CHAPTER 6

THE SUNFLOWER SEED-COOKING OIL SUPPLY CHAIN

6.1 Background and industry overview

After maize and wheat, sunflower seed is the most important field crop in South Africa. During the period of regulated marketing the Oilseeds Board controlled most aspects of the industry. Prices were determined by domestic demand and supply, as well as by export pool prices derived by the Oilseeds Board. Prices were fixed for a season and producers were faced with a single-channel marketing scheme (NAMC, 1998). However, this situation changed with the introduction of the Marketing of Agricultural Products Act (No 47 of 1996 as amended), which led to the deregulation of the industry and the abolishment of the Marketing Board. Since deregulation, prices are determined under free market conditions and formally traded on the Agricultural Markets Division of the South African Futures Exchange (SAFEX).

Over the past ten years, the area planted under sunflower has fluctuated drastically. An important relationship exists between the area planted under maize and the area planted under sunflowers due to the nature of their substitutability. Sunflowers are well adapted to the South African hot and dry climate and can be produced economically even when there is not enough moisture to produce most of the other summer crops. Figure 6.1 below, shows the area planted and the production of sunflower seed. In 1999, the highest level of production ever was reach when 1.1 million tonnes of sunflower seed were produced. In the past season (2002/03) 736 000 tonnes were produced on a total area harvested of 634 000 ha.

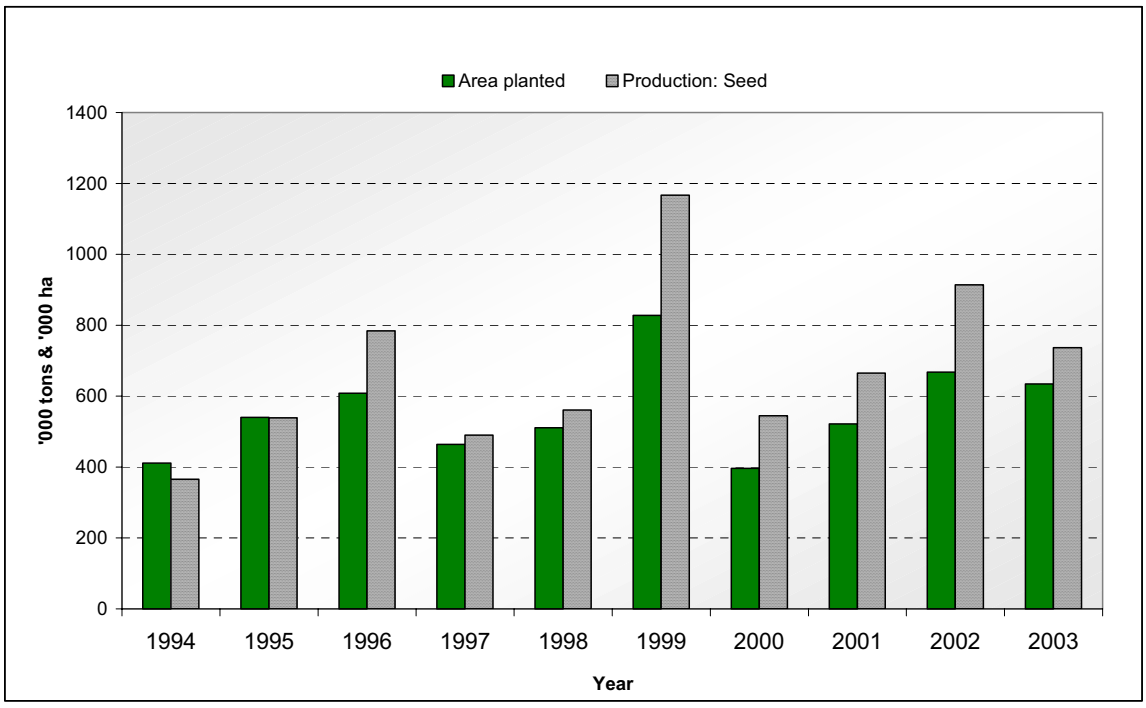

Figure 6.1: Area planted and production of sunflower seed
Source: DoA, Crop Estimates Committee, 2003

Approximately 95% of all sunflower seed produced in South Africa is destined for the processing industry for the production of sunflower oil. Sunflower oilcake - also referred to as meal -, a by-product of the oil extraction process, is sold to feed manufacturers domestically. It is generally regarded as a low-value product that does not compare well to soybean oilcake in terms of nutritional value. Therefore, the dilemma of the sunflower market is that not enough sunflower seed is produced locally for the oil industry, yet once the seed has been crushed the by-product is regarded as a low-valued product. Over the past decade, the total demand for sunflower seed, derived from the total demand of sunflower oil, has increased to over 1 million tonnes, which makes South Africa a net importer. Important to note is that it is not the seed or the cake that is imported, but the sunflower crude oil. Table 6.7 (section 6.4) presents the sunflower oil imports over the past three years.

Table 6.1 shows that the total consumption of sunflower oil in South Africa (including the exports to SADC countries) is estimated at 451 781 tonnes, of which 321 530 tonnes were produced locally and 130 251 tonnes were imported. Although no formal data are available on the consumption of sunflower oil for the period 2001/02, it is estimated that the total consumption (including exports to neighbouring states) decreased because imports of sunflower crude oil[1] decreased by 97% (Table 6.7) as a result of the drastic increase in sunflower crude oil prices and the depreciation of the exchange rate.

Table 6.1: Consumption of sunflower oil by segment

Total sunflower oil market volume by segment - 2000	
	Tons
Retail	83 781
General Trade	53 000
Wholesale	110 000
Industrial	52 000
Bulk	40 000
Exports of refined oil (mainly SADC)	113 000
Total consumption	**451 781**

Source: Own calculations

It is important to take the usage spread of sunflower oil into consideration. It is interesting to note that, despite the fact that the Indian population makes up only 2.5% of the total SA population, its expenditure on sunflower oil is estimated at a massive 33% of the total SA expenditure on sunflower oil. It is estimated that the white population is responsible for 25% of all expenditure on sunflower oil.

Table 6.2: Usage spread of South African Population

	% Population	**% Expenditure**
African	76.79%	14.08%
White	10.86%	24.88%
Coloured	8.89%	16.67%
Indian	2.47%	33.10%
Other	0.99%	11.27%

Source: Own calculations

[1] Note: crude oil is imported and refined oil is exported

It is well known that South Africa is a net importer of oilcake products. Table 6.3 below shows the availability of the total oilcake in South Africa. Interestingly, the import of sunflower cake shows a decreasing trend compared to the total available oilcakes, whereas the usage of soybean cake increased substantially over the same period.

Table 6.3: Oilcake usage by AFMA members, 1 April 1999 to 31 March 2002

OILCAKE (tons)	1999/2000	% Inc	2000/2001	% Inc	2001/2002	% Inc
Soya	402 190	9.77%	406 677	10.32%	495 546	12.27%
Sunflower	304 970	7.41%	286 078	7.26%	232 460	5.76%
Cottonseed	54 165	1.32%	43 758	1.11%	53 741	1.33%
Groundnuts	5 699	0.14%	3 845	0.10%	5 164	0.13%
Canola	12 420	0.30%	8 683	0.22%	8 347	0.21%
Copra & Palm					1 719	0.04%
TOTAL	**779 444**	**18.94%**	**749 041**	**19.01%**	**796 977**	**19.73**

Source: AFMA chairman's report, 2003

Figure 6.2 illustrates that over the past five years the total production of sunflower cake has exceeded the total consumption. This has created an increased downward pressure on the price of sunflower cake. The price of sunflower cake is derived from its relative nutritional value compared to other oil cakes. The calculation of this derived cake price is illustrated in section 6.3.

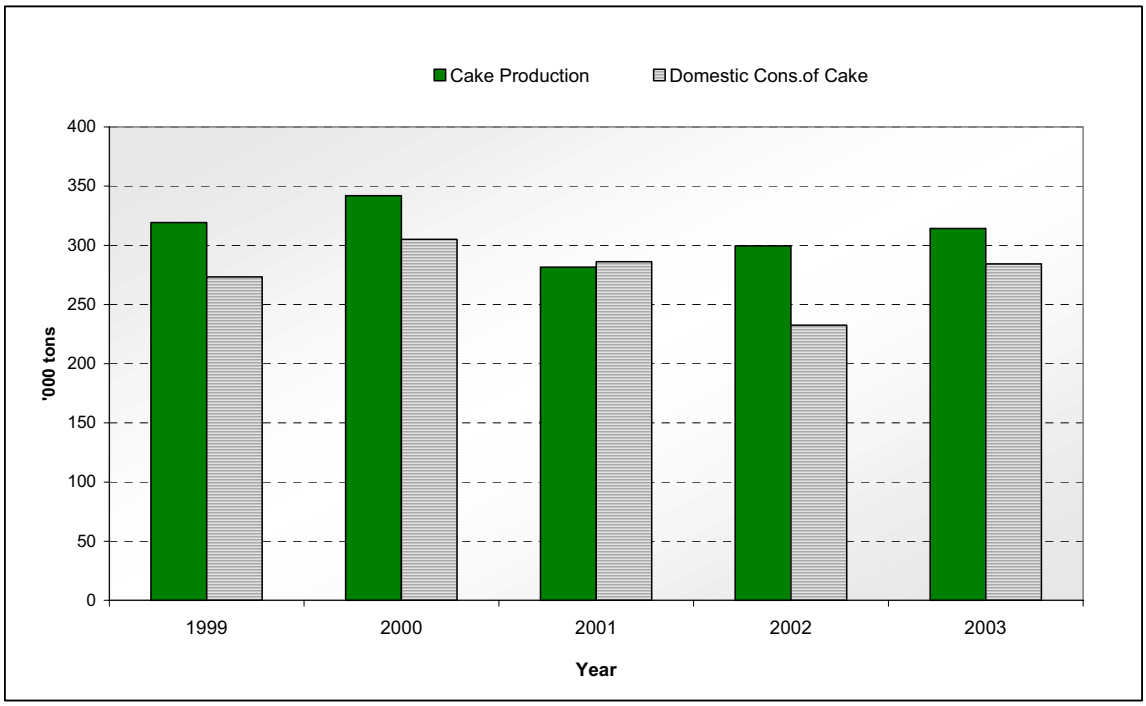

Figure 6.2: Production and consumption of oilcake (Source: AFMA, 2003)
Estimated figures for 2003

According to members of AFMA, the South African feed industry is capable of utilizing more than 300 000 tonnes of sunflower seed meal per annum. According to the members, usage is restricted by the following criteria: (i) the ratio of soy-bean meal to sunflower seed meal prices, (ii) high transport costs to coastal regions, (iii) inconsistent quality of sunflower seed meal from crushers (high fibre, low protein) and (iv) the low

availability of sunflower seed meal as a result of low oil prices and thus reduced crushing. Table 6.4 presents the nutrient composition of meals of selected oilseeds.

Table 6.4: Comparative nutrient composition

Item	Sunflower seed meal with hulls	Sunflower seed meal without hulls	Soybean meal with hulls	Soybean meal with hulls	Peanut meal
Nutrient					
Crude protein (%)	28.34	43.00	44.00	49.00	42.00
Crude fibre (%)	23.00	13.00	6.00	3.00	12.00
Energy (ME/Kcal/kg)	1760	2320	2320	2530	2200
Amino acids					
Lysine	1.18	1.70 (84)	2.70 (90)	3.07(92)	1.70(83)
Methionine	0.72	1.65 (93)	0.63(91)	0.68(94)	0.50(93)
Cystine	0.55	0.40 (78)	0.70(82)	0.69(92)	0.62(78)
Threonine	1.21	1.70 (85)	1.70(87)	1.94(92)	1.28(85)

Note: Figures in parentheses indicate percentage digestion coefficients of respective amino acids.
Source: Reddy, 2000. (Competition Commission)

6.2 Market Structure

6.2.1 Primary Industry

Information on the number of sunflower seed producers is not available, but industry sources believe the number of producers is just slightly lower than the number of maize producers. This is due to the fact that farmers plant both crops simultaneously as part of their diversification strategy. Table 6.5 shows the regional distribution of sunflower seed in South Africa in 2001/02 and 2002/03. The regional distribution remained approximately the same over the two seasons. The Free State is the leading producer with a share of 49% of the total area planted and 52% of the total production, followed by the North-West Province with 36% and 35% respectively.

Table 6.5: Regional distribution of area planted and production of sunflower seed

	Area planted (ha)	Area planted (ha)	% Share (02/03)	Production (tons)	Production (tons)	% Share (02/03)
	2002/03	**2001/02**		**2002/03**	**2001/02**	
Western Cape	500	-	0.08%	500	-	0.07%
Northern Cape	300	250	0.05%	720	500	0.10%
Free State	310 000	305 000	49.36%	372 000	443 000	52.63%
Eastern Cape	200	200	0.03%	240	200	0.03%
KwaZulu-Natal	100	60	0.02%	100	90	0.01%
Mpumalanga	40 000	30 000	6.37%	46 000	52 500	6.51%
Limpopo	37 000	40 000	5.89%	22 200	50 000	3.14%
Gauteng	10 000	12 000	1.59%	12 000	18 000	1.70%
North-West	230 000	280 000	36.62%	253 000	364 000	35.80%
Total	**628 100**	**667 510**		**706 760**	**928 290**	

Source: Crop Estimates Committee, 2003

6.2.2 Secondary Industry

The top eight seed-crushing plants yield more than 300,000 tonnes of sunflower meal annually, with a total crushing capacity of over 1 million tonnes of sunflower seed (Table 6.6). This implies that, given the current total production of sunflower seed of 706,760 tonnes, only 65% of the total local crushing capacity are utilised. This opens a window for what is in the industry referred to as "toll crushing". Due to the surplus crushing capacity, there is an opportunity for any role player in the industry to crush seed, sell the crude oil at a lower price than the import parity price and still manage to realise some profit. This phenomenon makes the crushing industry highly competitive since the utilisation of crushing capacity is readily available to anyone in the business. The fact that there exists excess capacity in South Africa with respect to the processing of oilseeds is exerting more and more pressure on the ability of large and small processors' to reach and maintain an optimum level of economies of scale.

Table 6.6: Largest crushing plants in South Africa

Location	Processor	Crushing Capacity (tons)
Boksburg & Randburg	Nola Industries	400 000
Southdale	Epic	200 000
Lichtenburg	Epko	170 000
Isando	Willowton Oil Mills	100 000
Viljoenskroon	Senwesko	100 000
Pietermaritzburg	Capital Oil Mills	50 000
Isithebe	Elangeni Oil & Cake Mills	30 000
Pietermaritzburg	Sealake Industries	25 000
Total		**1 075 000**

Source: Industry specialists, 2003

The South African Oil Processors Association (SAOPA) represents the oil processing industry's interests. Table 6.7 presents a list of oil refineries, which are currently members of the Association. It is interesting to note that not all crushers have a refining capacity and not all refiners have crushing capacity. Eight of the thirteen refineries are relatively close to Durban harbour from where sunflower crude oil is imported.

6.2.3 Other relevant aspects

Oilseed processing is highly capital-intensive, and requires specialised knowledge and state-of-the-art technology. The fact that large quantities of crude oil are entering South African harbours for refining makes it very difficult for large and small processors to survive. Oil mills near the respective harbours have a big advantage in this regard, as their transport costs are very low (e.g. only from Durban harbour to Pietermaritzburg). In other words, location of processing facilities and transport cost can be regarded as very important.

Table 6.7: South African Oil Refineries

Location	Refiners
Pietermaritzburg	Capital Oil Mills
Randfontein	Continental Oil Mills
Isithebe	Elangeni Oil & Cake Mills
Southdale	Epic Foods
Lichtenburg	Epko Oil Seed Crushing
Cumberwood	Hentiq 1320
Rivonia	Nedan Oil Mills
Randfontein	Nola Industries
Pietermaritzburg	Sealake Industries
Isipingo Beach	Sun Oil Refineries
Port Shepstone	Sunola Oil Mills
Durban	UBR
Isando	Willowton Oil Mills

Source: The South African Oil Processors Association

Processors, especially large ones, must keep themselves up-to-date with technological innovations in the oilseed processing industry in order to be compete with large overseas processors. This, in fact, hampers the ability of the industry to maintain, or reach, economies of scale. Most of the local crushing plants were established in the mid-eighties and have not been revamped since. The distance from crushing plant to the market also influences role players' ability to achieve economies of scale. For example, a number of small processors have the disadvantage of being far from the market, in contrast to the larger ones who built their factories closer to the markets of Gauteng and KwaZulu-Natal, or those that are situated near harbours. The issue here is the relative difference in transport costs of transporting the primary commodity to the processing plant and transporting the processed product to the market, which affects, particularly, the smaller processors.

A concern shared by the entire industry is the utilisation of used oils. Used oils comprise between 50,000 and 100,000 tonnes annually that are being recycled back into the economy. Used oils have alarming health risks, a topic that is currently under researched by Professor Kock at the University of the Free State. Used oils are substantially cheaper than virgin oils, and they offer unscrupulous operators the opportunity to exploit consumers (Stromnes, 2001, Competition Commission, 2002).

As with the other agricultural sub-sectors, also the oilseeds industry must adhere to several regulations pertaining to food safety. These regulations include, amongst others, the following:

- Foodstuffs, Cosmetic and Disinfectants Act of 1972 (Act 54 of 1972)
- Health Act of 1977 (Act 63 of 1977)
- Fertilisers, Farm Feeds, Agricultural Remedies Act of 1947 (Act 31 of 1947)
- Agricultural Products Standards Act of 1990 (Act 119 of 1990)

6.3 Price formation in the sunflower seed market

As with all other field crops, prices of oilseeds vary substantially from one season to the next. Although sunflower seed is also traded on SAFEX like maize and wheat, the local price of sunflower seed is not only influenced by the supply and demand factors of sunflower seed but also by the supply and demand factors of the local and international sunflower oil market. The international oil prices act as a guideline for domestic seed and oil prices. In particular, the situation of the Argentinean oil market has a significant impact on the local market since the Argentinean oil market has the same marketing period of sunflower seed as SA producers. Hence (see Figure 6.3 below), the sunflower crude oil price at the Reef is derived from the Argentinean free on board (fob) price for sunflower crude oil. The crude oil price, as illustrated in the figure below, can be regarded as an import parity price of crude oil at the Reef (in Rand terms) seen that the costs of transport, discharge and insurance are taken into account. The calculation of this import parity price is illustrated in section B1 of Table 6.9.

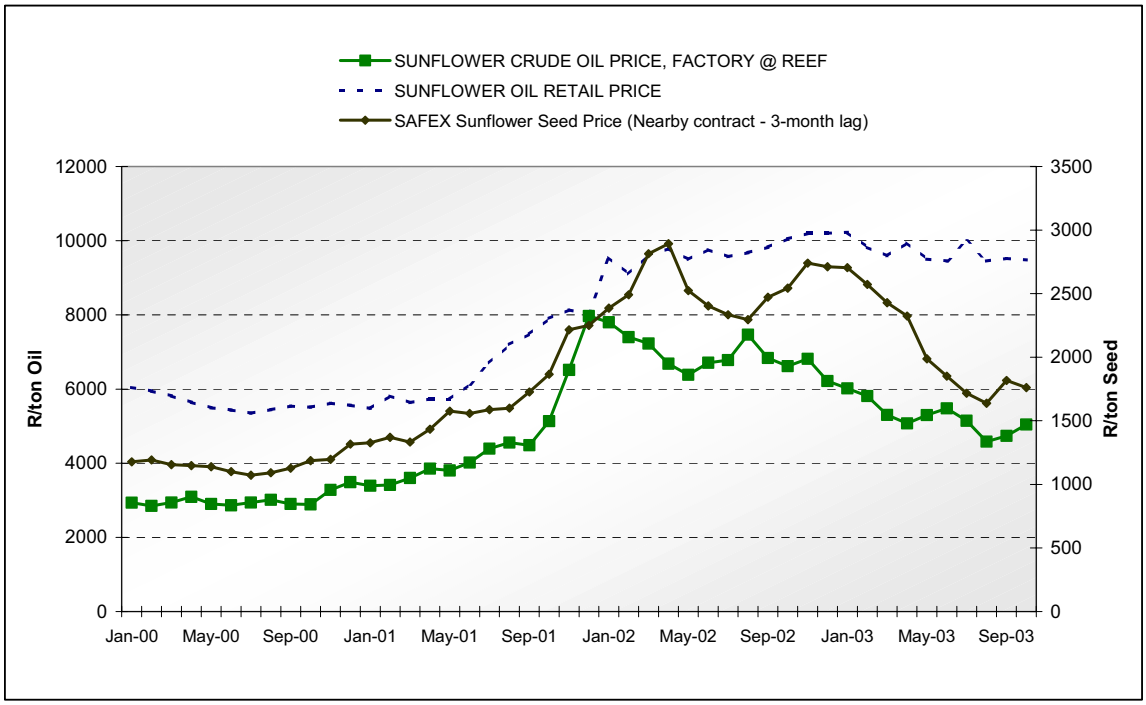

Figure 6.3: Sunflower oil and seed prices
Source: Reuters, SAFEX & AC Nielsen, 2003

Figure 6.3 shows the relationship between the retail price of sunflower oil, the crude oil price at the Reef and the sunflower seed price traded on SAFEX. As previously mentioned, South Africa is a net importer of oil, which implies that the local price is normally traded close to import parity levels. If a refinery can import crude oil from Argentina at a lower price than that of the locally produced oil supplied by the crushers, the refineries will simply decide to import the oil. This is the reason why more than 60% of all the sunflower oil refineries are close to Durban harbour. South Africa is not a significant role player when it comes to international oilseed production and trade, and, therefore, South Africa is regarded as a price taker.

The sharp increase in the price of sunflower crude oil during November and December 2001 not only was caused by the depreciation in the exchange rate, but it also coincided

with a drastic increase in the fob price of Argentinean sunflower oil, which resulted in the opening of a gap between soybean oil and sunflower oil prices (Figure 6.4).

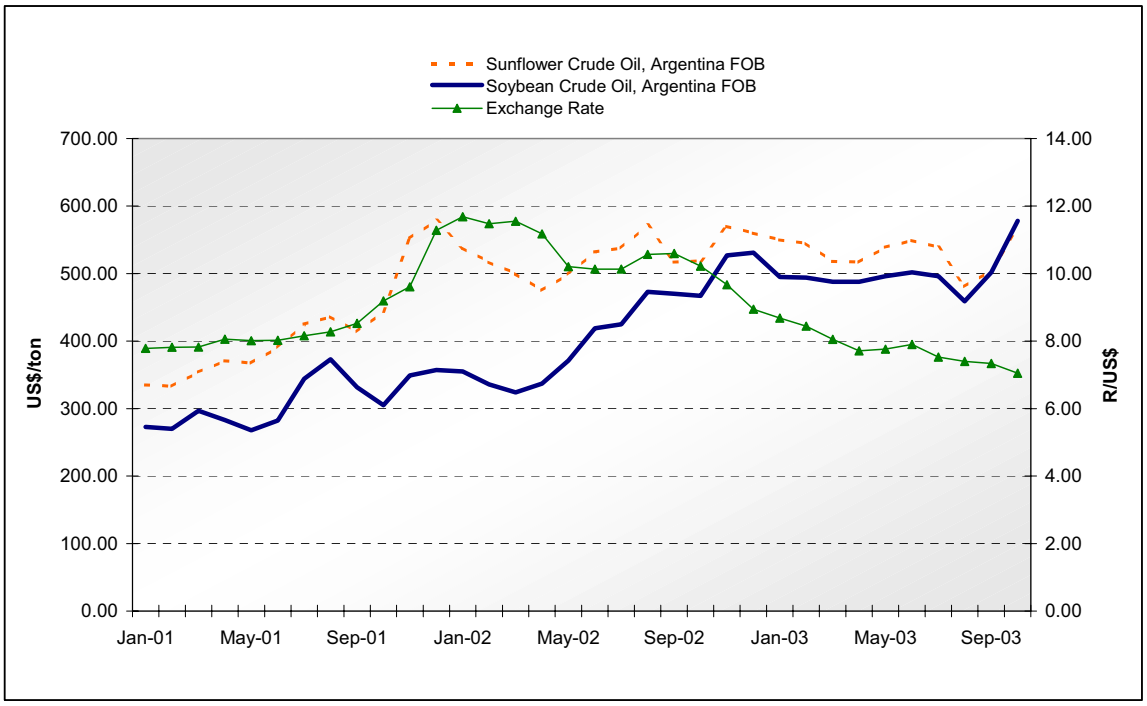

Figure 6.4: World sunflower and soybean crude oil prices and exchange rate
Source: Reuters and SAFEX, 2003

Historically, sunflower oil world prices have traded at an approximate premium of US$20/ton over the world prices of soybean oil. Hence, the fact that the gap between sunflower oil and soybean oil was as high as US$222/ton, during the period December 2001 to January 2002, influenced the behaviour of crushers and refineries significantly. This issue will be further discussed in section 6.4.

When considering the international market, it becomes clear that not sunflower seed is imported but sunflower crude oil. The price that an oilseed processor is willing to pay for sunflower seed should therefore be derived from the import parity price of sunflower crude oil, as well as from the prices of other oils that can serve as substitutes for sunflower oil, such as soybean oil. Despite the fact that more than 300,000 tonnes of sunflower cake are produced locally, cake is regarded as a by-product and prices are very volatile. The local price of cake is influenced by demand and supply factors on the cake market. Figure 6.5 presents the derived prices in Rand terms for sunflower oil and cake at the Reef.

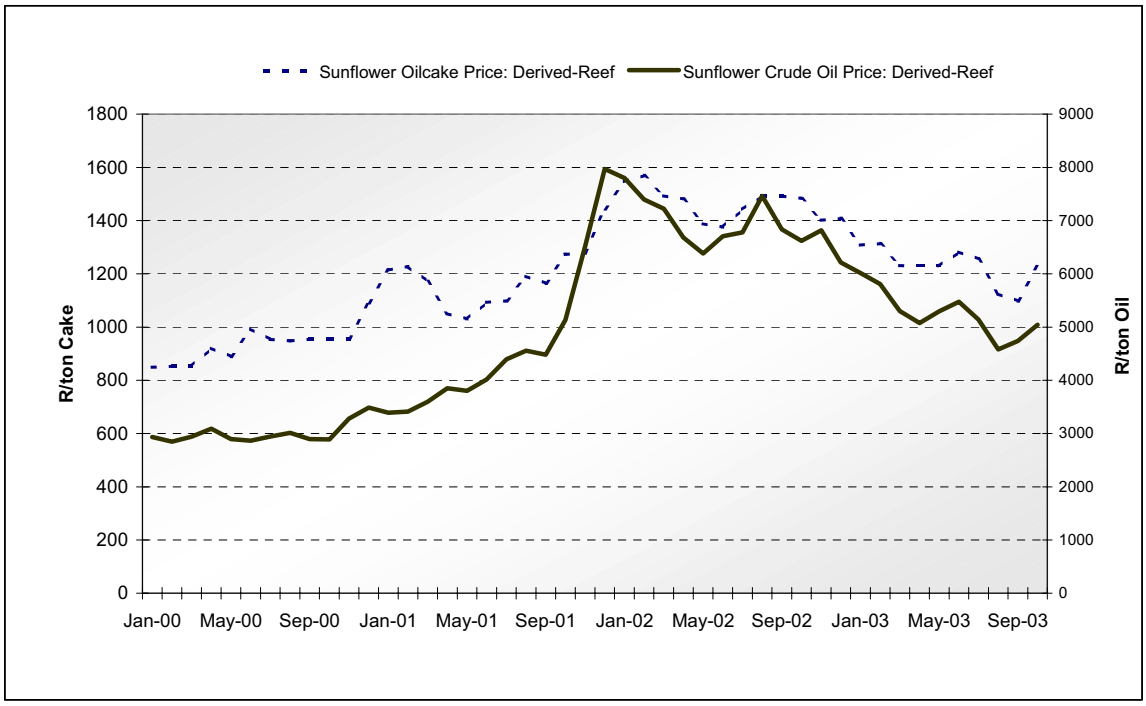

Figure 6.5: Derived sunflower oil and cake prices at the Reef
Source: Reuters, AFMA & own calculations, 2003

The sunflower crude oil price in Figure 6.5 is exactly the same price as used in Figure 6.4, that is, the crude sunflower oil price at import parity levels at the Reef. The sunflower cake price is derived from the soybean cake price after the relative protein content and the final consumption value of the cake is taken into consideration. The prices of both oilcakes are calculated at import parity levels and in Rand terms. Firstly, the soybean cake price has to be adjusted to take into account the different protein contents of sunflower cake (38% protein) and soybean cake (47% protein). Therefore, the soybean cake price has to be divided by 0.47 and multiplied by 0.38. The second step is to multiply this adjusted cake price by 0.65. The reason for this is that industry specialists regard the final consumption value of sunflower cake to be 65% of the value of soybean cake. Factors like the high fibre content of sunflower cake reduce the digestibility of the cake, which reduces the final consumption value of the product. Due to the lack of a formally traded sunflower cake price, this formula can serve as a guideline in the determination of a local sunflower cake price. However, the level of cake prices in the first quarter of 2003 proved that this formula does not always provide an accurate estimation of what the local price of cake ought to be. For the first three months of 2003 sunflower cake traded at an average price of R800/ton, whereas the formula rather suggests an average level of R1270/ton. It was purely local demand and supply conditions of cake that dictated this low price.

South Africa is a net importer of sunflower and soybean oil and, therefore, import tariffs have a direct effect on the level of local prices. A few years ago, the import tariffs on oils and cakes were revised and the new tariffs are shown in Table 6.5. Sunflower and soybean oil are both imported at a fixed import duty of 10% of the free on board price (fob) of crude oil.

Table 6.8: Applied import tariff duties on different oilseeds and oils

Tariff line	Product description	Standard duty rate (%)	EU applied tariff rate (%)
12.0100	Soya beans, whether or not broken	10	0
12.0210	Groundnuts, not roasted or otherwise cooked, in shell	0	0
12.0600	Sunflower seeds, whether or not broken	9.4	7.5
15.0710	Soya oil and its fractions	10	0
15.0810	Groundnut oil and its fractions	9.8	0
15.1211	Sunflower seed oil and its fractions	10	0

Source: Cargoinfo, 2003

6.4 Unpacking the sunflower seed–to-sunflower oil value chain

Similar to the maize-to-maize meal value chain analysis, various assumptions had to be made to construct the framework for the unpacking of the sunflower seed–to–sunflower oil supply chain as presented in Table 6.9. The basic assumptions used in the calculation of this value chain are based on the same principles as the assumptions used in the calculation of the maize-to-maize meal value chain (Chapter 2). For this value chain the following five main nodes or levels were identified: the sunflower seed producers (farm level), the crushers of seed, the refineries of crude oil, the wholesalers and retailers and, finally, the consumers. Table 6.9 represents the supply chain from sunflower seed to sunflower oil for the month of July 2003.

The farm gate price is derived from the SAFEX average nearby contract price, which is lagged by three months. Statistical tests proved that the level of correlation between the SAFEX price of sunflower seed and the consumer price of sunflower oil is the highest when the SAFEX price is lagged by three months. This implies that it takes three months from when the crushers buy the sunflower seed until the oil appears on the shelf. A number of role players also argued in favour of the inclusion of a 3-month lag period between the SAFEX price and the consumer price simply because of the period of time required for processing the oil as well as the need for basic hedging strategies. Therefore, the price of R1717/ton reflected in Table 6.9 since the SAFEX price is actually the average monthly nearby contract price traded on SAFEX for the month of April 2003.

The price of R9 996.25/ton reflected in Table 6.9 as the sunflower oil retail price is derived from the price of a 750ml bottle of “cheapest cooking oil”. After taking into account factors such as the density of the product, it was calculated that 1 454 bottles (750ml) of cooking oil represent one tonne of oil.

Table 6.9: The Sunflower seed –to- sunflower oil supply chain

		Units	Jul-03
A) FARMERS			
	FARMGATE PRICE	**R/ton seed**	**1576.00**
	Transport cost: Farm gate to silo	R/ton seed	106.00
	Handling & Storage cost: Costs of farmer	R/ton seed	35.00
	SAFEX (nearby contract)	**R/ton seed**	**1717.00**
B) SUPPLY OF CRUDE OIL			
1) Imports of Crude Oil			
	Sunflower Crude Oil, Argentina FOB	US$/ton oil	539.00
	Freight	US$/ton oil	40.00
	Insurance	US$/ton oil	6.47
	Duty	US$/ton oil	53.90
	Discharge and clearing transport	US$/ton oil	27.00
	Exchange Rate	R/US$	7.53
	Sunflower Crude Oil, factory @ Durban	R/ton oil	5017.75
	Transport: Durban to Reef	R/ton oil	120.00
	SUNFLOWER CRUDE OIL PRICE, FACTORY @ REEF	**R/ton oil**	**5137.75**
2) Local supply of Crude Oil: Crushing activity			
	Transport cost: Silo to crushing plant	R/ton seed	86.00
	Handling cost: Costs of crusher	R/ton seed	35.00
	Storage costs: Costs of crusher	R/ton seed	100.00
	Interests paid on investment	R/ton seed	140.00
	PRICE CRUSHERS PAY FOR SEED	R/ton seed	2078.00
	Fixed costs	R/ton seed	65.00
	Variable costs	R/ton seed	120.00
	Total costs of crushing	R/ton seed	185.00
	CAKE PRICE	**R/ton cake**	**900.00**
	Crude oil contribution (39% extraction from 1ton of seed*Oil price)	R/ton oil	2003.72
	Cake contribution (42% cake from 1ton of seed*Seed price)	R/ton cake	378.00
	Costs of seed	R/ton seed	2078.00
	CRUSHING MARGIN	R/ton seed	303.72
	TOTAL CRUSHING COSTS	R/ton seed	185.00
	MANUFACTURERS REALISATION (CRUSHING)	R/ton seed	118.72
C) REFINEMENT ACTIVITY			
	SUNFLOWER CRUDE OIL PRICE, FACTORY @ REEF	R/ton oil	5137.75
	Interests paid on investment	R/ton oil	58.00
	Fixed costs	R/ton oil	188.00
	Variable costs	R/ton oil	180.00
	Total costs of refinement	R/ton oil	426.00
	Total costs before refinement loss		5563.75
	TOTAL COSTS OF REFINED SUNFLOWER OIL(exl. packaging)	**R/ton**	**5918.88**
D) PACKAGING ACTIVITY			
	Interests paid on investment	R/ton oil	65.00
	Fixed costs	R/ton oil	120.00
	Variable costs	R/ton oil	270.00
	Total costs of packaging	R/ton oil	455.00
	Distribution costs	R/ton oil	250.00
	TOTAL COSTS OF SUNFLOWER OIL (incl. packaging)		**6623.88**
	MANUFACTURER-TO-RETAIL MARGIN (Pure sunflower oil)		**3372.37**
	SUNFLOWER OIL RETAIL PRICE	**R/ton oil**	**9996.25**

It is important to note is that two possible sources for the supply of crude oil to the local refineries are included in the framework. The first source of supply of crude oil is imports. Table 6.9 clearly illustrates the calculation of the import parity price of sunflower crude oil of R5 137.75/ton. The second source of supply is the local crushers. Estimates for local crushing costs, the possible crushing margin, and the crushers' realisation are presented in section B2 of Table 6.9. The crushing margin of R303.72/ton of seed is calculated by deducting the costs of seed at the crusher's door (R2078/ton) from the income generated by the sales of the oil (R2003.72 = 0.39*R5137.75) as well as the sales of the cake (R378 = 0.42*R900/ton) that were extracted from a tonne of seed. For the purpose of these calculations, an average extraction rate of 39% is used for oil and 42% is used for cake. Thus, one tonne of raw sunflower seed produces on average 390 kg of crude oil and 420 kg of cake. The total crushing costs are estimated at R185/ton, which implies that the crushers' realisation is estimated at R118.72/ton (R303.72 – R185) of seed.

It is important to keep in mind that the value of the crude oil is derived from the import parity price of crude oil. Industry specialists feel that at specific periods in the year the local price of crude oil trades below the import parity price levels. However, it was decided that for the purposes of these calculations a higher price of crude oil will reflect the "worse case" scenario because crude oil is regarded as the raw material and the higher the price of the raw material that enters the value chain, the slighter are the possibilities of making profit if the retail prices are kept at a constant level. Thus, the calculations in Table 6.9 reflect the worst-case scenario for the value chain.

Total costs of refinement are estimated at R426/ton oil and the total packaging costs (including distribution costs) are estimated at R655/ton oil. The total costs of refined sunflower oil (excluding packaging) including refinement losses of 6% are estimated at R5918.88/ton. If packaging costs and distribution costs are added to this value, the total cost of sunflower oil, before it enters the wholesale and retail sector, is R6623.88/ton oil.

Table 6.10: Summary statistics of sunflower value chain calculations

	Units	July 2003
Manufacturer-to-Retail margin	R/ton	3372.37
Raw material as percentage of retail price (Crude Oil)	%	51.40%
Conversion costs as a percentage of retail price	%	13.56%
Packaging as percentage of retail price	%	4.55%

Source: Own calculations

The manufacturer-to-retail margin (Table 6.10) is calculated by deducting the total costs of sunflower oil from the retail price of sunflower oil. Table 6.10 reports a manufacturer-to-retail margin of R3 372.37/ton (R9 996.25-R6 623.88). Within this margin, or "price gap", lie the total costs of administration and marketing of the retailers and wholesalers as well as the profits of the wholesalers, retailers and refineries. Similar to the miller-to-retail margin, not many assumptions are made to obtain the manufacturer-to-retail margin and, therefore, a great deal of emphasis is placed on this measure.

Figure 6.6 below, depicts the trends in the manufacturer-to-retail margin, and the imports of sunflower oil and soybean oil. As previously mentioned, during November and December 2001 the price gap between the world price of sunflower and soybean oil increased significantly as a result of the sharp increase in the price of sunflower crude oil. The impact

of this sharp increase in the price of crude oil on the manufacturer-top-retail margin is illustrated graphically in Figure 6.6. The manufacturer-to-retail margin became negative in this period. With the soybean crude oil price more than US$ 200/ton cheaper than the crude oil price of sunflower, refineries started substituting sunflower oil with soybean oil and imports of soybean oil increased sharply. The fact that the retail price, which was used for the purpose of these calculations, reflects the price of "cheapest cooking oil" on the shelf, and not pure sunflower oil, implies that it reflects the price of blended oil. Pure sunflower oil is always sold at a premium. This premium can in some stores be as high as 30%.

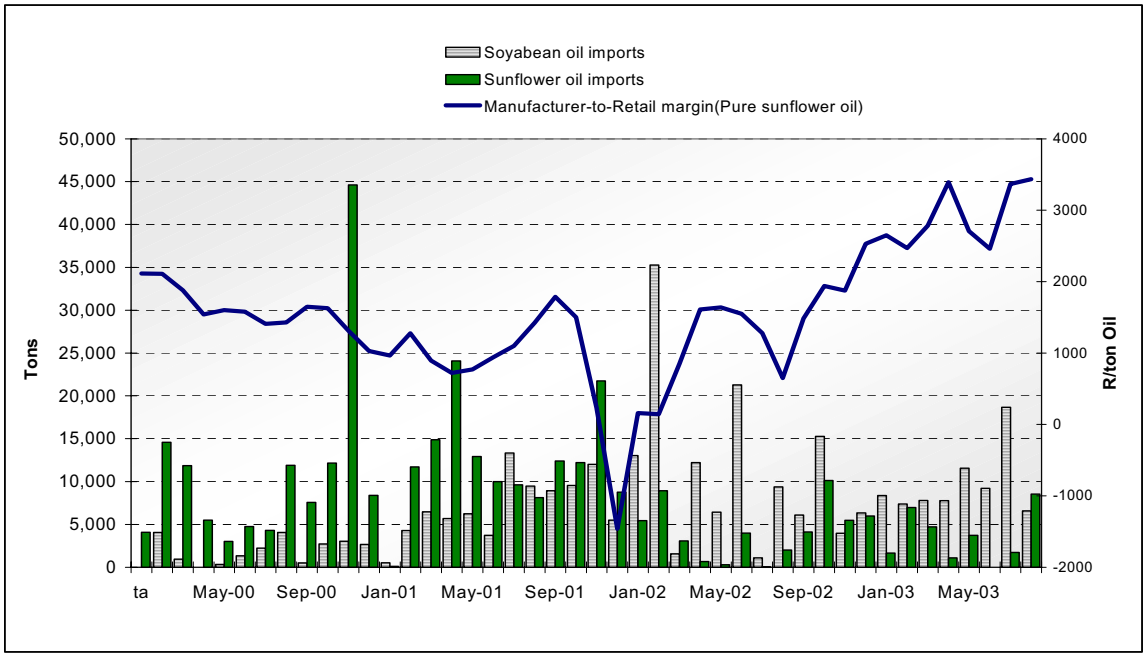

Figure 6.6: Manufacturer-to-retail margin versus oil imports
Source: Department of Trade and Industry & own calculations, 2003

An inverse relationship between the manufacturer-to-retail margin and the level of soybean imports can be identified in the figure above. Whenever the margin decreases the level of soybean crude oil imports increase. From 2001 to 2002 sunflower crude oil imports decreased by 97.2%, while the imports of soybean oil increased by 54.9%. Table 6.11 shows that, apart from sunflower oil, the imports of all the crude oils have increased.

Table 6.11: Oil imports 2000 - 2002

	Quantity Imports (tons): Jan – Dec			% Change	
	2000	**2001**	**2002**	**00- 01**	**01- 02**
Sunflower Oil	130,251	105,979	2,949	-18.6%	-97.2%
Soybean Oil	19,003	85,217	131,960	348.4%	54.9%
Peanut Oil	560	14	18	-97.5%	24.3%
Olive Oil	2,565	2,620	2,837	2.2%	8.3%
Palm Oil	168,174	216,695	236,846	28.9%	9.3%
Cotton Seed Oil	0	19,651	29,522		50.2%
Total	**320,553**	**430,177**	**404,131**	**34.2%**	**-6.1%**

Source: Department of Trade and Industry, 2003

The results suggest that the refineries had to blend different oils into the final product to maintain a positive manufacturer-to-retail margin. Regulations on food safety and

product standards require that sunflower oil, which is labelled as "pure sunflower oil", must contain no less than 90% of pure sunflower oil.

Figure 6.7 depicts the increase in the percentage share of raw material costs and the conversion costs of the value of the final product (retail price of sunflower oil). The price of crude oil entering the value chain is regarded as the "cost of raw material". In July 2003, the cost of raw material was R5 137.75/ton, which resulted in a percentage share of the final product of 51% (R5 137.75/R9 996.25 = 0.51). The share of raw material costs increased from 53% in 2000 to 71% in 2002. Over the past nine months, this share has decreased again to an average of 54%. The main contributing factor to this decrease in the share of the final good was the appreciation of the exchange rate, which led to lower import parity prices. Conversion costs as a percentage of the final value of the product have remained fairly constant over the past four years (14% to18%).

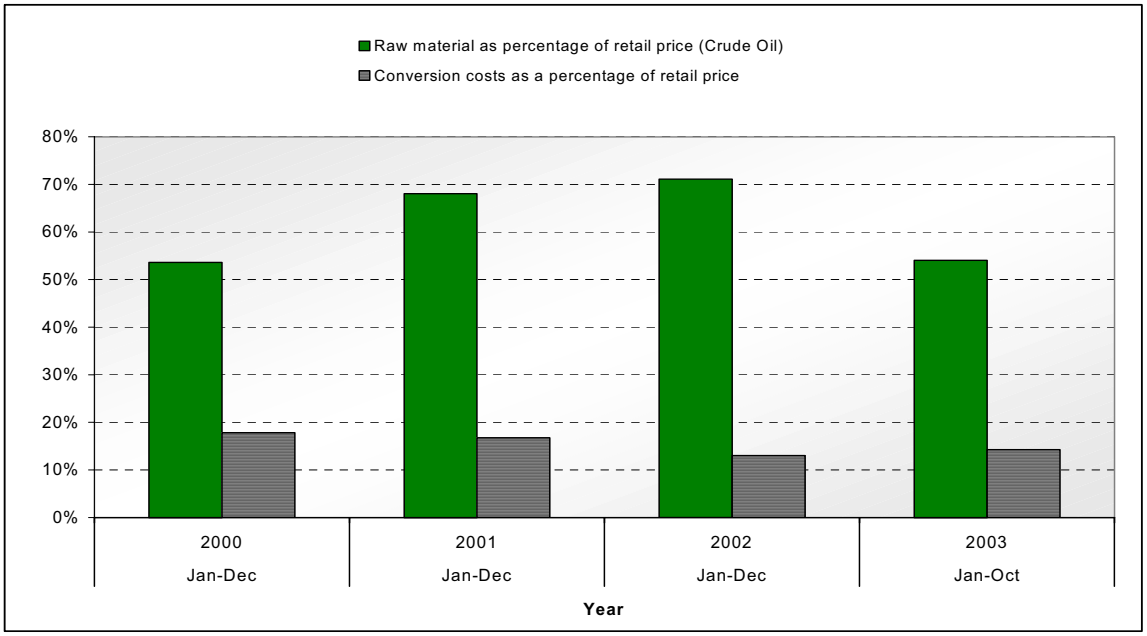

Figure 6.7: Raw material and conversion costs
Source: Industry specialists & own calculations

6.5 Conclusion

There are many factors to be taken into consideration in addressing the critical question of who is capturing profits in this value chain. Firstly, in section 6.2.2 it was mentioned that only 65% of the local crushing capacity is utilised. Secondly, the local crushers have to compete with the international market because crude oil is highly tradable and is therefore traded in high volumes. Finally, and most importantly, opposed to the trends in other value chains, statistical tests in Part Five of the Report show that retail prices of sunflower oil have responded in the same way to upward shifts in raw material costs as to the downward shifts.

Barriers to entry in this market are limited since there is the possibility of 'toll' or contract crushing (R298/ton) which carries the implication that anybody can enter the sunflower oil market. It is for this reason that the Committee is confident that healthy competition exists between domestic producers and processors, as well as importers.