensive to operate and detrimental to capacity. **In theory**, however, **arbitrage of international origins against local origins in the SAFEX market is now possible** and larger market participants with storage capacity, such as larger silo operators (e.g. Senwes, Afgri, etc.), are likely to make use of these opportunities in the future.

Another factor, which has an effect on price moves, and always will, is a given in derivatives markets. The gearing present in derivative instruments tends to result in an "overshoot" in price activity. Unlike markets where the instrument / subject matter is purchased and paid for in full, the purchaser of a March 2002 white maize futures contract during March 2002 would have obtained exposure to a commodity valued at as much as R 2000 / mt, by simply putting up a margin of R 100 / mt. Accordingly, positions **MAY** be taken far in excess of the financial means of the party compared to the situation were the party required to pay for the commodity in full. As a result, the market is capable of moving below the full value of the client's monetary investment (without the price of the commodity in the case of a purchase, for example, going below zero).

2.1.4 Stock owners

This FPMC also investigated the possibility that stock held by various owners/institutions could affect the price.

The ability of silo-owners to influence commodity prices

This section aims to verify whether it is possible for co-operatives/agribusiness or silo owners to influence the market price for agricultural commodities through hoarding – one of the major concerns with the functioning of market.

Theoretically the actual level of the domestic price lying between the minimum and maximum level will depend on local (SA) supply as well as on demand in the local market, albeit we need to recognise that the latter is relatively stable in the short to medium term. In Figure 1 below, the SAFEX spot prices of white and yellow maize are plotted against the monthly deliveries over the past seven years. From the graph it can be seen that trend in spot prices is declining at the time of the harvest. Even during the 2002 harvest season when extremely high producer prices were the reality, a declining trend can be identified. The same is also true for the last two marketing seasons with prices declining as deliveries increase.

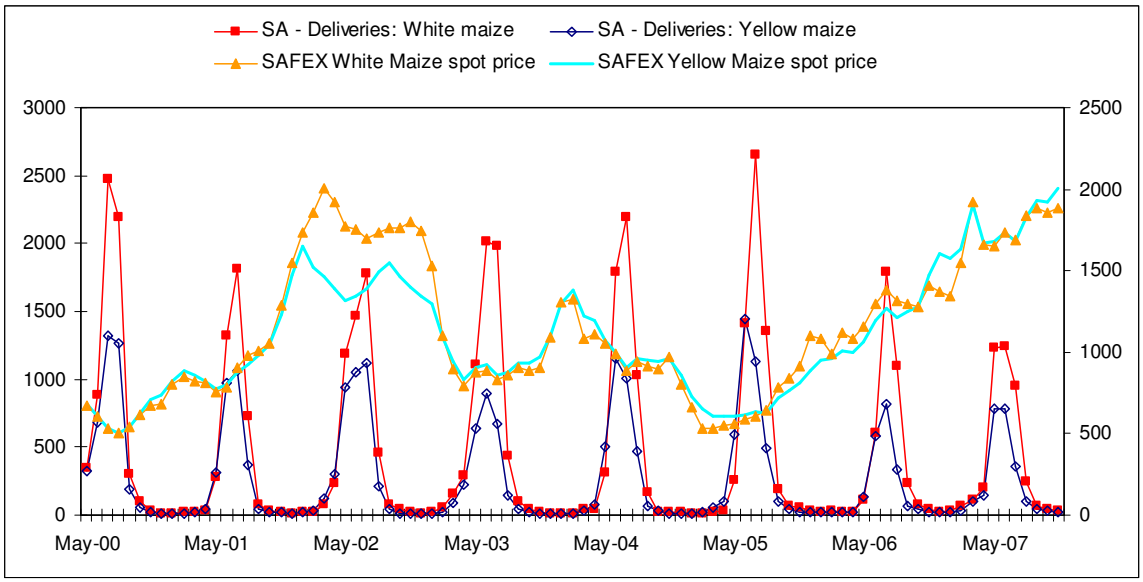

Figure 1: SA white and yellow maize monthly deliveries versus maize prices (an illustration of deliveries between May 2000 and November 2007)

Source: SAGIS & SAFEX

According to the Grain Silo Industry (2002), the total grain silo storage capacity in South Africa is estimated at 17.5 million tons, which comprises 14.5 million tons in the northern provinces, 970 000 tons in the south and 2.1 million tons at the harbours and with private owners. There exists quite a high amount of concentration with three silo owners owning 70.3% of all the domestic storage facilities. Farmers are also limited in their storing choices by:

- the availability of silos and silo space;

- the various transport ways (it is not ideal to use a tractor for example to take the harvested crop to a silo a long distance away. This mode of transport is time consuming); and
- some silos are not registered SAFEX silos, thus limiting the farmer in his marketing alternatives by excluding delivery on a SAFEX contract.

Silo owners store the following grain stocks: farmer's stocks, grain pools, back-to-back contracts, and hedge stocks. These are discussed in detail below.

Farmer's Stock

The producer is the owner of the maize. The maize can either be stored on the farm or in the silo. When the farmer delivers his/her maize (or any grain) for storage in the silo, it is unknown whether this maize has been sold or not since the sale of the grain takes place by means of a 'silo-certificate'. When the maize is delivered to the silo a silo certificate is issued and the producer can decide when to sell this certificate. The producer is exposed to the price risk and can hedge against this risk. The silo owner merely supplies the services of storage and handling at a specific cost per month. The delivery (i.e. the movement out of the silo bin) of the physical stock of grain will only take place through an instruction from the farmer/owner of the silo certificate. There was recently a court case dealing with the rights of silo certificates and when these documents can be used as a tradable commodity, highlighted below:

Judgement was given during December 2007 on the matter between ABSA bank and 48 farmers in the North West province. Judge Brian Southwood said in his judgement that ABSA failed to safeguard the silo certificates of the farmers and used these silo certificates in their normal operation without the farmer's concent. This judgement confirms that ownership of silo certificates can only be transferred through consent of the party involved.

Grain Pools

A group of producers delivers their maize in a pool. An organisation appointed by the group of producers will do the marketing and sale of the grain stock. A silo-owner can be appointed by the group of producers to administer the pool, and he provides services in terms of handling and storage. The stock belongs to the producers participating in this pool. The pool is exposed to price risk and, therefore, has to hedge itself. All price risks and hedging costs are for the account of the specific pool.

Grain stocks related to 'back-to-back contracts'

The silo-owner acts as the agent of the buyer of maize (millers/processors) and purchases the maize from the producer. The buyer determines the price and the quality of the grain. The stock belongs to the buyer (the milling company/processor and NOT the silo-owner). The buyer will also determine where and when this stock will be utilized. After the maize has been purchased, the silo owner acts as the supplier of storage and handling services.

Hedged Stock

The silo-owner purchases the maize from the producer. The silo owner is now exposed to price risk, which might be hedged on the futures market. Any role player on SAFEX can now buy this stock from the silo-owner. As soon as the silo-owner has hedged the stock on the futures market, he is no longer exposed to the fluctuation of prices and, therefore, can earn the amount that is

charged for handling and storage. The risk of any price movement is through the SAFEX hedge transferred to another player on SAFEX.

The deliveries received by all silo-owners during 2000 to 2003 can be grouped according to the classifications above. The first 3 classifications can be considered as deliveries/stock for other people's accounts, while purchases by the silo-owners for their own account make up the balance. As indicated in Table 1 (below), the latter is, generally, the smallest component of all stocks and deliveries (during the period when the Food Price Monitoring Committee investigated the high commodity prices). Most silo owners have their own trading desk where they participate in the market either as hedger or speculator. If they participate as speculator, their objective changes and any price move can be to their benefit. If they have their own trading desk, it can happen that the silo owner can enter into a trade/strategy where they trade for their own account and not always to the benefit of the farmer who store the commodity with them.

Table 1: Grain deliveries to silos

	2000/01			2001/02			2002/03		
	Total deliveries (t)	**Own account (%)**	**Other accounts (%)**	**Total deliveries (t)**	**Own account (%)**	**Other accounts (%)**	**Total deliveries (t)**	**Own account (%)**	**Other accounts (%)**
White maize	4 281 951	1.3	98.7	3 934 741	2.1	97.9	4 245 747	0.6	99.4
Yellow maize	2 382 224	2.0	98.0	2 721 341	1.6	98.4	3 082 797	0.9	99.1
Sunflower	539 405	0.05	99.95	573 739	0.35	99.65	572 758	0.2	99.8
Wheat	1 893 301	2.5	97.5	1 944 699	2.9	97.1	2 046 272	2.2	97.8
Sorghum	203 311	0.23	99.77	111 821	0.45	99.55	112 746	2.05	97.95

Many silo owners could benefit from a longer supply chain whereby they not only store the commodity, but they also become users of the commodity, either for their own mills, feedlots, or broilers, or in some instances, silo owners have a preferential delivery right to large mills.

The purpose of our study was not to determine whether silo owners were unfairly advantaged by their ownership since the Competition Commission is already busy to investigate such claims. The purpose of our study is furthermore not to determine whether oligopoly behaviour by silo owners impacts on the market negatively, since this falls outside the terms of reference requested by GRAINSA.

Appendix A shows the working of a 'trading book'. The appendix shows that it is unlikely that a silo owner will hold back stock as to influence the market. But it is based on the assumption that silo owners will only enter into SAFEX positions simultaneously with the purchase of the grain from the farmer.

Large players in the market can also influence the price to a certain degree. If they represent, for example, a large portion of the bids on a given day, they can push the price down by not willing to buy at higher price levels. Emotions, or financial pressures, can force the sellers to sell at the lower bids on the screen.

2.2 Findings and recommendations from the FPMC investigation

The FPMC made the following concluding remarks during their investigation:

"Although this investigation has highlighted some specific trader behaviour that potentially could have caused SAFEX prices to overshoot, it was not possible and probably never will be possible to link specific price trends to specific actions by individual companies in the market. There was enough evidence, however, that points towards the market or the market sentiment being manipulated, which caused the market to overshoot or to overreact. It is, however, also likely that the initial underestimation of the June 2002 harvest, and the various statements by industry leaders about a negative outlook for the coming 2002/2003 season created a negative market sentiment. Apart from this, there was much disinformation about the extent of imports, exports and the situation in Zimbabwe and rest of the SADC region. Clearly, the conditions were such that the 'stage' was literally set for somebody to 'orchestrate' the direction of the market and cause what somebody called a 'buffalo run'.

The Committee is however satisfied that the broader concern by society, Government, in conjunction with the attention given by the Committee as well as the Financial Services Board (FSB) did convince the JSE to introduce new rules to prevent the possibility that traders hoard the market. The fines and suspension issued by the JSE, and the investigation by the FSB is an indication that they are serious about dealing with traders behaving badly, which could result in 'unjust' price increases. Despite these reported irregularities, the Committee is of the opinion that lack of proper market information played a much greater role in creating the situation where manipulation was possible. To allow the proper functioning of this market, this aspect needs to be addressed. The Committee is also satisfied that there is sufficient evidence that much of the producer price trends accurately reflected the market fundamentals for most of the period under review, which suggests that, apart from certain periods, manipulation had minimal effect on the broader price trends. The Committee is also satisfied that the necessary regulations are now in place to prevent abuse of the futures market."

It is clear from the above section that emotions and sentiment does influence the market. The above section also showed that it is difficult for players to 'corner the market'. The JSE Securities Exchange South Africa ("the JSE") instituted disciplinary proceedings against WJ Morgan and Associates (Pty) Ltd ("the Firm"), a derivatives member of the JSE, and against its managing director, WJ Morgan (Senior), and executive director, WJ Morgan (Junior), pursuant to the Derivatives Rules of the JSE (as discussed in *section 2.1.3*. The JSE further introduced position limits on speculative positions on 1 July 2003 (and as discussed by Section 5 of this report). This section therefore attempted to answer questions 2.2 and 2.5.

3. The longer term functioning of the market for grains

Given the abovementioned, this section attempts to further explore the fundamental factors that impact on the market and to answer the following questions:

a) SAFEX as price forming mechanism for grains and oilseeds in the South African agricultural context.

b) Changes in prices as a result of changes in fundamental factors such as exchange rate and the Chicago Board of Trade prices.

c) The necessity of grain deliveries from foreign origin on SAFEX contracts, international prices and the influence thereof on SAFEX prices.

d) Determination of spot prices and the role of location differentials.

The passing of the Marketing of Agricultural Products Act of 1996 paved the way for a new marketing order in the South African grain industry. Grain producers, traders and processors are now able to trade in a 'free' market; they can respond to the forces of supply and demand in setting prices. In practice, they all look to the prices generated through the formal commodities market that was established following the deregulation, namely the Agricultural Markets Division of the South African Futures Exchange (SAFEX) as the benchmark for the prices they will ask or offer in the 'spot' market of daily trading in maize. The spot price refers to the price paid for a commodity at Randfontein (ex silo prices) and transportation cost are deducted from the SAFEX price to determine the spot price at every registered silo. This is true for white and yellow maize, wheat and sunflower seeds, but not for soybeans, as no transport cost is deducted to derive at the local spot price.

SAFEX was formed in 1996/1997, and introduced the trading of derivatives (futures and options) for white maize, yellow maize, wheat, sunflower, beef and potatoes (the beef and potato contracts were later cancelled due to inactivity). The prices for futures and options contracts are generated on the exchange market through 'bids' and 'offers' and reflect the views of market participants on the prices of the specific products at different dates in the future. These instruments are also used to hedge price risk. By using the SAFEX market effectively, market participants can manage their price risk, which, in turn, could result in improved financial positions.

Futures markets provide the facilities and platform where buyers and sellers can meet in a transparent way and trade freely among themselves, thereby providing an effective price discovery mechanism. It is the free and unimpeded trading among all buyers and all sellers that determines prices. In providing the facilities for buyers and sellers to meet and conduct their business, futures exchanges are somewhat like neutral playing sites in an athletic contest. Everyone who buys or sells either the futures contracts or the underlying commodity contributes to the process of price determination. The prices that emerge in futures markets represent the sum total of all the supply and demand pressures that determine prices. The high volumes traded on SAFEX ensure that even the largest single participant usually has little more than a fleeting, momentary impact on prices. Prices on futures markets find their level as a result of the cumulative action of thousands of buyers and sellers, including producers, processors, handlers, exporters, importers and speculators. The market price will rise, fall or hold steady, as a result of the sum total of all of those individual decisions to buy or sell.

The futures price reflects the price at which buyers and sellers are prepared to buy and sell the commodity contract for a future month. The futures price therefore reflects a consensus of market opinion. For instance, it combines the opinion of a producer, in the Free State who expects his crop to be smaller because of damage caused by wind and heavy rains, with the opinion of an Mpumalanga producer who expects a bumper crop, with the opinion of a feed manufacturer who expects demand for maize (as an example) to be higher because of herd expansion after good rain, and the opinion of a grain trader who expects a good USA crop and a strengthening of the Rand against the US Dollar to cause a decrease in the SAFEX price. The futures prices is therefore a forecast of what the cash price of the commodity will be for a given future month, based on currently available information.

Supply and demand factors (local, regional and international), weather conditions, consumer preferences, government policy, trade agreements, changes in living standards, and technology affect the prices of products in the future. Long term price trends are normally reflected by supply and demand factors, whereas breaking news, the exchange rate and emotions influence the market on a daily basis.

The determinants of the domestic price for maize and sunflower seeds

The main influences on the price of maize for a South African buyer is, normally, determined by the world price for maize, the exchange rate[2], stock levels and the relative size of the domestic maize crop. Maize that is physically located in the United States does not have the same value to a South African buyer, as does maize that is physically located in South Africa. Hence, the price of maize on different markets must be adjusted to take account of the differences in transport costs, exchange rates, etc., in order to make comparisons possible. Such an adjusted price is called a reference price; it is calculated with respect to a reference point. In the case of grains in South Africa the commonly used reference point for commodities trading on SAFEX (excluding soybeans) is Randfontein.

In order to adjust prices to this reference price, the international commodity price ('free on board' or FOB Gulf price[3]) has to be adjusted to take account of all the costs incurred in bringing the maize to Durban. This price, called the CIF price[4], is adjusted to local currency using the current exchange rate. Once this is done, all local Rand based costs (off-loading, losses, interest, local transport costs, and tariff if applicable) can be added resulting in a final landed (local) price per ton at the point of consumption, or the reference point.

Prices fluctuate between 2 "extreme" points – import and export parity levels. For example, if grain millers can buy imported maize (including the cost of transport, insurance, the tariff, the exchange rate, etc.) cheaper than locally produced maize, they will do so until local producers are able to supply maize as cheaply. This is called the import parity price. The reverse situation is also true: if South African maize producers can sell their maize to foreign millers at a better price than local millers are prepared to pay, South African maize will be exported until local prices have decreased to the level of the export price. This is the export parity price.

The result is that, in theory, the price of maize on the domestic market can go no higher (for long periods) than the import parity price, as millers will merely increase imports at this point. Thus, the import parity price is a ceiling price. In the same manner, the export parity price is the lowest possible price (but the price can trade lower than the export parity price for short periods), i.e. it is a floor price. It follows that the domestic price of maize will fluctuate between these two levels. This is illustrated in Figure 2.

[2] The other costs (foreign currency costs of freight, insurance, etc, as well as the domestic costs) are important, too. Evidence shows, however, that they are more stable than the world price and the exchange rate.

[3] This means that the supplier delivers the maize at a price that is equivalent to loading the maize onto a ship in the Gulf, i.e. the buyer will pay for the transport, insurance, etc. to get it to where they need it. The world price for maize is conventionally quoted as fob Gulf.

[4] Cost, insurance, freight.

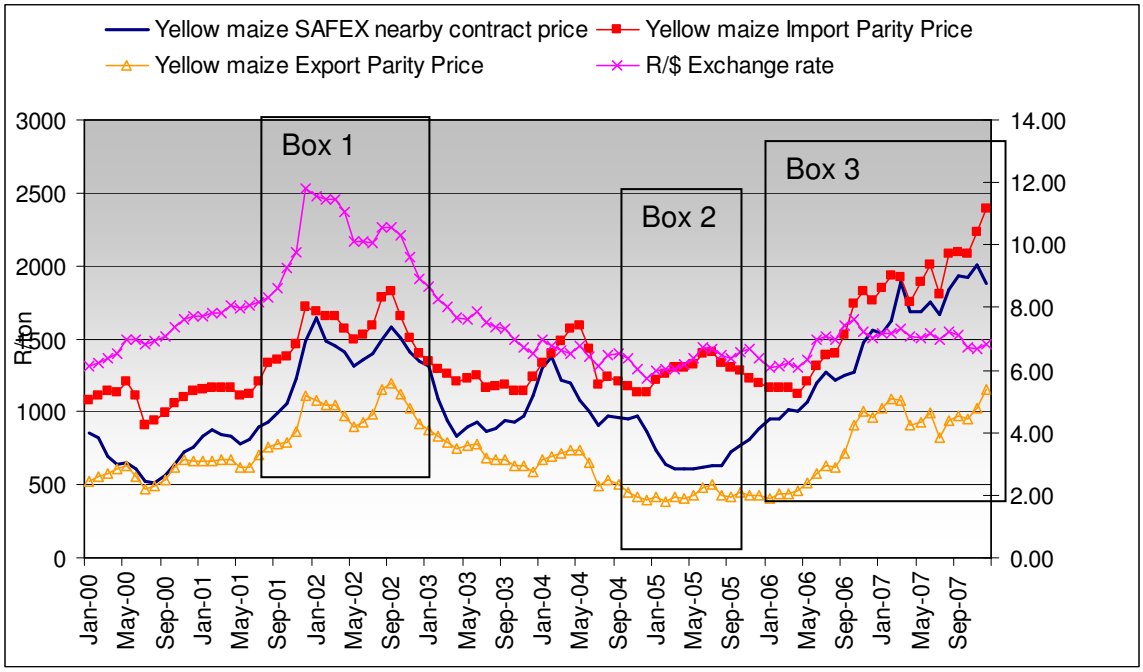

Figure 2: **An illustration of how SAFEX yellow maize spot prices fluctuate between import parity and export parity (Jan 2000 to Dec 2007)**

Source: *SAGIS, 2007 and SAFEX, 2007*

If the import parity price increase (due to international supply and demand conditions and/or a depreciation of the Rand against the US Dollar), import parity prices will move higher, as indicated by boxes 1 and 3. The actual level of the domestic price between this floor and ceiling price levels will depend on local (Southern African) supply as well as on demand in the local market, recognising that the latter is relatively stable in the short to medium term. The spot price will trend towards the floor price if there are high stock levels and will trade closer towards import parity levels when the stock levels are low and/or a smaller crop is expected, as indicated in Box 2. There was just over 360 000 tons of yellow maize imported during the 2005/06 marketing year which therefore confirms why yellow maize was trading close to export parity levels. Over a million tons of yellow maize was imported from May 2007 to January 2008, explaining why yellow maize traded close to or at import parity levels until September 2007, but fails to explain why the SAFEX price traded lower over the last few months. A possible reason is the good early rain received over much of the maize producing area that suggested a good harvest, thus pushing prices down.

The net result of an increase in world prices will be an increase in the export parity price. This can result in higher domestic prices of maize if the current and/or anticipated stock levels are low. Maize buyers in South Africa, e.g. millers, will have to buy maize from producers who can sell their produce overseas at the higher world price and with a more favourable exchange rate. Hence, they will bid up the domestic price of maize if maize needs to be imported.

Whether the domestic price of maize, as a result, goes up to the maximum level of the import parity price depends on the relative anticipated scarcity of maize in the domestic market. If there is a domestic shortage, for example caused by drought, prices will move to import parity, but if there is an excess of produce, supply prices will trade closer to export parity price levels. To illustrate, in 2000 the import parity price of white maize was R1239/ton but producers only received R519/ton, largely due to the good harvests in South Africa and in the neighbouring

countries. This caused a drop in the area planted with white maize (from 3.227m ha in 2000 to 2.708m ha in 2001) as producers switched to more profitable agri-enterprises. This caused a decline in output (from 8.97m tons in 2000 to 7.225m ton in 2001). It should be noted that there can be short periods when the market can trade above import parity levels or below export parity levels. This is normally a result of emotions and the hording effect of the market. Arbitrage opportunities will ensure that the market adjust itself to the right levels.

An additional factor that has to be taken into account during the 2001/02-period was the effect of the political turmoil in Zimbabwe, which resulted in a large drop in area planted with food grains such as maize. Within two years, Zimbabwe changed from a surplus producer and exporter of maize to a deficit producer and importer. The combination of these two factors plus reports of crop failures in Zambia and Malawi changed the market sentiments from the surplus in 2000 to a predicted deficit in the whole SADC region in 2001/2002 (It should be noted that this shortage did not materialise mainly due to food aid from non-African sources). The predictable result was that the domestic price increased to the level of the import parity price within a year. Parallel to this, import parity prices increased by 73% for white maize and 75% for yellow maize from September 2000 to February 2002.

Thus, the rapid increase in the price of maize was the result of the effect that the weakening in the exchange rate and the increase in the world price had on the price band within which the domestic price moves. Because of the perceived shortage on the domestic market, fuelled by negative perceptions about Zimbabwe, the domestic price then increased within this band.

Import and export parity price levels gives a true account of seasonal price changes, but does not give enough information to explain daily price volatility. Daily price volatility is discussed in detail in section 4.

In Figures 3, 4 and 5 the recent trends in the SAFEX spot prices of maize, wheat and sunflower seed are compared with the trends in the exchange rate and the world prices. Figure 3 shows how white (54%) and yellow (38%) maize prices have decreased sharply between December 2002 and May 2003 despite the fact that the Chicago Board of Trade (CBOT) price increased by 3% over the same period (box 4). The main contributing factors for this sharp decline in prices were the appreciation of the exchange rate (14% over the same period) as well as regional demand and supply factors. The anticipated exports to neighbouring countries did not realise and suddenly the domestic market had to cope with very high stocks levels of maize, that is, more than 2.5 million tons.

Figure 3 further shows a 150% increase in the CBOT price since November 2005 to January 2008, with a subsequent 99% increase in white maize prices and a 139% increase in yellow maize prices during the same period (box 5). The Rand depreciated 2% against the US Dollar over the same period. The higher world prices are a reflection of the increased demand for maize, mainly due to the increase in ethanol plants in the US and less favourable growing conditions in many areas worldwide. Although the South African maize prices also increased, it increased to a lesser extend compared to US prices. A reason for this is the fact that the 2006/07 marketing season in South Africa started with high carry over stock levels. The expected crop and the carry over stock levels and regional demand ensured sufficient maize for the South African market.

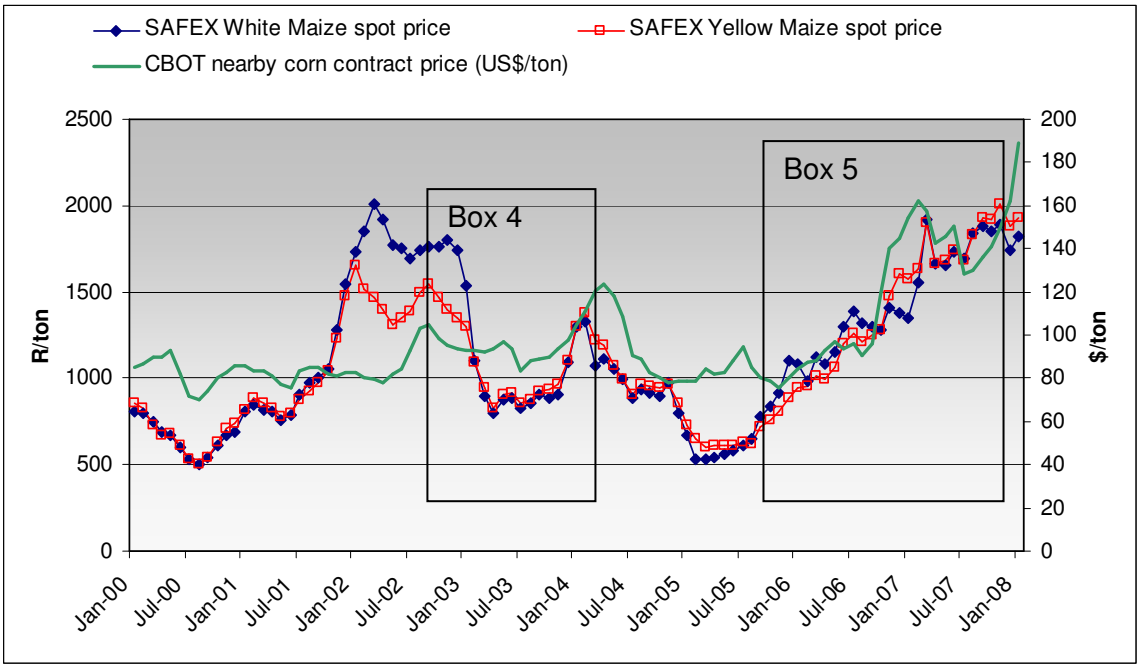

Figure 3: Recent trends in white and yellow maize spot prices and the world price of maize

(Source: Sharefriend, 2008)

SAFEX decided during May 2007 that the WOPT contract will be traded on a continuous basis and not just periodically as previously. The contract would be made available regardless of any crop quality issues in the future and therefore ensure the white grade discounts are traded in a transparent manner. The WOPT contract would be further defined to read "white maize of any origin, of the grade **WM2 or better,** as defined in the South African grading regulations, that meets all phytosanitary requirements and import regulations, but is not subject to the containment conditions for the importation of genetically modified organisms." The above definition would make allowance for grade 1 maize to be delivered on the WOPT contract however at a zero premium, note the inverse is NOT possible, no grade 2 maize may be delivered onto the WMAZ contract. Options will be available for trading on the five main hedging month contracts.

This WOPT contract replaces the Grade 2 maize contract that was introduced for short periods onto the market when necessary. It is therefore not anticipated that this contract will in any means influence the price of grade 1 white maize negatively.

Similar to the trends in maize prices, the price of sunflower seed also decreased by 48% in the period December 2002 to April 2003, as indicated by Figure 4. The sunflower seed prices have increased 98% in the period November 2005 to January 2008, with a Rand that depreciated slightly and traded in a sideways band. The high level of world crude oil prices was the main driving force for the high sunflower spot prices and a reflection of increased world demand and low national and international stock levels. South Africa is a net importer of sunflower oil and, therefore, international prices have a direct impact on local price levels.

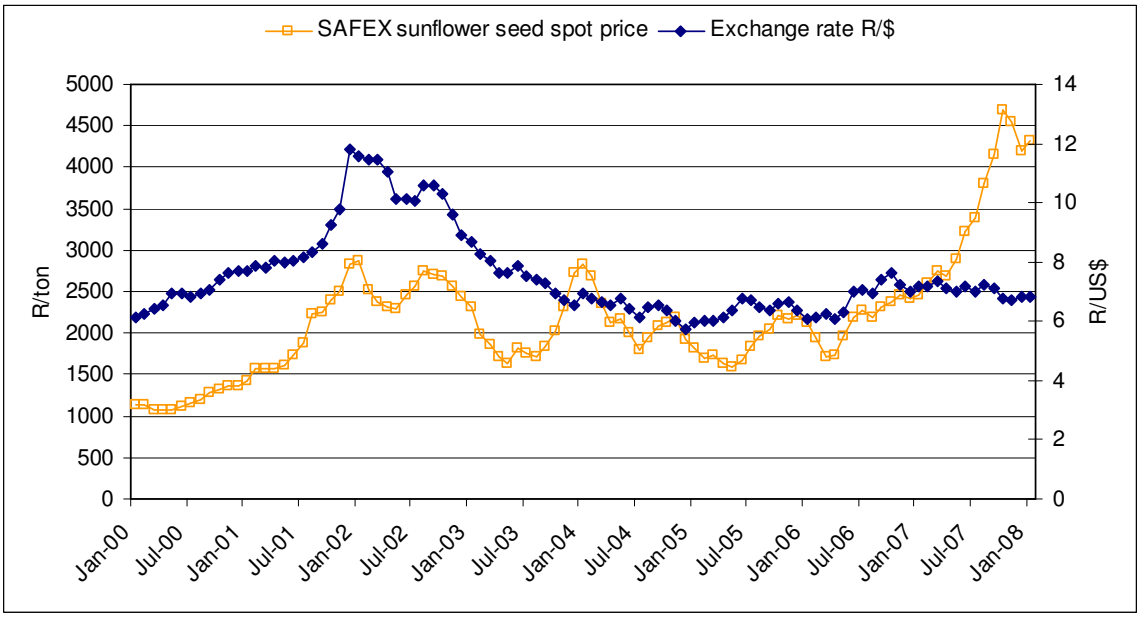

Figure 4: Recent trends in sunflower seed spot prices and the exchange rate
(Source: SAFEX, 2007)

Determinants of the domestic price for wheat

The wheat contract was first introduced to SAFEX in November 1997 when 5 contracts were traded. Over time, however, the volumes increased, as they did for all other contracts on SAFEX. During 2006, 334 584 contracts were traded (since October 2004, more wheat contracts than yellow maize contracts have been traded consistently). SAFEX introduced a "Cape wheat contract" (SEC) to the market in February 1999 (delivery in the Cape and not Randfontein). However, this contract was discontinued at the end of 1999 due to the small volumes traded (119 Cape wheat contracts traded during 1999, as opposed to 5207 wheat contracts for delivery at Randfontein). Wheat SEC was again offered to the market in July 2000 but again discontinued in November 2002. The total number of Wheat SEC contracts traded during that period was 3 872 contracts as opposed to 116 937 normal wheat contracts traded. During 2003 an investigation was launched by SAFEX to determine whether the SEC contract should again be offered to the market. On 7 May 2003 they found that the market was **not in favour** of the SEC contract.

All bread milling wheat originating in South Africa, Argentina, No 2 US Dark Northern Spring wheat, No 2 Hard Red Winter wheat, No 3 Canadian Red Western Spring wheat, Australian Hard wheat, Australian Prime Hard wheat and Australian Premium White wheat of sound, fair and merchantable quality which is fit for human consumption and which complies with the listed criteria and the requirements and methodology as contained in the South African rules for the classification and grading of wheat, can be delivered to SAFEX. Discounts will apply to grades B2 and B3 and an additional discount of R100 will apply to all wheat imported from Argentina, US (Hard Red Winter Wheat) and Germany (Type A or B).

The Technical Committee of the Winter Cereal Trust was requested by SAFEX during 2005 to determine a workable specification to ensure that the milling characteristics of wheat deliverable onto the exchange can be measured and therefore ensuring standardization of the futures contract. A notice was circulated during October 2005 by SAFEX to their members which indicated that the Trust had not found a better method of standardizing the wheat contract other than making use of the proposed origin discount of R100. The actual origin discount value would be finalized at the start of each marketing season by SAFEX after considering industry feedback.

The proportion of physical deliveries on wheat shows the same declining pattern as for maize (as is expected in a more maturing market). Deliveries decreased from 100% of total contracts in December 1997 to 1.8% in December 2004.

The question is often asked whether SAFEX price levels are a true reflection of the domestic wheat market. Figures 5, 6 and 7 indicate the function of the SAFEX wheat price formation mechanism.

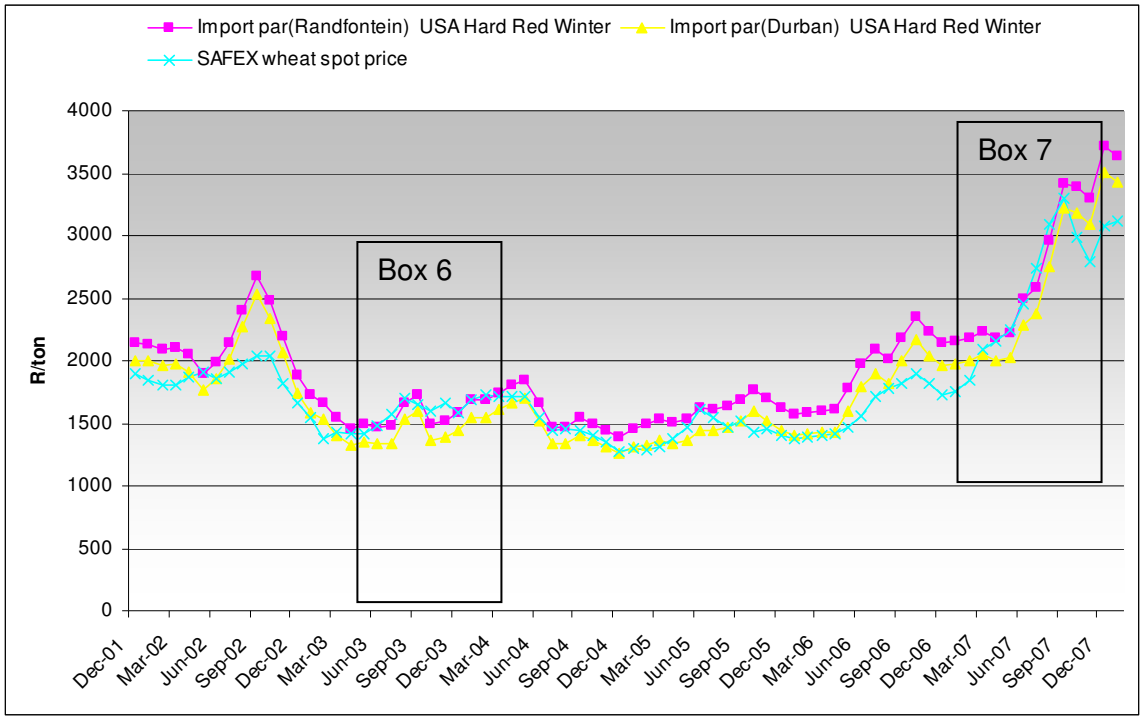

Figure 5: USA actual import parity prices versus the SAFEX wheat price
Source: SAFEX, 2007

Import parity prices and the wheat spot price increased with 114% since November 2005 to January 2007. Figure 5 shows that the SAFEX wheat price traded at a slight discount to the import parity price of US HRW delivered in Randfontein, except between October and November 2003 (indicated by box 6) and again between July 2007 and September 2007 (as showed in box 7) when the wheat spot price traded above import parity levels. Possible reasons for the higher spot prices (above import parity levels) during July and August 2007 were the relative scarcity of wheat available for imports, widespread droughts in the wheat producing areas in South Africa and extremely low international stock levels (the lowest stock levels experienced in 30 years). Coupled with that, CBOT recorded record prices on wheat, reaching $7.54 a bushel and the International Grains Council was predicted a seven million ton shortfall in wheat supply to meet demand in 2007/07.

Many local producers downscaled or discontinued their wheat production. In 2001/02 local producers planted 973 500 ha of wheat while only 632 000 ha were planted the past season, which represents a decline of 35%. Decreases in the local harvest from 2.45 million tons to 1.77 million tons followed. As a result – and in order to meet the local demand – imports increased from about 500 000 tons to 1.3 million tons.

The NAMC is currently investigating the wheat-to-bread chain which could provide answers in terms of (a) the reasons for the decline in wheat hectares planted, (b) to determine whether larger wheat plantings will alleviate South Africa's vulnerability towards wheat prices, and (c) whether other cultivars than currently specified by the wheat milling organisations can increase the yield without sacrificing on the quality of local bread.

The wheat tariff investigation falls outside the scope of this report. The NAMC already suggested changes to the wheat tariff system and Government gazetted such a possible change during January 2008 whereby comments from the industry and other relevant role-players are invited.

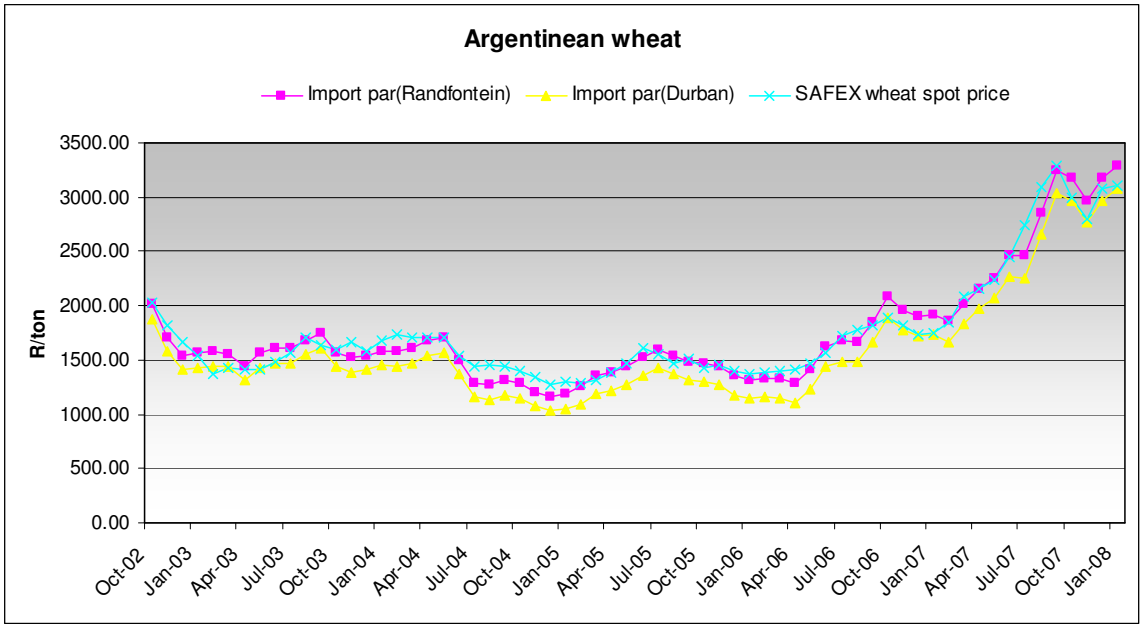

Figure 6: Argentinean actual import parity prices versus the SAFEX wheat price
Source: SAFEX, 2008 and GRAINSA, 2008

Figure 6 shows that the SAFEX wheat price traded at a premium over the import parity price of Argentinean wheat (both delivered in Randfontein or in Durban harbour) from October 2003 to October 2006 and again between June 2007 and August 2007. This was due to the discounts applicable to wheat imported from Argentina. SAFEX tend to trade below import parity levels during harvest time. Local supply ease the demand for imports and that can cause the market to trade just below import parity levels.

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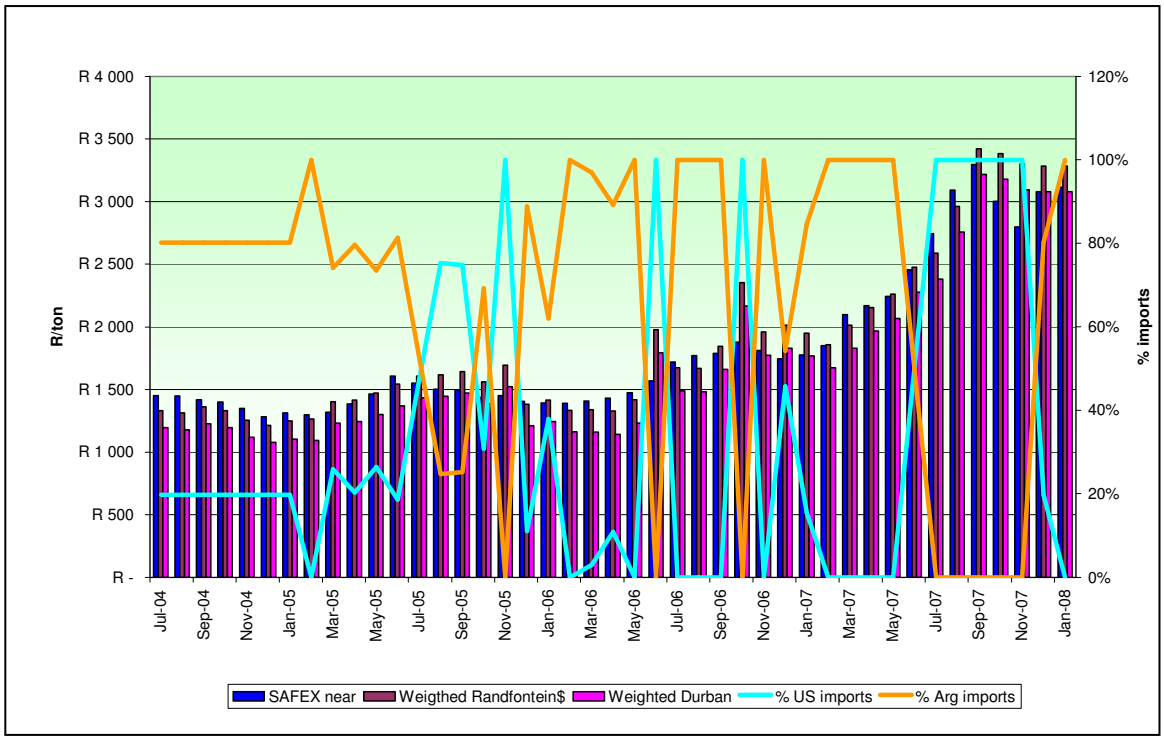

Figure 7: Weighted import parity prices (US and Argentinean wheat) versus the SAFEX wheat price between July 2004 and January 2008

If the import parity prices over the period July 2004 to January 2008 are weighted according to the amount of imports, then the weighted import parity price is close to equal to the SAFEX price (Figure 7). There are several instances where the SAFEX near contract price traded lower than the Randfontein import parity price (see for instance the period July to September 2005, November 2005, June 2006, November 2006 and then from September 2007). All these point coincide with a period where more wheat was imported from the US. There were four instances over this period where the SAFEX near price contract traded also below the Durban import parity price level. This occurred during November 2005, June 2006, October 2006 and November 2007. In all these instances, except November 2007, the majority of wheat imports also occurred from the US. Although the wheat price might seem to trade below import parity, it is not the case if the coastal import parity price levels are taken into consideration. The wheat price followed a predictable level for most of the months and one can therefore assume that taking into account that South Africa is a net importing nation of wheat, these results prove that the SAFEX wheat price is a true reflection of the combination of wheat ("grist") available on the domestic market.

A further important point to keep in mind is that importation of agricultural commodities from foreign locations falls under the function of the Department of Agriculture. The APD provides a pricing mechanism for the market where the traded price is agreed by a willing buyer and a willing seller using the APD. The buyer of the futures contract at that point has no idea if the seller is offering local or foreign wheat, but the buyer accepts that the wheat will meet the standards as defined by the APD contract specifications. Trading on the futures market is based on pre-trade anonymity and thus the price determined on the exchange is not linked to the particular parties, but is based solely on the conformance to the contract specifications.

Any imported wheat can be represented by a futures position and is treated no different at the time of hedging since the contract is standardized. Only once the futures contract goes into physical delivery are there specific requirements for foreign wheat. Should foreign wheat from agreed upon origins be delivered, as cash discount from the specific foreign origin (if applicable) is deducted from the ultimate settlement value that the buyer will have to pay to the seller. This is to compensate for the intrinsic baking quality differences.

It was agreed by the advisory committee for the marketing season 1 October 2008 to 30 September 2009 to have two categories of origin discounts. The defined origins were agreed at zero origin discount since the milling and baking characteristics of the origins defined were very close or even better than SA quality wheat whilst Argentina, US Hard Red Winter wheat and German Type A or B wheat was not a close fit and therefore a discount of R100 would apply to reflect these baking quality differences.

The NAMC is however concerned about the haphazard way the discount amount of R100 was determined. In order to ensure future transparency in the market the criteria on which this amount is based should be substantiated. The NAMC therefore recommends that a study is undertaken to determine a sound and scientific basis on which such a discount is based and adjusted from time to time.

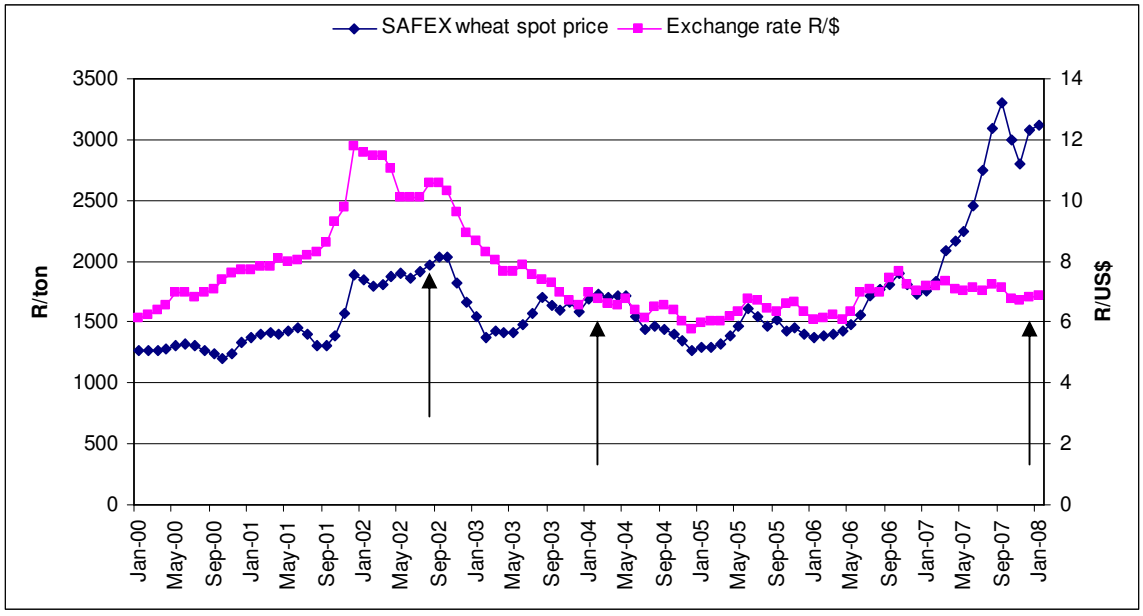

Figure 8: Recent trends in wheat spot prices and the exchange rate
Source: SAFEX, 2008

The wheat price follows similar trends than the Rand Dollar exchange rate, but the exchange rate is not the only factor impacting on the wheat price. Local and international supply and demand and the price of wheat on major international exchanges (CBOT, Kansas, Argentina, France) and export policies from wheat exporting countries also influence the local price of wheat. If the Rand appreciates, the wheat price trades lower (as was the case during 2002/03). The wheat price increased since 2006 even in cases when the Rand appreciated against the Dollar. This is due to the fact that the international wheat prices trades higher because of very low world ending stock

levels and indications that world yields are lower.

The argument thus far has been based on a comparison of the international price with the SAFEX price. However, the latter is a price based on a promise of future delivery. Hence, the next logical issue is to determine the extent to which the SAFEX price is an indication of the actual market price or spot price for a particular commodity. The above section confirmed that the working of SAFEX as a price forming mechanism is correct and that price changes can be explained by changes in supply and demand and exchange rates. It also looked at the necessity of grain deliveries from foreign origin on SAFEX contracts. This section proves that the concerns voiced in question 2.1, 2.7 and 2.8 are not necessary and that fundamental factors are factored into the price traded on SAFEX. It is important to note that the primary objective of a derivative market is **price** risk management and not **physical** delivery. In fact, in line with commodity derivative markets around the world, less than 5% of the contracts traded on SAFEX are settled by way of physical delivery. One therefore can assume that delivery of commodities of foreign origin onto the market cannot influence the price negatively. The delivery mechanism is in place to ensure that the closing prices of a futures contract on expiry correctly reflects the actual underlying value of the physical product on that expiry day.

The discussion so far suggests strong arguments and evidence for showing that there is a close correlation between farm gate prices and the R/$ exchange rate in the case of every commodity analysed and traded on SAFEX. Based on various econometric analyses, Vink and Kirsten (2002) concluded in their report to the National Treasury that the domestic price of maize 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 and to the food crisis in Zimbabwe at the end of 2001. According to their findings, there was no evidence of price manipulation or of unfair price policies in determining the price of the basic commodity. A study conducted by *Meyer et al* during 2006 confirms the study of Vink and Kirsten.

Futures prices and spot prices

At any given point in time there will be more than one contract listed on SAFEX for the same commodity. The only difference between the various contracts is the date of expiry. For example, an April 2008 contract expires on 18 April 2008 and a March 2008 contract expires on 18 March 2008. The contracts will trade at different price levels with the contract with the latest expiry date trading at the highest price. It must be noted that this applies only to the current crops. With the new season commencing, contract prices for the new season crop might differ completely.

The difference in the price levels should theoretically equate to all costs (storing and financing costs) from one period to the next. For example, the September 2007 contract will trade at R1900/ton and the December 2007 at R1960/ton, the difference being R60 per ton. The amount of R60/ton will roughly be equal to the costs involved in storing maize from September to December 2007. This calculation is not true when one moves from one crop-year to the next. The March price is normally higher than the July maize price, because of the relative scarcity of the commodity during March and the expected abundant supply in July. The cost of carry principle should theoretically therefore hold for the same crop-year months.

One of the contracts being traded on SAFEX will always have an expiry date equal to the current month. For example, if the present month is September 2006 there will be a contract with an expiry date of 20 September 2006. This continued existence of a contract about to expire creates the constant delivery month contract. In other words, there will always be a contract that is ready for delivery, which implies that a producer can always find a contract on SAFEX against which

he can deliver immediately. If producers happen to have maize ready for delivery in September 2007 they can take a September 2007 contract position on SAFEX, and delivery can proceed within a matter of days. For all practical purposes, the price of the deliverable contract (or delivery month contract) thus represents the current market price or spot price for SAFEX.

Contrary to the past days of the Marketing Boards, there is no longer any pan-seasonal or pan-territorial pricing[5], or one single spot (producer) price for the country as a whole. There are as many different spot prices as there are points of delivery.

In order to standardize the "place" from where the contract is priced or traded there are basically two internationally accepted methods. Either all products traded on the exchange is traded at par, that is, all delivery points are treated as equal or a system of transport or location differentials is applied to the different delivery points based off a central point. SAFEX operates on the basis of location differentials off a predetermined point namely Randfontein. Since all SAFEX prices are Randfontein-based, this means that if a producer can deliver or a miller can accept delivery at Randfontein, they will receive or pay the SAFEX price for the delivery month contract (the spot price). Since delivery usually takes place at points across the various producing regions, all spot prices will be a SAFEX adjusted price. For example, if the transport costs between Randfontein and the silo where a producer chooses to deliver is R80/ton, the delivery price for the producer will be equal to the Randfontein price (the delivery month contract price) minus the R80/ton transport cost. The buyer will now collect the maize from the relevant silo at the SAFEX price minus the R80/ton. These transport cost differentials are calculated every year and are available from SAFEX. **SAFEX determine the area differentials based on a weighted average transport cost by road and rail.** The areas that make more use of road transport will have a larger road transport cost proportion in the calculation.

SAFEX received a formal request from Grain South Africa, on behalf of its members, to remove the use of location differentials in exchange trading during July 2006. This would mean no longer trading Randfontein as par on the exchange, but that all registered delivery points would represent the exchange par price. The agricultural advisory committee of SAFEX has requested feedback from all active members and their clients on the above request to remove location differentials for the white and yellow maize, wheat and sunflower seed contracts.

The overwhelming response from the market, as provided by the trading members after consultation with participants and clients, was to maintain the status quo and the system of location differentials. Major factors listed in motivating the retention of the system included:

- no fundamental reason to change an efficient and successful system that was operating well that could create more uncertainty as to the real and true value of the underlying commodity
- the system provided a valuable degree of transparency to the market that if done away with would lead to a reduction of liquidity in the market place
- the system assists the process of "basis trading" and facilitates both forward contracting and financing arrangements in the market.

The JSE Agricultural Products Advisory Committee agreed on 28 September 2006 that, in the light of the response obtained from the market survey, the system of location differential would be maintained at this stage.

[5] The Maize and Wheat Boards set a buying price for the product regardless of when or where it was delivered. The result was that the transport cost of farmers further away from the market was subsidized by those closer to the market, while no producer had an incentive to store the product. This had an enormous impact on liquidity management by the monetary authorities when the entire crop was purchased within a couple of weeks every year.

The basis (transport differential cost and handling fees) is an indication of spot price levels at the various registered SAFEX silos. The farmer can use it in his attempts to sell his maize. He is not forced to sell his maize for a price under SAFEX less basis. If he cannot find a buyer willing to buy at that price levels, he can deliver his maize to the registered SAFEX silo, obtain a silo certificate and present it to SAFEX for payment. As a result, it could be argued that the removal of transport differentials will not necessarily count in the favour of farmers. Furthermore, the answer lies in basis trading. The problem with basis trading is farmer's access to this level of information. This very important function can be fulfilled by the local co-ops or local maize buyers. SAFEX provide farmers an opportunity to hedge their crop and at the same time to use the opportunity to bargain for a guaranteed minimum price in the local market.

Many Western Cape wheat farmers believe the location differential has disadvantaged them; again it is important to understand the purpose of the differential. The differentials are fixed for each marketing season in order to facilitate trading on the futures contract, but supply and demand at each and every silo in South Africa changes if not daily, then certainly on a weekly basis. Producers are encouraged to familiarize themselves with the supply and demand situation in their own production area to realize additional premiums for their product. This was clearly evident when wheat shortages in the Western Cape resulted in buyers paying premiums for product over and above the SAFEX derived price. These premiums are not standardized and are negotiated between the seller and buyer on each transaction. Due to the distance of the 'Cape' silos to Randfontein, it was agreed that all the registered cape silos would be subject to the same location differential. This principle was investigated during 2007 and market feedback preferred to leave the process unchanged as it was indicated the basis trading in the market was better served with a single differential for all the Cape silos (The location differential for the 2008/2009 marketing season will be R420/ton).

The differentials are simply used to standardize the pricing of a futures contract back to one reference point. In cases where local demand exceeds local supply, whether due to a crop shortfall or a nearby processing plant, the difference between the basis and the SAFEX price may be less than the transport margin or even exceed the futures market price. For example, local maize demand may be bolstered by the existence of an ethanol plant or a major livestock feeding operation. Geographic basis distributions demonstrate that local maize prices on the Maputo corridor, close to the Botswana border and other major routes routinely have spot prices higher than what the basis predicts. If local supply exceeds local demand, the basis gives farmers a clear indication of what a representative spot price of the selected commodity, at a specific location, should be.

In the situation where no location differentials are applied and the exchange trades at a par price, in other words all delivery points are at the same price, the seller of futures contracts, should he/she decides to make delivery, will only be responsible for loading/storage cost (and not also transport cost). In such a case, the buyer of the futures contract has no idea where delivery would take place and thus would factor in possible transport costs into the price traded on SAFEX. According to the CEO of SAFEX (Mr Rod Gravelet-Blondin), the general experience on international markets is that such a discount would represent 75% of the anticipated delivery cost of the delivery point that is furthest from the market. In other words, SAFEX prices would be much lower than the current levels.

It should further be noted that the seller obviously can decide on whether to deliver through the exchange in both delivery methodologies employed, either a specified standardized point with location differentials or a par pricing model with no location differentials. In the case of location differentials as employed by JSE/SAFEX at present, the farmer has a reference point of what transport will cost and therefore can more clearly determine whether to sell the product in the physical market or deliver through the exchange. In the case where no differentials are applied, the farmer is pretty much on his own when evaluating the physical price offered as against the exchange price.

The JSE further offered the Cape wheat farmers an alternative reference point, but the contract was cancelled due to low liquidity. The JSE further gave the market the opportunity to change the current standardized point with location differentials to a par pricing model system which the market rejected. Referring to question 2.4, it is therefore the conclusion of this report that in theory area differentials should not influence prices negatively and that there should exist many other alternatives to farmers to market their product (in possible other geographical areas) to obtain a better price.

Obviously, the argument about the number of buyers in a particular region – thus the competitive nature of the market has to be considered. When there are no alternative buyers in a region it is rather difficult for farmers to bargain and negotiate on price with different buyers and as a result farmers have no choice but to accept the price being offered (SAFEX minus location differential). The situation in the Western Cape specifically is further complicated by the fact that the major farmer cooperatives/agribusiness (who should represent farmers' interests) are shareholders in milling companies buying the major share of the Western Cape wheat crop.

Given that there remains a lot of discomfort and emotion around the transport differential the NAMC recommends a stakeholder workshop where organisations, traders, and individual stakeholders can make presentations. The NAMC is willing to design the terms of reference for the presentations and act as facilitator. The goal of the stakeholder workshop will be to get inclusive input, provide a platform for discussions and lastly to establish some form of a decision on the future of the transport differential. As an interim the NAMC also recommends:

i) that the transport differential is maintained for the interim
ii) that an investigation is launched into how it is determined and whether it actually serves its purpose
iii) that the state of competition of the wheat market in the Western Cape is investigated by the Competition Commission

4. Other new or prevailing issues

The rest of the report aims to answer the outstanding concerns regarding price volatility and the effect of external factors, such as the publication of producer's intention to plant on price.

4.1 Potential problems regarding price formation on SAFEX

Interpreting the evidence and comments from the various traders it seems that the SAFEX price formation system could, in the abstract, combine the following problems:

Hypothesis: *The SAFEX market potentially exaggerates price fluctuations (prices could potentially overshoot)*

- In an environment where a credible and **reliable public information service on the weather as well as maize supply and demand do not exist**, it is possible that market participants can:
    - exaggerate prices in a certain direction by releasing biased or misleading information;
    - exaggerate prices in a particular direction by ignoring or underemphasizing information.

- Regardless of whether there is a credible and reliable public information service on agricultural commodity supply and demand and on the weather, there may **still exist serious information asymmetries** between large market participants involved in input supply (seeds, chemicals and loans)/grain trading (import/export orders) and others who are not in a position to collect detailed information from their grain and/or oilseed producing clients or who influence their hedging behaviour through loan repayment conditions.

- In an environment where there are limited restrictions on the size of trading positions, it may be possible for larger traders to 'corner' the SAFEX market and lead/herd it in a particular direction by making use of access to massive funds (in particular pension funds and overseas hedge funds). Traders might further influence the market by bidding, or offering, a large number of contracts at a price much higher (or lower) and then by pulling them from the market before a sale can take place. Position limits on SAFEX are discussed in section 5.

Information on fundamental factors is freely available in the market. Some sources might be more credible than others. It is therefore important that the users of this information make sure that the sources that they rely on are credible. The impact that certain reports have on the price are discussed in section 4.2. It is further also important to note that emotion influence price discovery on a daily basis and that emotion can cause a price to react differently from what it is expected to do.

Hypothesis: Exaggerating prices on SAFEX has knock-on effects

SAFEX maize futures and options may contribute to financial and currency market volatility.[6] The recent limit trading days on CBOT (during January 2008) can be as a result of fund managers closing their commodity positions to obtain the necessary cash flow for margin calls in their financial derivative positions. CBOT fell by $0.20 per bushel when the financial markets in the US came under pressure during January 2008, just to trade again up by $0.20 per bushel after the latest crop reports were released and the low stock levels indicated higher prices.

The Agricultural Products Division does not influence the currency market, but are influenced by it. SAFEX are used by many participants, not only hedgers, but also speculators and arbitrage traders. It can therefore happen that the market can be influenced by spill-overs from the financial and currency markets.

[6] See Edward Chancellor – '*Mania, panics and crashes*' where the collapse of equity markets in 1987 was linked to futures trading, or Roger Lowenstein – '*When genius fails*' on liquidity gaps or Edwards – *Financial Analysts Journal* for info on futures markets and stock market volatility.

Hypothesis: Equitable participation on the SAFEX market could be problematic

- It could create entry barriers for small-scale producers or millers of maize, thereby promoting concentration of ownership in the medium to long-term.
- In an environment where activities on the SAFEX market are not properly monitored and some self-regulation is not implemented in addition to the normal surveillance procedures of the JSE not being implemented, problems of fair adjudication could occur when a member of SAFEX lodges a complaint against another member.

Although the necessary monitoring and controlling bodies are in place, it might be necessary to ensure that a formal mechanism exist where formal procedures and feedback mechanisms are available.

The report wishes to highlight that the industry at large are represented at the SAFEX Advisory Committee Meetings. The members include SAFEX, the Grain Silo Industry, the National Chamber of Milling, the Animal Feed Manufacturers Association, the Financial Services Board, SA Cereals and Oilseed Traders Association, traders, clearing members, the NAMC, GrainSA, NAFU, agribusinesses, private producers, the South African Oil Processors Association and representatives of the JSE.

Hypothesis: Perceptions that SAFEX prices are not an accurate reflection of average grain prices

SAFEX prices may give a misleading picture of actual average maize grain prices because of the existence of forward contracts entered into between larger farmers and millers. This is substantiated by millers' comments that their raw material prices could be substantially below the SAFEX maize spot price (depending on where the miller is situated).

It must be noted that emotions drive the market. Emotions and the herding effect can cause prices to overshoot. Option writers aim to maintain a delta neutral option book. This is done by buying or selling futures contracts on the options that they wrote. Option writers are therefore less interested in price direction, since their focus is to maintain a delta neutral position. To ensure a delta neutral position, the option writer must buy/sell futures contracts on a daily basis, irrespective of his opinion of the market. This can result in prices to trade even higher/lower, away from fundamental indicators in the short run.

4.2 Perceived high volatility of SAFEX prices

Many feel that SAFEX maize futures prices are too volatile, pushing up option premium prices and as a result limit the use of derivatives to hedge against price risk.

Price variability is an important component of the grain farmers' planning because of its impact on farm profitability. Knowledge about price volatility and the factors affecting it will benefit derivative instrument users and will aid in price risk management. South Africa shows high levels of both implied option volatility and price volatility. Meyer *et al* (2006) state that the equilibrium price in the smaller market can be estimated as a function of the equilibrium price in the dominant market, the exchange rate and the transaction costs. Thus when trade occurs between markets, the difference in price is equal to the transaction costs. Meyer *et al* (2006) divide trade into three market regimes: near-autarky, import parity, and export parity. Within these regimes Meyer tested the effect of a 10% increase in the world price on the South African producer price of

yellow maize. The results reported indicate a 3.4% increase in producer price in the case of a near-autarky regime and an 11.2% increase in the case of an import parity regime. The average percentage change between these two regimes is 7.3% indicating a strong link between the world price and the domestic producer price.

In light of the above, one therefore expects the SAFEX price to follow similar volatility patterns as CBOT and the exchange rate. Geyser and Cutts conducted a study in 2007 into price volatility of SAFEX. Figure 9 shows the 10 day annualised volatilities of the CBOT price in Rand terms and the SAFEX yellow maize price since 2001. The Chicago Board of Trade states that volatility is a measurement of the change in price over a given period of time. It is often expressed as a percentage and computed as the annualized standard deviation of the percentage change in daily price. (CBOT 2006)

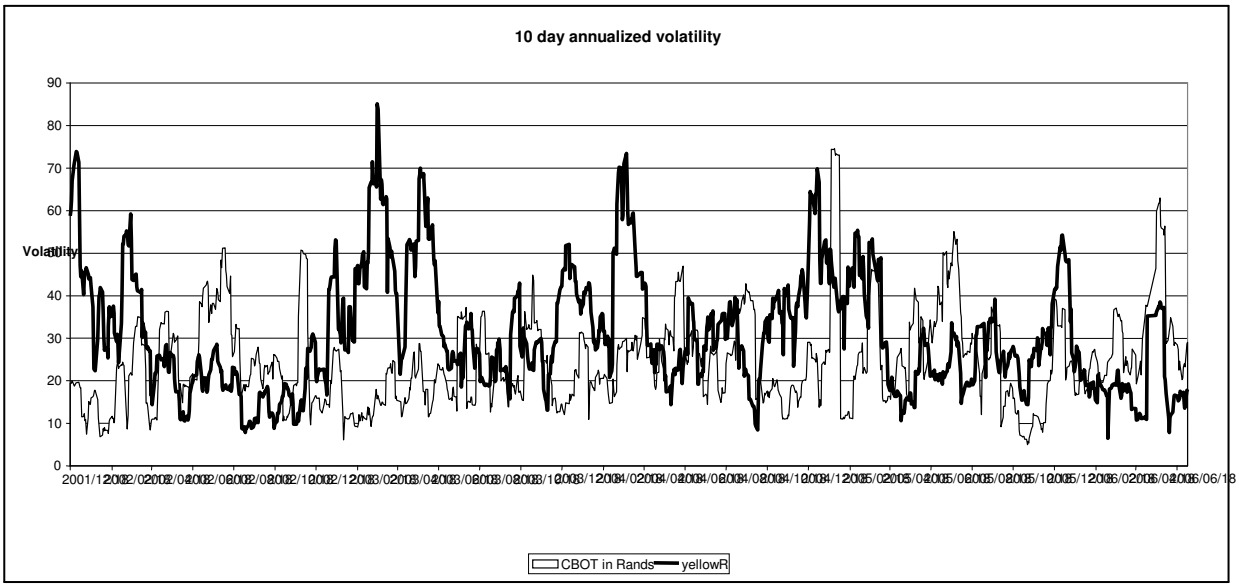

Figure 9: 10 Day Annualized Price volatility of CBOT maize price in Rand Terms and the SAFEX yellow maize price

From the above figure, it is clear that the SAFEX yellow maize spot price is generally more volatile than the CBOT price even in Rand terms. For the time period investigated, the SAFEX price was more volatile 61% of the time. It is clear from the above that SAFEX shows consistent higher price volatility than the other markets.

When the monthly volatility of the markets is plotted, the similarities and differences are easier to spot, as indicated by Figure 10.

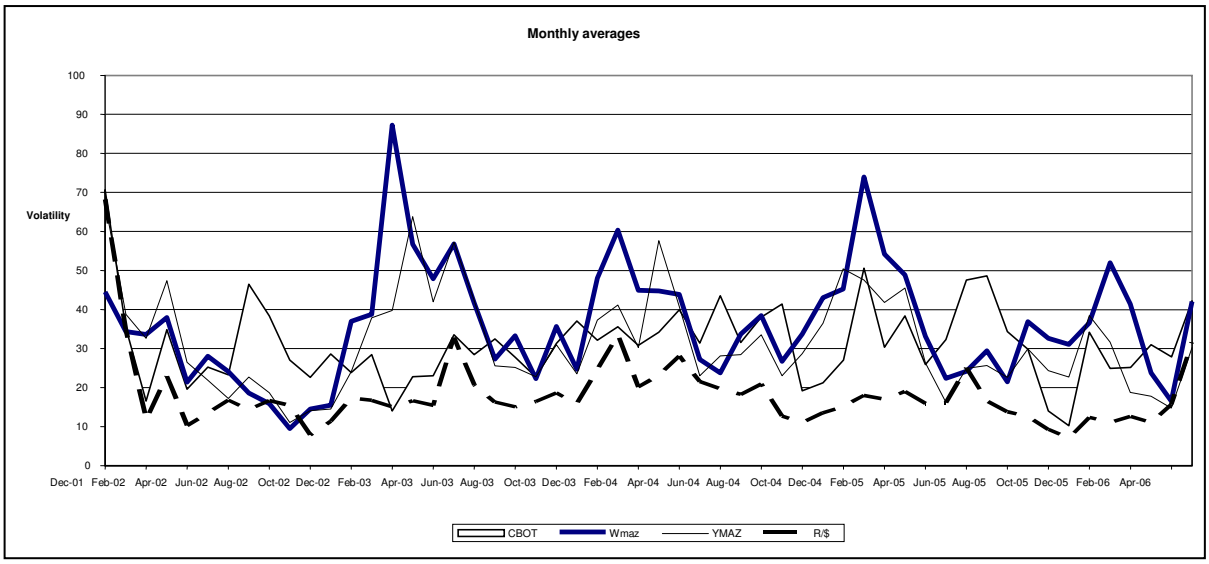

Figure 10: Monthly price volatility on CBOT, SAFEX and exchange rate

CBOT (in Rand terms) and the exchange rate follow more or less the same up and down trends. The same is true for white and yellow maize on SAFEX. CBOT and SAFEX have periods where the same up and down trends occur, but there are also periods when the up and down trends do not correspond. Fundamental factors, supply in particular, influence the price volatility of SAFEX maize prices, as indicated by Figure 11.

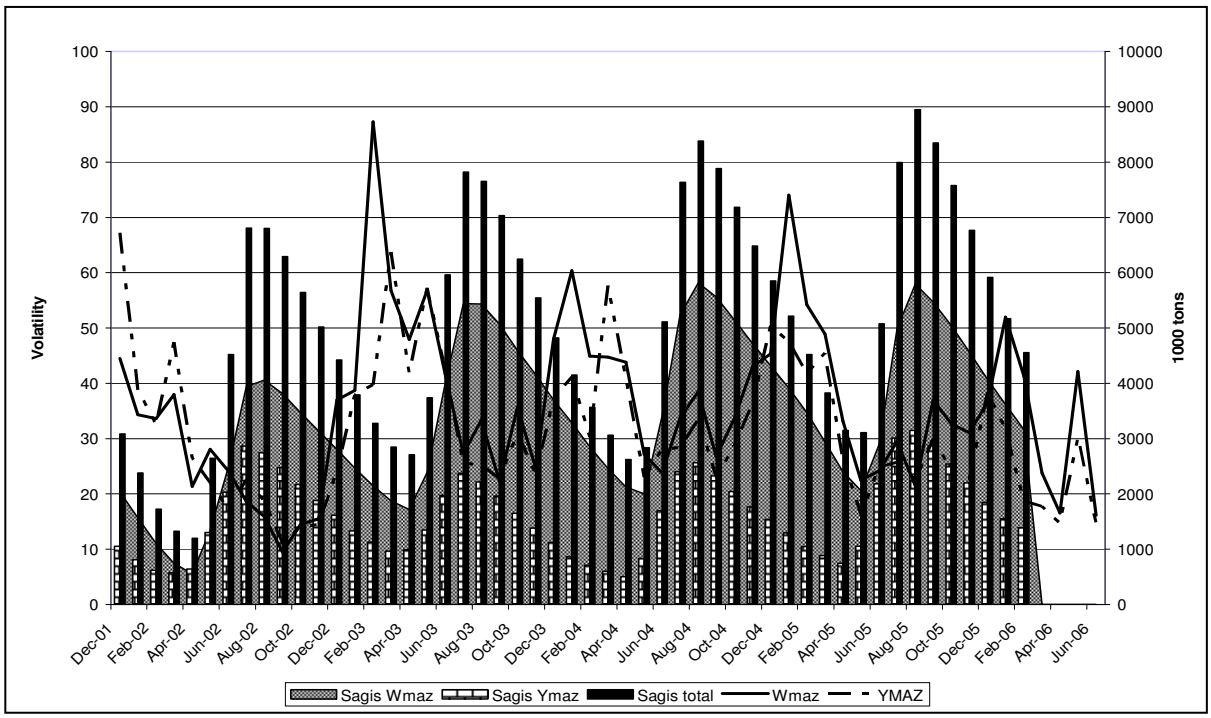

Figure 11: Price volatility on SAFEX and ending stock levels

From Figure 11 one can see that price volatility tends to be higher in periods with low stock (SAGIS total) levels and vice versa. The differences in volatility between SAFEX and CBOT still need to be explained.

The price volatility shows strong seasonalities, as shown in Figure 12. At the beginning of the season, when maize is scarce, the domestic market price for maize moves closer to the import parity price. Later in the season, however, when the surplus of maize might be exported, the domestic price trends towards the export parity price (as previously highlighted in the report).

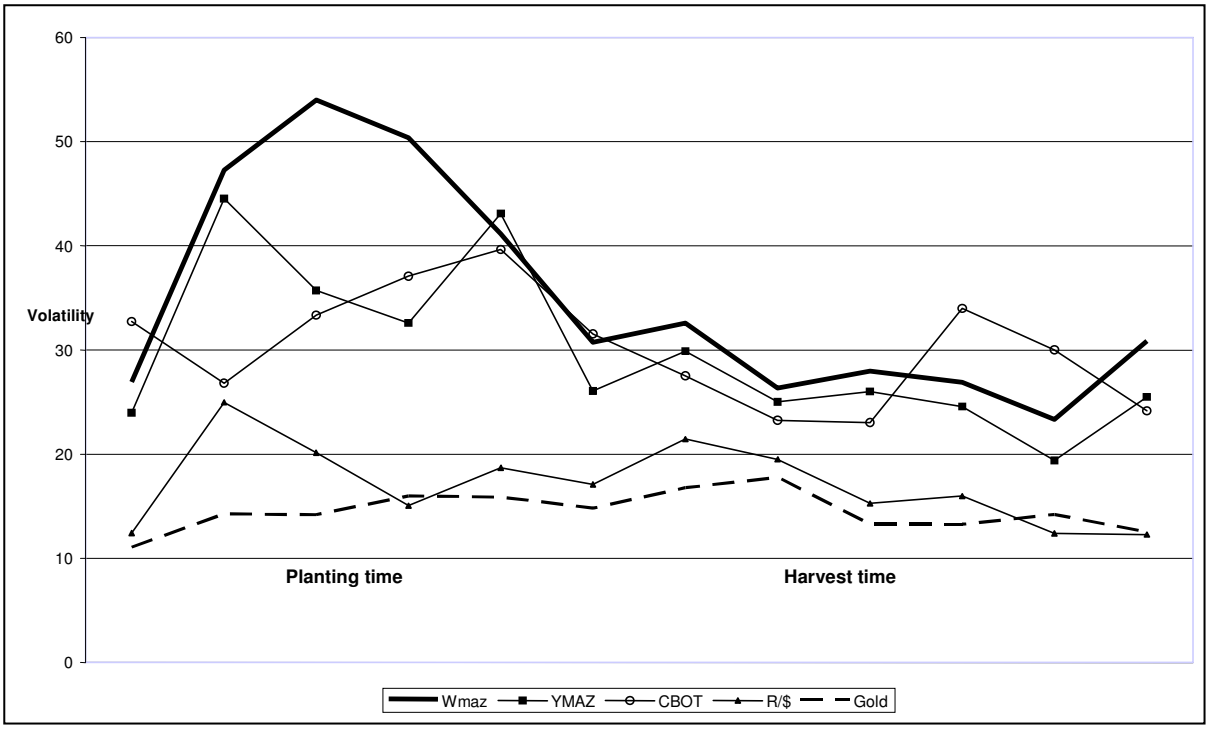

Figure 12: Price volatility during marketing season
Source: Geyser & Cutts, 2007

The price is normally more volatile during the weather months when the crop is most sensitive towards a lack of rain and high temperatures. The figure above shows that both our local market and the CBOT market show higher volatility during the typical weather months. The WMAZ futures price shows strong variability in December to February when there is a great deal of uncertainty surrounding the likely yield outcomes. This high price variability corresponds with the typical "weather market" period when SAFEX is sensitive towards weather due to the possible impact on maize production. YMAZ follows the same pattern, but the period of uncertainty extends into March. This suggests that YMAZ might not pose the same sensitivity towards weather as WMAZ, but rather sensitivity towards world supply, and thus, the exchange rate. CBOT also has a typical "weather market" starting in June continuing until the beginning of August. This can be seen by the higher volatility periods between planting and harvest time for CBOT.

Figure 12 shows that price volatility can be explained based on seasonality and the weather. It should further be kept in mind that world price volatility is increasing ever since the advent of derivative instruments, that is, from 1987. Although the South African maize prices show higher levels of price volatility than CBOT, is it not unexpected. The South African maize price is also sensitive towards exchange rates; hence the higher levels of price volatility compared to CBOT.

A study conducted by Jooste, Jordaan and Grove (2007) confirmed that SAFEX prices shows strong seasonality's that can be explained.

Another study conducted by Monk, Grove and Jordaan (2007) aimed to quantify and explain SAFEX July futures price volatilities for white and yellow maize. They also found that volatility has increased for both the white- and yellow maize market in latter years. They found that information plays a major role in price changes on futures contracts. Traders and speculators are very sensitive towards new information releases as has been proven be the significance of the Crop Estimates Committee's reports as well as the Word Agricultural Supply and Demand reports issued by the US Department of Agriculture. Local information as well as international information plays an important role in trader decision making in the South African maize futures market. This effect can be seen with significant volatility changes in the futures market prior to the report dates for the respective local and international reports. This information phenomena can be backed by the fact that expected rainfall is also a significant role player in the market. The study found that white maize is more sensitive towards CEC reports than yellow maize, confirming the fact that South Africa rely more in yellow maize imports, thus being more sensitive towards world conditions and world reports.

This section tried to answer questions 2.3 and 2.8 and confirms that there does indeed exist high price volatility on SAFEX, but that the volatility can be explained. It further found that both local and international information plays a major role in price changes on futures contracts.

5. Debating possible recommendations

The Food Price Monitoring Committee already in 2003 raised the following options for improving the functioning and working of the futures market for grains and debated it with the traders that were interviewed during 2003. The detailed discussion of recommendations following the current concerns clearly reflect some of these initial recommendations

5.1 Improving information and access to information

There are several areas where improvements in information may result in a lower volatility on SAFEX that can benefit short term trader behaviour. Some information strategies, such as reporting on import and export orders are already being implemented by SAGIS. Others information needs, however, for example, relating to the weather and rainfall patterns are not being addressed.

One way to prevent weather or crop predictions from Grain South Africa or other organisations from unduly influencing prices in the future would be to improve official regular reporting on actual rainfall in the grain producing areas. It is also important to ensure that weather reports specifically tailored to grain and oilseed production are produced independently and are subject to greater scrutiny and technical criticism from a range of independent experts.

Although the FPMC investigation has highlighted some specific trader behaviour that potentially could have caused SAFEX prices to overshoot, it was not possible and probably never will be possible to link specific price trends to specific actions by individual companies in the market. It is, however, also likely that the initial underestimation of the June 2002 harvest, and the various statements by industry leaders about a negative outlook for the 2002/2003 season created a negative market sentiment. Apart from this, there was much disinformation about the extent of

imports, exports and the situation in Zimbabwe and rest of the SADC region. Clearly, the conditions were such that the 'stage' was literally set for somebody to 'orchestrate' the direction of the market and cause what somebody called a 'buffalo run', which caused many emotional trades in the market.

The FPMC was strongly emphasising that the lack of proper market information played a much greater role in creating the situation where manipulation was possible. To allow the proper functioning of this market, this aspect needs to be addressed. The FPMC therefore made specific recommendation to this effect which is something the NAMC would like to emphasise again and recommend certain measures. Such possible measures are discussed below.

5.2 The need for improved reporting requirements

The working of the SAFEX market assumes a perfect competitive market implying that all players have the same information and the same ability to trade. A critical aspect here is perfect information and equal access by all participants to the same information. The reality is that the fundamentals and trends related to the fundamentals are generally available. Information that is not available however is:

- Information on trades and deals on the physical deliveries and imports
- Information on positions by traders on the market
- Speculative limits held by traders in the market

It is obvious that this is not available in South Africa. To illustrate the shortcomings of the South Africa market we briefly refer to the reporting requirements and position reporting in the USA. An example of the US Commitment of Traders Report is given in Annexure B.

Recommendation: The JSE to consider implementing a "Commitment of Traders" report. Such a report has useful information to participants, since it can indicate the possible direction the market can take.

5.3 Speculative limits hold by traders in the market

SAFEX developed speculative position limits on commodities traded. The Derivative Directive[7] indicates the following speculative position limit on white maize:

DERIVATIVES DIRECTIVE – AGRICULTURAL PRODUCTS MARKET SPECULATIVE POSITION LIMITS

AGRICULTURAL PRODUCTS MARKET SPECULATIVE POSITION LIMITS

Contract	Speculative position limits involving the futures equivalent positions		
	Spot month limit	Single limit	All months combined limit)
White Maize	300	1500	3000

The CFTC in USA holds the following view[8]:

"To protect futures markets from excessive speculation that can cause unreasonable or unwarranted price fluctuations, the Commodity Exchange Act (CEA) authorizes the CFTC to impose limits on the size of speculative positions in futures markets. All agricultural and natural resource and many financial futures and option contracts are subject to speculative position limits. For several markets (corn, oats, wheat, soybeans, soybean oil, soybean meal, and cotton), the limits are determined by the CFTC and set out in Federal regulations. For existing markets, reasonable single-month and all-months-combined limits are generally no larger than 10 percent of the open interest up to a level of 25,000 contracts, with a marginal increase of 2.5 percent after that".

Speculative limits in physical-delivery markets are generally set at a lower level during the spot month (the month when the futures contract matures and becomes deliverable). Lower limits in the spot month are important because that is when physical delivery may be required and when the contract may be more vulnerable to price fluctuation caused by abnormally large positions or disorderly trading practices.

The Commission and exchanges grant exemptions to their position limits for bona fide hedging (as defined in Commission Rule 1.3(z)). A hedge is a futures or option transaction or position that normally represents a substitute for transactions to be made or positions to be taken at a later time in a physical marketing channel. Hedges must be economically appropriate to the reduction of risk for a commercial enterprise and must arise from a change in the value of hedger's (current or anticipated) assets or liabilities. Exchanges may also grant exemptions for spreads, straddles, or arbitrage, or other exemptions that are consistent with the purposes of position-limit rules.

[7] http://www.safex.co.za/manuals
[8] http://www.cftc.gov

Guide to Speculative Position Limits

Market	Net All Months Combined	Net Single Month (Other Than Spot)	Spot Month
Chicago Board of Trade:			
Wheat (plus mini Wheat)	6,500	5,000	220 to 600 based on month and certified stocks (exchange); 600 (CFTC)
Corn (plus mini Corn)	22,000	13,500	600

Recommendation: The NAMC should do a study to determine the right speculative limit levels on SAFEX and measures of introducing speculative limits on physical-delivery markets.

5.4 Price limits and its implications

SAFEX introduced price limits on all agricultural contracts traded. These price limits were changed on 8 November 2007 and implemented in the market on 30 November 2007. SAFEX agreed in principal that price limits should represent approximately 2,5% of the value of the underlying commodity. The price limit on maize will increase on 26 August 2008 to R50 per ton (with extended limits of R75 per ton). If the maize price is at R600/ton, the price limit represents a 8.3% change in price, which is rather large if compared to other hard commodities. If the SAFEX price is at R2000/ton, the price limit represents only a 2.5% price change. The price limit on CBOT corn contracts are 30 cents per bushel. It represents a price change of 6% at the current CBOT price of 485c/bushel, which is much more than SAFEX.

SAFEX will increase the wheat price limits on 26 August 2008 from R65/ton to R75/ton per day (extended limits is R110/ton per day). This results in an increase of the initial margin from R7000/contract to R8500/contract on normal trading days and an initial margin of R11500/contract from the first notice day to the last trading day. The initial margin increases to R23000 per contract from the last trading day to the last delivery day.

Sunflower seeds price limits increased from R50/ton to R90/ton per day (extended limits is R135/day). The initial margin increased from R5000/contract to R9500/contract on normal trading days. The initial margin required on extended trading days is R12500/contract. Soya beans price limits increased from R50/ton to R70/ton per day (extended limits is R105/ton per day). The initial margin increased from R2500/contract to R3750/contract on normal trading days and to R5000/contract on extended limit days. The JSE decided to maintain the current price limits and no adjustments will be made on August 26, 2008.

Fewer contracts normally trade during a limits day. Traders sometimes enter into option positions to synthetically limit their losses on the futures positions at volatility levels much higher than the previous day. These higher volatility trade levels results in a dramatic increase in volatility. The consequence thereof is that option writers need to adjust their positions to maintain a delta neutral position. These adjustments can push the market further, even beyond fundamental levels. Large volatility jumps are normally experienced during limit trading days.

Recommendation: The NAMC acknowledges the changes in price limits introduced recently, but recommends that the JSE should consider the possibility of a 'moving price limit' based on a percentage price change, or to look at higher price limits per commodity. Price limits on CBOT is $0.50/bushel for soy beans (which represents 5% of the value of the underlying commodity), wheat price limits is $0.30/bushel (which represents 3,75% of the value of the underlying commodity) and corn price limits is $0.30/bushel (which represents 6% of the value of the underlying commodity). The NAMC further recommends that the JSE should consider introducing 'mini contracts'. The margin requirements of mini contracts are much smaller than the current margin requirements and the lower initial margin and total variation margins can make SAFEX more accessible to small/emerging farmers. Mini contracts will also soften the impact of the increased initial margins on wheat, sunflower seed and soy beans due to the increases in price limits.

5.5 Depth trading screens

The depth screens on futures and options contracts traded on SAFEX shows the names of the trading firms who bid/offer on a specific contract, the bid/offer price and the quantity bid/offered. Traders can use the depth screen to influence the market by posting large bid/offer quantities on the trading screen and by removing them before a deal can be assigned to them. These traders try to create a suggestion in the market to utilise the emotions of the market to their benefit.

The JSE decided to show the trading names on the depth screens to assist the option market so that option buyers can identify option writers. Many option contracts sold on SAFEX are as a result of a telephone call between the buyer and the option writer. The names on the depth screen therefore assisted in identifying option writers and thus, an increase in the number of options available on the market.

The NAMC acknowledges the fact that this issue was discussed during the recent Advisory Committee Meeting and that the Committee agreed unanimously that market anonymity was not best suited at this point in time. Market anonymity would not benefit the illiquid contracts and would not accommodate the onscreen net offs that currently take place. It was also suggested that liquidity could be impacted as less large clients use third parties to execute their business i.e. assigned trade activity. The view of the committee was noted and Mr Sturgess indicated that Release C would be designed to ensure anonymity could be configurable per market. It was also reported that with regards the functionally requested from the software provider, market anonymity be configurable per market, per instrument and based on futures or options.

Recommendation: The NAMC recommends that the JSE should consider removing the trading names from the highly liquid futures contract depth screens. This will prevent traders to use the depth screen to create a suggestion in the market and to utilise the emotions of the market to their benefit. No trading names are shown on the futures depth screens as well as the option depth screens on CBOT.

5.6 Reports published by CBOT and USDA

The USDA plays a critical role in monitoring and disseminating agricultural market information. Commodity markets rely heavily on USDA reports for guidance on U.S. and international supply and demand conditions.

The USDA releases the following reports:

- Crop Production Reports: Estimates, Forecasts, and Projections, Crop Area, Yield and Production Forecasts, Growing Conditions, and Year-End Estimates
- Market Demand Information
- Domestic Use, including stocks, feed use, seed use and food and industrial demand use
- Export Demand
    - The weekly *Export Sales* report published by USDA's Foreign Agricultural Service (FAS). The *Export Sales* report indicates the amounts of major U.S. agricultural commodities that have been exported, as well as outstanding sales which have been contracted for but not delivered, during the current marketing year compared with the same period from the previous marketing year.
    - The weekly *Grains Inspected for Export* report issued by USDA's Agricultural Marketing Service and based on inspections undertaken by the Federal Grain Inspection Service of USDA's Grain Inspection, Packers, and Stockyards Administration.
    - The Census Bureau (Department of Commerce) which issues a monthly export report that indicates not only grain exports, but also product exports including soybean meal and oil, and wheat flour. This report are released with nearly a two-month lag
- U.S. Government Program Activity
- Market Price Information
- Ending Stocks as a Summary of Market Conditions

CBOT publishes the following reports on its website:

- Market commentary. These reports even mention the size held by hedge funds and reasons for large movements by them
    - A recap of the previous day's activities
    - A mid-morning report
    - And a pre-opening report
- Ag fundamental reports
    - USDA monthly demand and supply
    - Weekly export sales
    - Various other reports reflecting the world situation

Most of this type of information in South Africa is obtainable from SAGIS. These include:

- Local supply and demand reports.
- Weekly imports/exports. A statutory regulation obligates that all import and export detail are send through. The report is published on a Tuesday and reflects the previous week (to Saturday) imports and exports
- Weekly producer delivery reports
- CEC reports reflecting intentions to plant, hectares planted, anticipated yield and final yield. Normally published every month during the marketing season.

Recommendation: The JSE should consider publishing a market commentary report. This report should include the size of positions held by hedge funds and any large changes in it should be reflected. The NAMC recommends also that a statutory measure (perhaps managed by SAGIS) should be introduced which forces traders to report any intentions of imports and exports 24 hours after deals were concluded. The DoA should consider to publish on a weekly basis export demands – especially grains inspected for exports, grain products exported, grains imported from SADC countries and supply and demand of SADC counties.

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Appendix A: The working of a 'trading book'

There exists a wide range of marketing options for all the role players in the maize market, which depends on factors such as the time of marketing, the trends in futures prices, the cash flow position, and quite a few others. In this Section, some of these marketing strategies will be illustrated through explaining the basic functioning of a "trading book", which role players have to maintain in the market. A "trading book" contains all the open positions that a role player has in the market. These positions can either turn out in a profit or a loss, depending on the trend in the futures market. It follows that these positions need to be managed with skill and discipline. This discussion of the trading book also shows that it is unlikely that a silo-owner can, or wants, to use his trading book to influence the futures market.

It is assumed that the spot price for white maize on SAFEX (nearby contract) trades at R900/ton, 4 months ahead of the harvest period (see Table 2). Two scenarios are used as an example to depict the possible functioning of the market. For the first scenario, it is assumed that the SAFEX spot price increases by R200/ton, and for the second scenario it is assumed that the SAFEX spot price decreases by R200/ton. The term "spot price" refers to the price of the nearby contract, which is traded on the futures market on the selected trading day.

Four months before the harvest time the silo owner buys maize from the farmer. The contract price, or the farm gate price (realisation price), is R800/ton (R900/ton minus R60/ton transport differential minus R25/ton handling fee and R15/ton commission). The silo-owner immediately hedges his downside price risk by selling a future contract on SAFEX. All major role players have taken a position in the market and, therefore, have "opened their trading book". Now they need to manage their risk on these open positions in their trading book.

Scenario 1: The SAFEX price increases by R200/ton

At the time of delivery/sale to a maize miller or processor, the SAFEX spot price has increased to R1100 per ton. The miller buys at an actual price of R1015 when transport and the handling fee are accounted for. The silo-owner gains R215/ton on the physical trade of maize because he bought it at a lower price (of R800), but loses R200/ton on the futures market by means of buying back the future contract. The net gain of the silo-owner is R15/ton; the initial commission that was charged when the maize was bought from the farmer. The miller's call option is "in the money". He can either exercise or sell this call option. For simplicity's sake, it is assumed that the call option is sold at a profit of R200/ton and he buys the physical maize from the silo-owner at R1100. Hence, the miller loses only the R30/ton premium he initially paid for the call option.

Trading book of various roll players in the maize market

TRANSACTION	SAFEX Price	Transport Differential	Handling	Commission	Premium	Realisation Price
1) 4 MONTHS AHEAD OF HARVEST						
The Farmer						
Farmer sells physical maize to silo	900	60	25	15		800
Farmer buys future contract on SAFEX	900					
The Silo-owner						
Silo-owner buys from farmer	900	60	25	15		800
Silo-owner sells future contract on SAFEX	900					
The Miller						
Miller buys call option on SAFEX	900				30	
2) AT HARVEST TIME						
a) Scenario 1: SAFEX price increases by R200/ton						
Farmer sells future contract on SAFEX	1100					
Silo-owner sells physical maize to miller	1100	60	25			1015
Silo-owner buys back future contract	1100					
Miller sells call option on SAFEX	1100					1070
Profits and Losses						
Farmer	R200/ton loss on physical maize. R200/ton profit on futures market.					
Silo-owner	R200/ton profit on physical maize + R15/ton commission. R200/ton loss on futures market.					
Miller	R200/ton loss on physical maize. R170/ton profit on call option.					
b) Scenario 2: SAFEX price decreases by R200/ton						
Farmer sells future contract on SAFEX	700					
Silo-owner sells physical maize to miller	700	60	25			615
Silo-owner buys back future contract	700					
Miller's call option expires	700					
Profits and Losses						
Farmer	R200/ton profit on physical maize. R200/ton loss on futures market					
Silo-owner	R200/ton loss on physical maize. R200/ton profit on futures market+ R15/ton commission					
Miller	R200/ton profit on physical maize. R30/ton costs of call option					

Scenario 2: The SAFEX price decreases by R200/ton

Under this scenario, the silo-owner sells/delivers to the maize miller at a lower price of R700/ton (an actual price of R615/ton when transport and handling fee is accounted for). The loss on the physical trade is R185/ton (R800-R615). Through buying back the futures contract a profit on SAFEX trade of R200/ton is made. The net gain from running the trading book is once again R15/ton.

From this explanation and from the information presented it is evident that it would not be in a silo owner's interest to hold back stock and so influence the market price. From the evidence provided here, it is also unlikely that the silo-owner will actually be able to do that since the grain in the silos belongs to different role players. The above examples assumed that silo owners will enter into SAFEX positions simultaneously with the purchase of the grain from the farmer. This might not always be the case. They are then not hedged against price risk and will profit from

higher maize prices (and loose with lower maize prices). It therefore can be to their interest to withhold maize from the market if fundamental factors show higher price trends.

Annexure B: The Commitments of Traders Report

The *Commitments of Traders* (COT) reports were developed in 1924. In that year, the U.S. Department of Agriculture's (USDA) Grain Futures Administration published its first comprehensive annual report of hedging and speculation in regulated futures markets. In 1962 they began to publish the COT report monthly. The COT report is now published weekly and more quickly—moving the publication to the 3rd business day after the "as of" date.

The COT reports provide a breakdown of each Tuesday's open interest for markets in which 20 or more traders hold positions equal to or above the reporting levels established by the CFTC. The weekly reports for *Futures-Only Commitments of Traders* and for *Futures-and-Options-Combined Commitments of Traders* are released every Friday at 3:30 p.m. Eastern time.

A page from the December 12, 2006, COT report (short format) showing data for the Chicago Board of Trade's wheat futures contract is depicted below. Explanatory notes follow the table.

WHEAT -- CHICAGO BOARD OF TRADE

FUTURES-ONLY POSITIONS AS OF 12/12/06

NONCOMMERCIAL			COMMERCIAL		TOTAL		NONREPORTABLE POSITIONS	
LONG	SHORT	SPREADS	LONG	SHORT	LONG	SHORT	LONG	SHORT
(CONTRACTS OF 5,000 BUSHELS) OPEN INTEREST: 417,081								
COMMITMENTS								
73,598	56,045	69,448	237,539	232,901	380,585	358,394	36,496	58,687
CHANGES FROM 05/25/2004 CHANGE IN OPEN INTEREST: -7,043								
-10,463	-1,186	126	3,462	-6,610	-6,875	-7,670	-168	627
PERCENT OF OPEN INTEREST FOR EACH CATEGORY OF TRADERS								
17.6	13.4	16.7	57.0	55.8	91.2	85.9	8.8	14.1
NUMBER OF TRADERS IN EACH CATEGORY (TOTAL TRADERS: 317)								
102	89	92	67	96	233	226		

Explanatory Notes

Open Interest - Open interest is the total of all futures and/or option contracts entered into and not yet offset by a transaction, by delivery, by exercise, *etc*. For the *COT Futures & Options Combined* report, option open interest and traders' option positions are computed on a futures-equivalent basis using delta factors supplied by the exchanges. Open interest, as reported to the Commission and as used in the COT report, does not include open futures contracts against which notices of deliveries have been stopped by a trader or issued by the clearing organization of an exchange.

Reportable Positions - Clearing members, futures commission merchants, and foreign brokers file daily reports with the CFTC. Those reports show the futures and option positions of traders that hold positions above specific reporting levels set by CFTC regulations.

Commercial and Non-commercial Traders –A trading entity generally gets classified as a "commercial" by filing a statement with the Commission (on CFTC Form 40) that it is commercially "...engaged in business activities hedged by the use of the futures or option markets."