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## **The pricing of commodity raw materials to the South African gold mining industry**

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A research project submitted to the Gordon Institute of Business Science, University of Pretoria, in partial fulfilment of the requirements for the degree of Master of Business Administration.

14<sup>th</sup> November 2007

## Abstract

*The object of government is the welfare of the people – Theodore Roosevelt*

Commodity prices in the South African economy has become a topic of much debate with suppliers, consumers and government involved in a struggle to address issues of monopolies, market dominance and claims of excessive pricing. This document aims to explore to what extent commodity prices affect the gold mining industry, the theory and practicality of monopolistic supplier pricing models, the responses to such behaviour and the role that the competition authorities play in facilitating a free market.

By obtaining industry information, studies of market theory and the review of competition legislation, an understanding of the issues was obtained. After discussion with industry role players (suppliers, mining companies and independent third parties) both qualitative and quantitative data was obtained to answer questions around competition and market dominance.

The findings of the study include:

- Gold mining companies have considerable exposure to Import Parity Pricing for commodities such as steel and chemicals.
- Monopoly suppliers exercise considerable market power over these products.
- Consumers believe that they are being treated unfairly by suppliers and this raises high levels of emotion.
- The competition authorities appear to be unable to manage these issues effectively.
- Government sees this as a problem and is intent on addressing these issues.

## Declaration

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Masters of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other university

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Robert Mark Brown

14<sup>th</sup> November 2007



## Acknowledgements

*There is no IO without U – Sesame Street*

I would like to express my thanks and appreciation for the support and assistance in the compilation of this study:

Family & friends

GIBS faculty

Mike Holland

Sasol Limited

Sasol Nitro

Interview participants

Carlton & Perloff for the quotations

A special thank you goes to my wife, Ayn, for her patience, strength and unwavering support over the last 11 years (but especially the last 2!).....I love you more than I can show.



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## List of abbreviations

ASGISA	Accelerated and Shared Growth Initiative – South Africa
ABET	Adult Basic Education and Training
AECI	African Explosives and Chemical Industries
AEL	African Explosives Limited
AGA	AngloGold Ashanti
BEE	Black Economic Empowerment
COM	Chamber of Mines
COMRO	Chamber of Mines Research Organisation
CPI	Consumer Price Index
DME	Department of Minerals and Energy
DRD	Durban Roodepoort Deep
DTI	Department of Trade and Industry
DWL	Deadweight Loss
EC	European Community
EPP	Export Parity Price
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GFL	Goldfields Limited
IASSA	Investment Analysts Society of Southern Africa
IPP	Import Parity Price
JCI	Johannesburg Consolidated Investments
JSE	Johannesburg Securities Exchange Limited
NUM	National Union of Mineworkers
OPEC	Organisation of Petroleum Exporting Countries
SAA	South African Airways
SARS	South African Revenue Services
SOE	State Owned Enterprise
SSNIP	Small, Significant, Non-transitory, Increase in Price
WTO	World Trade Organisation

## **Glossary of terms and definitions**

### **Complements**

Complements are goods that tend to be used jointly to satisfy a want (Mohr and Fourie, 2005).

### **Demand**

Demand is the quantities of a good or service that the potential buyers are willing and able to buy (Mohr and Fourie, 2005).

### **Export Parity price**

A price set to the world price, converted into the local currency, minus any transport, external tariffs and any other costs that the supplier would incur if exporting (Parr, 2005).

### **Government administered price**

A price that is set by government as the result of administrative process rather than of market forces of supply and demand (Mohr and Fourie, 2005).

### **Import Parity Price**

A price set to the world price, converted into the local currency, plus any transport, tariffs and other costs the customer would bear if importing (Parr, 2005).

### **Substitutes**

Substitutes are goods that can be used in place of another good to satisfy a certain want (Mohr and Fourie, 2005).

### **Supply**

Supply is the quantities of a good or service that producers plan to sell at each possible price during a certain period (Mohr and Fourie, 2005).

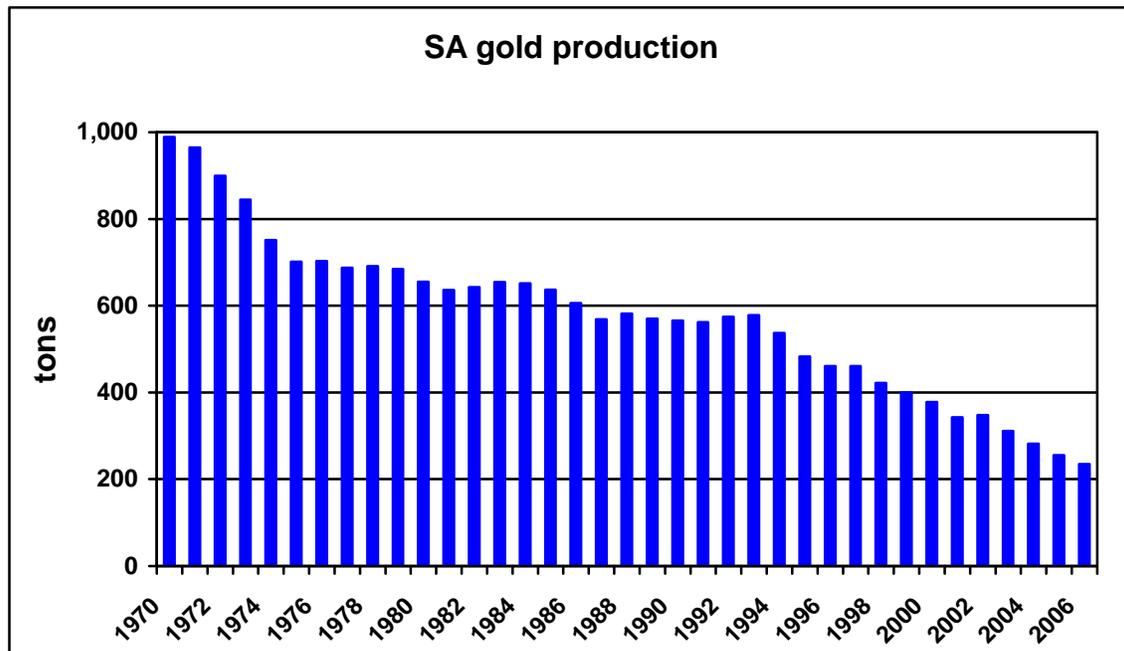
# 1. Introduction to research problem

*A fool and his money are soon parted, what I want to know is how they got together in the first place – Cyril Fletcher*

## 1.1. Background

The South African gold mining industry has been in decline for over three decades with dwindling reserves, declining real selling prices and an increasing cost base for labour and raw materials (Malherbe and Segal, 2000).

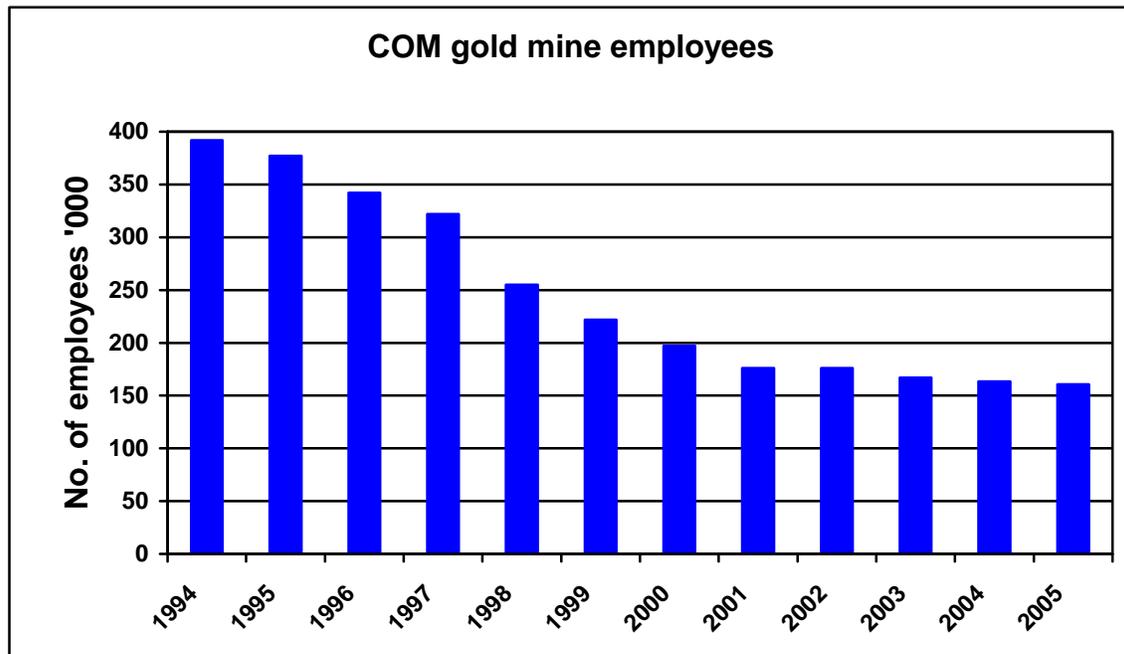
**Figure 1.1: Chamber of Mines annual gold production**



Source: Chamber of Mines (2007)

The impact on the mining companies, employees and the country as a whole has been severe with reduced profits, fewer employment opportunities and falling tax revenues. Regions that have traditionally relied on the gold mining industry as a central employer and the back bone of the local economy have gone into decline and suffered from major disinvestment and socio-economic decay.

**Figure 1.2: Total employees by Chamber of Mines gold mining companies**



Source: Chamber of Mines (2006)

The focus placed on costs has raised several issues in regards to what has been classified as excessive pricing for commodity raw materials such as steel, chemicals and oil products (Crotty, 2005). These products are often priced on an international imported price model, with some link to foreign exchange rates and sees prices typically 30% above the international price (Roberts, 2003).

## 1.2. Research Problem

The research problem can be broadly defined as “to what extent should the South African Government and competition authorities become involved in a free market economy in order to promote competition without over regulation?”

As detailed in the Competition Act (1998), involvement by the competition authorities focuses on three main areas:

- the investigation, control and evaluation of restrictive practices
- the abuse of dominant position
- mergers

Hence the role and actions of the competition authorities (the Competition Commission and Competition Tribunal) will have a major impact in the growth and investment of multi-national corporations in South Africa into the future. This in turn will have a long term effect on potential economic growth, employment, skills development and the reduction of poverty.

This paper focuses on the dominant position held by a few monopolistic suppliers of commodity raw materials and whether they are abusing their position of dominance by charging excessive prices for their goods.

### **1.3. Research objectives**

The objective of the research is to explore the costs of commodity raw materials into the gold mining industry and how this is being managed by the various stakeholders. This has been separated into four distinct sections shown as follows:

- Determine the extent to which the gold mining sector is exposed to commodity raw materials using international parity pricing models.
- Examine the theoretical and practical market forces that affect the prices charged for such commodities.
- Review the responses made by the mining industry to what has been described as excessive pricing and abuse of market power by monopolistic suppliers (Roberts, 2006).

- Explore the role and actions of government in its response to claims of anti-competitive behaviour and excessive pricing by dominant suppliers.

In the current climate, the issue of market dominance and alleged abuse by some historically advantaged firms is never far from the business pages and economic journals. This focus applies equally to mature industries such as mining and manufacturing, as well as to more modern industries, such as telecommunications, banking and the airline industry.

When investigating the alleged abuses of dominance in the manufacturing sector, the issue of commodity pricing, based on world prices being charged for locally produced goods, is one area that appeared to require further research.

President Thabo Mbeki referred to the practice of Import Parity Pricing and “the need to examine the impact on the competitiveness of downstream users” in his 2005 State of the Nation address (Wray, 2005).

Similarly, the Minister of Trade and Industry, Mandisi Mpahlwa, stated that Import Parity Pricing (IPP) is a problem in the South African economy and promised a series of measures to deal with the problem (Parr, 2005).

## **1.4. Scope and limitation of this research**

### **1.4.1. Scope**

The scope of the research is the extent of commodity pricing of raw materials to the South African mining industry, the extent to which they play a role in the profitability of the gold mines, the responses made by the gold mines to such pricing models and the role that the government and competition authorities have in response to such allegations of abuse of market dominance.

#### **1.4.2. Potential limitations**

The potential limitations to this study include the following

- Relatively low numbers of respondents that do not represent an accurate reflection of the views of the industry as a whole.
- Individual respondents having personal opinions that do not accurately represent those of their employer.
- Outdated secondary information as the profitability and cost structure of the gold mines.
- Bias during the interview process as a result of my employment by Sasol Nitro - one of the commodity suppliers to the gold mines.
- Inaccurate interpretation of the qualitative data provided by the respondents during the interview process as a result of my pre-held beliefs.
- The use of personal friends/colleagues as respondents resulting in data that could not be replicated if interviewed by others.
- A over simplification of the complex underlying economic models used for the quantitative data sourced.

## 2. Literature review

*Why a four year old child could understand this report, run out and find me a four year old child, I can't make head or tail of it – Groucho Marx*

### 2.1. Macroeconomic principles

As far back as 1776 when Adam Smith wrote his book 'An inquiry into the nature and causes of the wealth of nations', people already realised that macroeconomic drivers were about self interest and the need for business to maximise profits, which would ultimately lead to social benefits.

Smith (1776) stated "It is not from the benevolence of the butcher, the brewer or the baker that we expect our dinner, but from their regard to their own self interest. We address ourselves, not to their humanity, but to their self-love".

In realising that the aim of a company is to create value for its shareholders, it should be considered that each company wishes to maximise this value and that this is not an undesirable phenomenon (Mohr and Fourie, 2005).

Bender and Ward (2003) summarised that whilst other stakeholders are important, the shareholder is the principal stakeholder and the creation of shareholder value is the main objective.

Saville (2006) suggests that the focus of macroeconomics should be on growth, employment, price stability and external sector stability in order for national economies to achieve their desired level of Gross Domestic Product (GDP) growth and this has been achieved historically through 3 broad economic solutions:

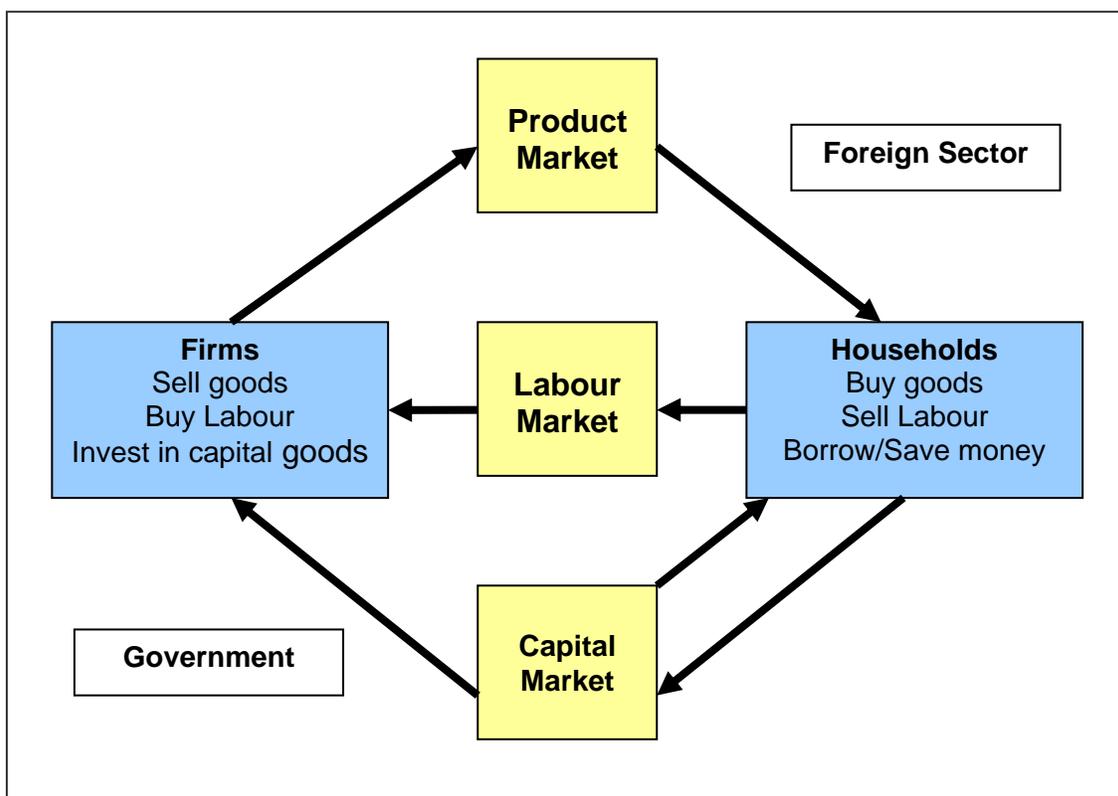
- Market based - e.g. Western Europe, USA, Hong Kong.
- Command and control - e.g. Former USSR, Cuba, China.
- Mixed - e.g. Sweden, Denmark, Iceland.

McAleese (2004) suggests that at the start of the 21<sup>st</sup> century economic policies throughout the world have converged around three basic principles:

- An emphasis on using market mechanisms to achieve objectives, with resort to state intervention on a highly selective and targeted basis.
- Macroeconomic policy is oriented to ensuring a stable economic framework rather than achieving proactive counter-cyclical targets or national growth rates.
- National policies have become more outward looking as shown by increased membership of the World Trade Organisation (WTO), the relaxation of capital mobility and a globally more benign stance towards foreign investment.

The market system can be sketched by reference to three major markets (figure 2.1) – the product market, the labour market and the capital market. These markets link two primary sets of participants namely firms and households with government and the foreign sector as key role players (McAleese, 2004).

**Figure 2.1: The Market System**



Source: McAleese (2004)

McAleese (2004) adds that Government is an important participant in the market, not only in a regulatory role, but as with most industrialised countries, the South African government represents about 40% of total national expenditure. McAleese further recognises that if economics is primarily about the market economy, then prices are determined by supply and demand and this then plays a key role in determining production and allocation of output.

Saville (2006) suggests that macroeconomic policy can be modelled from the early thoughts of Adam Smith and the 'invisible hand' controlling prices, through to Keynesian thinking about how governments should take control and spend large amounts of money to control economies. However, Milton Friedman and more recently Arthur Laffer, have focused on the money side of the economy and

the general view that economies need to be liberalised as governments are too big, too lethargic and taxes are set too high.

Lewis (2007) noted that Laffer had suggested “the three main reasons that major countries experience economic declines are:

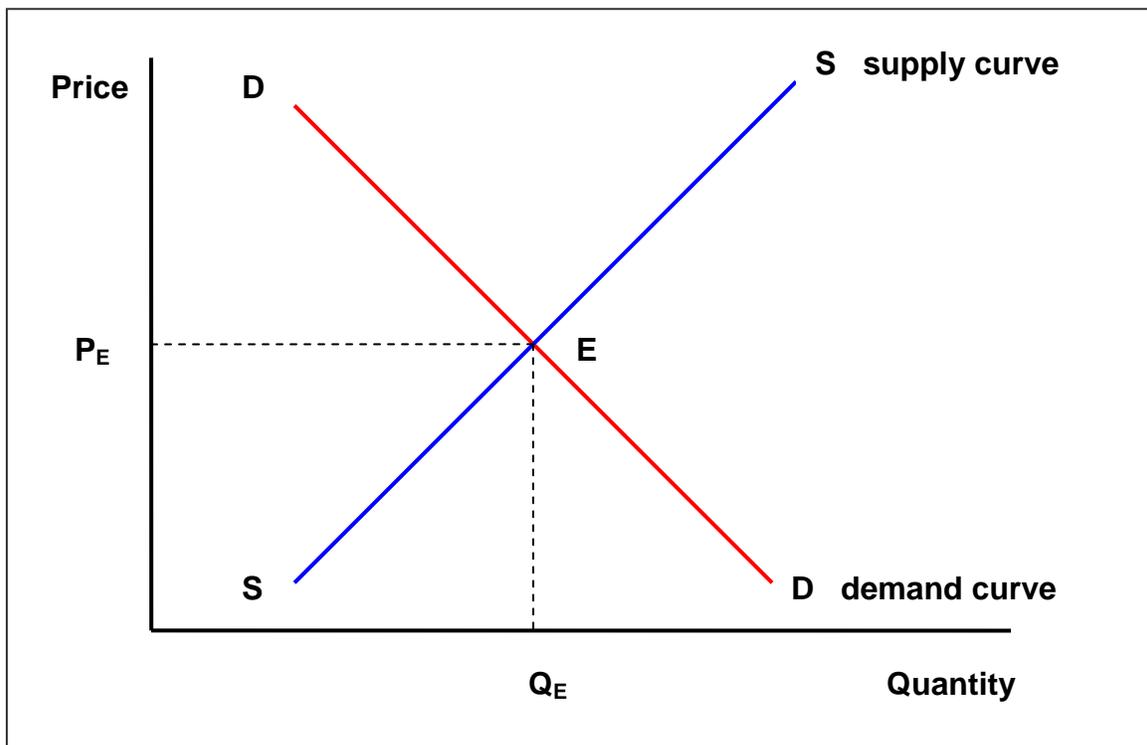
- Unstable monetary conditions
- High or rising tax rates
- Excessive or crushing regulation of pricing and salaries or other wage types”.

## 2.2. Supply & Demand microeconomics

Much has been written about supply and demand and how these two factors interact to result in the price for a good or service. McAleese (2004) summarised the underlying philosophy as “if demand exceeds supply, price tends to rise. If supply exceeds demand, price tends to fall”.

The simplest format that this takes is one where supply and demand curves are plotted and intersect at a point that is called market equilibrium E (Figure 2.2)

**Figure 2.2: Supply & demand curves to indicate equilibrium price**



Source: McAleese (2004)

Whilst this basic model may be familiar to most scholars of business economics, it is perhaps important to re-iterate that at point E, market equilibrium is reached and there is no tendency for price to either rise or fall and provided that the assumptions of a competitive market hold, there will be a continuous tendency to move towards the equilibrium point (McAleese, 2004). This is the natural state of

affairs and any interference by government or other third parties will need constant re-application in order to prevent market forces naturally moving prices back to point E over time.

### 2.2.1. Demand characteristics

Mohr and Fourie (2005) state that economics is concerned with scarcity and there are simply not enough goods and services to satisfy everyone's wants. Wants are unlimited, but the means with which the wants can be satisfied are limited.

Their definition of the quantity of a good demanded for an individual in a particular period of time is a function of the price of the good, the price of related goods, the income of the consumer, taste, the number of people in the household concerned and any other possible influence.

For the market demand curve this can be expressed mathematically as follows:

$$Q_d = f(P_x, P_g, Y, T, N, \dots)$$

Where	$Q_d$	=	quantity demanded
	$P_x$	=	price of the good
	$P_g$	=	price of related goods
	$Y$	=	income of the consumer
	$T$	=	taste of the consumer
	$N$	=	number of people in the household
	.....	=	allowance for other possible influences

To calculate total market demand, the various demand curves for each consumer can be added together to get a summary market demand curve, which can be used for any variable of price or quantity indicating a change in quantity demanded. This can be further developed to a change in demand where the

demand curve is shifted, as a result of changes any of the variables shown in the above equation (Mohr and Fourie, 2005).

Appendix 1 explores the factors that cause a change in the demand curve and the results that are typically seen in the market.

### 2.2.2. Supply characteristics

Mohr and Fourie (2005) defined supply as the quantities of a good or service that producers plan to sell at each possible price during a certain period. In a similar but opposite way, demand is a function of the price of the good, the price of alternative outputs, the price of the factors of production, the expected future price of the good, the state of technology and the number of firms supplying the good.

For the market supply curve this can be expressed mathematically as follows:

$$Q_s = f(P_x, P_g, P_f, P_e, T_y, N, \dots)$$

Where	$Q_s$	=	quantity supplied in the market
	$P_x$	=	price of the good
	$P_g$	=	price of alternative outputs
	$P_f$	=	price of factors of production and other inputs
	$P_e$	=	expected future price of the good
	$T_y$	=	technology
	$N$	=	number of firms supplying the good
	.....	=	allowances for other possible influences on the quantity supplied

Whilst similar to the demand side calculations, other possible influences include government policy, natural disasters, joint and by-products and productivity led by technology. Again, changes to any of the factors influencing supply can result

in a change in the quantity supplied and cause the curve to move for either increased or reduced supply.

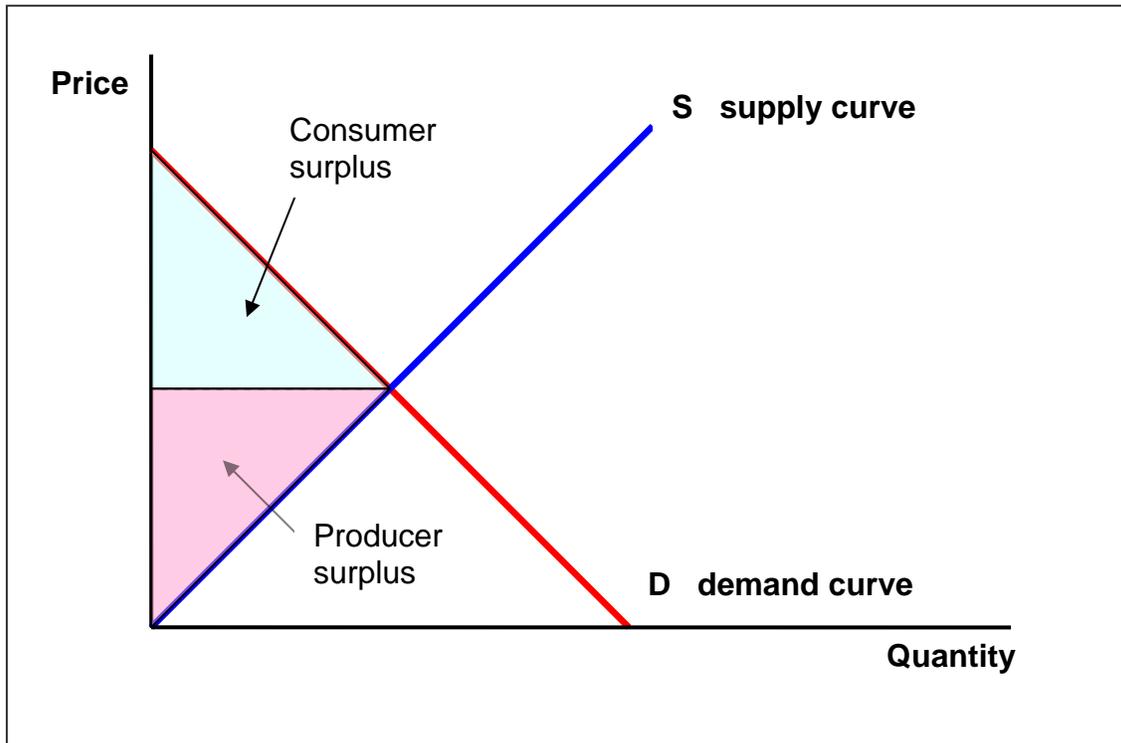
Appendix 2 explores the factors that cause a change in the supply curve and the results that are typically seen in the market.

Two other concepts that economists face based on supply and demand characteristics, are those of consumer surplus and producer surplus. These are important concepts as they lead into more complex economic understanding of price elasticities and marginal costs. These well documented concepts and have been described by Carlton and Perloff (2005) as follows and are shown graphically in Figure 2.3.

Consumer surplus – the amount above the purchase price paid that, a consumer would willingly spend if necessary, to consume the units produced as some consumers' value the goods they purchase, above the amount they actually pay for them.

Producer surplus – the largest amount that could be subtracted from a suppliers' revenues and yet the supplier would still willingly produce the product as some firms may receive more for the goods than it costs them to produce.

**Figure 2.3: Consumer and producer surplus**



Source: Carlton and Perloff (2005)

### **2.2.3. Market efficiency**

Carlton and Perloff (2005) go on to describe other key issues around supply and demand microeconomics, namely those of market efficiency, welfare and deadweight loss.

Market efficiency - A competitive equilibrium of price and quantity has two desirable efficiency properties:

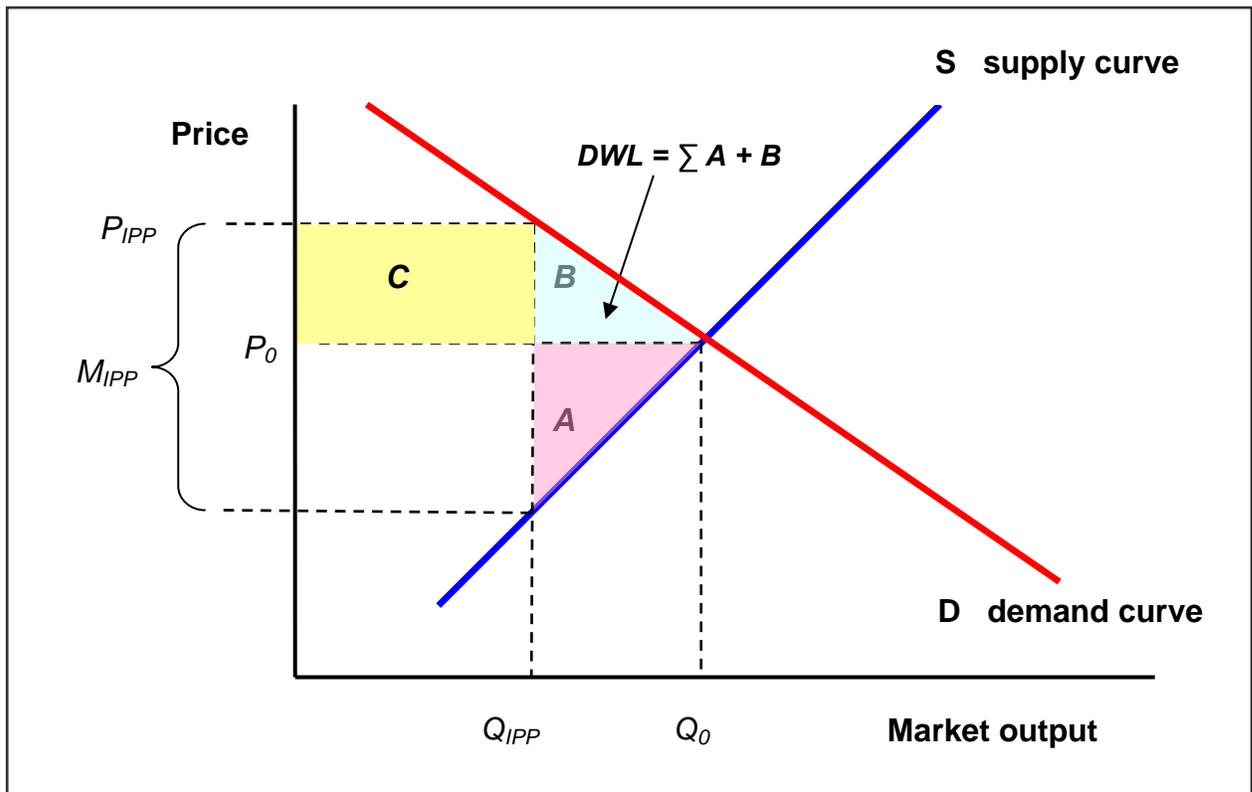
- Production is efficient in the sense that there is no possible rearrangement of resources (such as labour, machines and raw materials) amongst firms that can increase the output of one product without reducing the output of at least another product.
- Consumption is efficient and the value that a buyer places on consuming the good is exactly equal to the marginal cost of producing

the good and that no rearrangement of goods among consumers can benefit a consumer without harming at least one other consumer.

Welfare - One common measure of welfare from a market is the sum of consumer surplus and producer surplus as shown in Figure 2.4. Welfare is maximised when the equilibrium price is reached such that the two areas are of equal size (Carlton and Perloff, 2005).

Deadweight loss - The cost to society of a market not operating efficiently is called deadweight loss (DWL) and this can be described as the sum of the consumer surplus and producer surplus lost when a deviation is made from the equilibrium price (Carlton and Perloff, 2005).

**Figure 2.4: Deadweight loss (DWL) from Import Parity Pricing**



Source: Parkin (2003)

If equilibrium is at price  $P_0$  and quantity  $Q_0$ , then the value a consumer places on additional consumption equals the marginal cost of producing the good. If a supplier is able to charge a higher price (such as Import Parity Pricing) then the link between the value a unit of production and the marginal cost is broken, effectively reducing welfare.

In figure 2.4 the supplier is able to charge  $P_{IPP}$  per unit of goods sold. Thus this higher price creates a wedge ( $A + B$ ) between the value that the marginal demander places on the good and the cost the marginal supplier is willing to incur to produce the good. The use of IPP reduces the quantity demanded from  $Q_0$  to  $Q_{IPP}$  and hence results in lower consumption, but at higher prices with an increased margin for the supplier of  $M_{IPP}$ . The sum of the two areas  $A + B$  equals the deadweight loss to society and consumers lose rectangle  $C$  to the suppliers.

### **2.3. Corporate strategy**

Druker (1995) stated that information about a business directs tactics, but for strategy a company needs organised information about the environment. Hence a basic understanding of the environment in which business operates in South Africa today is important to provide insight as to why firms operate as they do. One method to obtain this insight is a simple PEST analysis as suggested by Johnson and Scholes (1999).

#### **2.3.1. PEST Analysis – Johnson and Scholes**

This information can be sourced from many areas; Johnson and Scholes (1999) suggested a political, environmental, social and technological (PEST) approach to better understand the business arena that a firm operates in.

- Political – Much has been written about the political reforms in South Africa over the last 2 decades, what may be more pertinent to the gold

mining industry is the rise in black unionism and the extensive legislative reforms that have taken place in the last 20 years.

Malherbe and Segal (2000) point out that the first legal strike undertaken by the National Union of Mineworkers (NUM) took place in 1984 and that this led to an escalation in conflicts between the mining companies and NUM until a climax was reached in 1987 with the largest mining industry strike ever seen. This led to massive dismissals from a peak in gold mine employment at 534,255, which has been in decline ever since. This does not imply that the job losses were a response to union power but that they were part of a potent mix of wage rises, changing gold price and costly technological challenges to deep level gold mining in general. This resulted in fewer but better paid employees with real unskilled wage levels increasing four fold between 1970 and the late 1980's.

- Environmental – In 1980 the gold price spiked at over \$800 per ounce ushering in a period of optimism in the gold mining industry. This increase in margins saw expansion in capital investment as well as employment, but this growth came under severe pressure when gold slumped to a low of \$260 per ounce in 1999. In the early 1990's fully half of the shafts in the South African gold industry were making a loss (Malherbe and Segal, 2000).
- Social – A rise in adult basic education and training (ABET) programmes has seen an increase in skills and literacy in all sectors of the mining and manufacturing sectors and the educational profile of new hires has improved with more than 60% having matric or at least some secondary schooling. The imposition of the skills development levy has taxed the mining industry in order to pay for training and in addition mining houses are estimated to spend between 5 and 10% of

payroll on skills and training programmes. According to the 1996 population census, one in ten South African men with a job was employed in the mining sector and for African men this rose to one in seven. The census also showed several magisterial districts derive large portions of their income from mining, with Westonaria, Virginia, Oberholzer and Odendaalsrus having in excess of 50% of their income generated from gold mining (Malherbe and Segal, 2000).

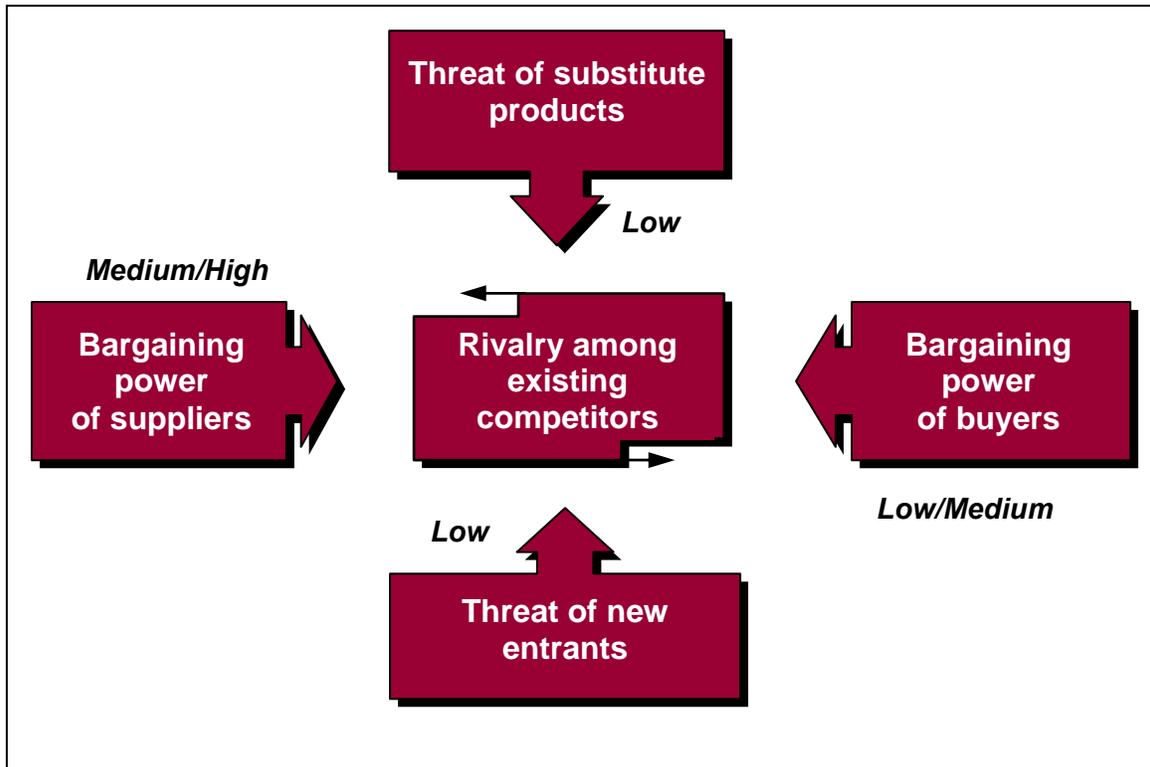
- Technological – South Africa’s mineral production base, has led to technology providers that are internationally competitive in a number of areas, including explosives, drills and abrasives and extraction plants. Major technological developments have also been made in areas of extraction, engineering design, rock mechanics, excavation, purchasing and inventory and integrated IT systems (Malherbe and Segal, 2000).

This framework would apply equally to both consumers and producers alike and is important in understanding why firms follow the strategies and tactics that we see today.

### **2.3.2. 5 force model - Porter**

A well examined model for an industry’s dynamics is the 5 force model as developed by Porter (1979). Porter identified 5 key factors that influence an industry’s competitiveness:

Figure 2.5: Porter's 5 force model



Source: Porter (1979)

For commodity suppliers such as ArcelorMittal or Sasol, the threat of substitutes or new entrants is low due to the huge capital investment required to enter such markets. The bargaining power between suppliers and buyers is subjective, but initial analysis would suggest that being dominant suppliers (Crotty, 2005) with large market share, they have the balance of power. This is tempered somewhat by multi-national mining companies such as Anglo American and BHP Billiton flexing ever increasing muscle in terms of world wide supply tenders.

Porter (1979) proposed that the strongest force determines the profitability or otherwise of the industry and this can be seen to be evident by the use of parity pricing models for locally produced goods sold at international prices.

Coyne and Subramanian (1996) reviewed the work done by Porter and made note of three assumptions that were tacitly built in to the 5 force model:

- An industry consists of a set of unrelated buyers, sellers, substitutes and competitors that interact at arm's length.
- Wealth will accrue to players that are able to erect barriers against competitors and potential entrants; in other words the source of value is structural advantage.
- Uncertainty is sufficiently low that you can predict participant's behaviour and choose a strategy accordingly.

In an increasing globalised economy, previous ways of business may have supported the first point raised by Coyne and Subramanian. However Wolf (2005) defined globalisation as “the free movement of goods, services, labour and capital, thereby creating a single market in inputs and outputs” hence suggesting that buyers, sellers and competitors no longer operate at arms length and in fact operate in a single global market.

Barriers to competition may currently consist of factories, skills and intellectual property, however Gray (2002) argues that globalisation is driven by new technologies that greatly reduce distance and time, links economic life throughout the world more extensively and intensively and is the result of technological advances, not policies or political developments. In effect technology will break down barriers to entry and firms will face a constant challenge from global players.

Carlton and Perloff (2005) refer to work carried out by Bain (1956) who identified 3 main barriers to entry:

- Absolute cost advantage.
- Economies of large-scale production that require large capital expenditures.
- Product differentiation so as to reduce the degree of substitution.

With commodity product pricing on a “race to the bottom” (Singh, 2006) economies of scale play a very important role for barriers to entry in terms of discouraging competitors from entering into a capital intensive industry. Product differentiation is also difficult for suppliers of commodities unless new technology can result in innovation of the product, process or business model.

Bain (1956) summarised some of the factors associated with barriers to entry across various industries and ranked the industries according to the level of difficulty for new entrants – see Table 1:

**Table 1: Barriers to entry scaling** *(Higher scores indicate greater barrier to entry)*

Industry	Scale economy	Product differentiation	Absolute cost	Capital requirement	Overall
Automobiles	3	3	1	3	Very high
Cigarettes	1	3	1	3	Very high
Liquor	1	3	1	2	Very high
Tractors	3	3	1	3	Very high
Shoes	2	1-2	1	0	-
Soap	2	2	1	2	Substantial
Steel	2	1	3	3	Substantial
Tyres	1	2	1	2	Moderate to low
Meat packing	2	2	2	0-1	Moderate to low
Cement	2	1	1	2	Moderate to low
Flour	1	1-2	1	0	-

Source: Bain (1956)

Industries with very high barriers to entry could elevate price 10% or more above competitive levels. Substantial and moderate to low entry barriers allow prices to be in excess of competitive levels by 7% and 4% respectively (Bain, 1956).

Richardson (1999) identified that steel is a vital ingredient for industrialisation and for long its strategic nature as a material required for the implements of war had

made it important to national governments. These attributes make steel demand a derived demand, very much linked to the level of overall economic activity. It therefore has a high income elasticity of demand and hence it is price inelastic, with a price elasticity of typically  $\pm 0.3$  to  $\pm 0.5$ .

## **2.4. Organisation Theory**

### **2.4.1. Competition**

De Bono (1992) stated that the purpose of competition is to benefit the consumer by keeping prices down and quality up. Competition also benefits the economy as a whole, by ensuring the most efficient use of resources and encouraging enterprise.

Perfect competition occurs when none of the individual market participants (i.e. buyers or sellers) can influence the price of the product and for perfect competition to exist the following conditions have to be met (Mohr and Fourie, 2005) :

- A large number of buyers and sellers.
- No collusion between sellers.
- The goods must be identical and homogenous.
- Complete freedom of entry and exit to buyers and sellers.
- All buyers and sellers have perfect knowledge of market conditions.
- No government intervention influencing buyers and sellers.
- Factors of production must be perfectly mobile.

Hence it should be a reasonable assumption to state that there is no such thing as a perfect competition and it is only a degree of shading that separates cartels from monopolies, oligopolies and monopolistic competition (Mohr and Fourie, 2005).

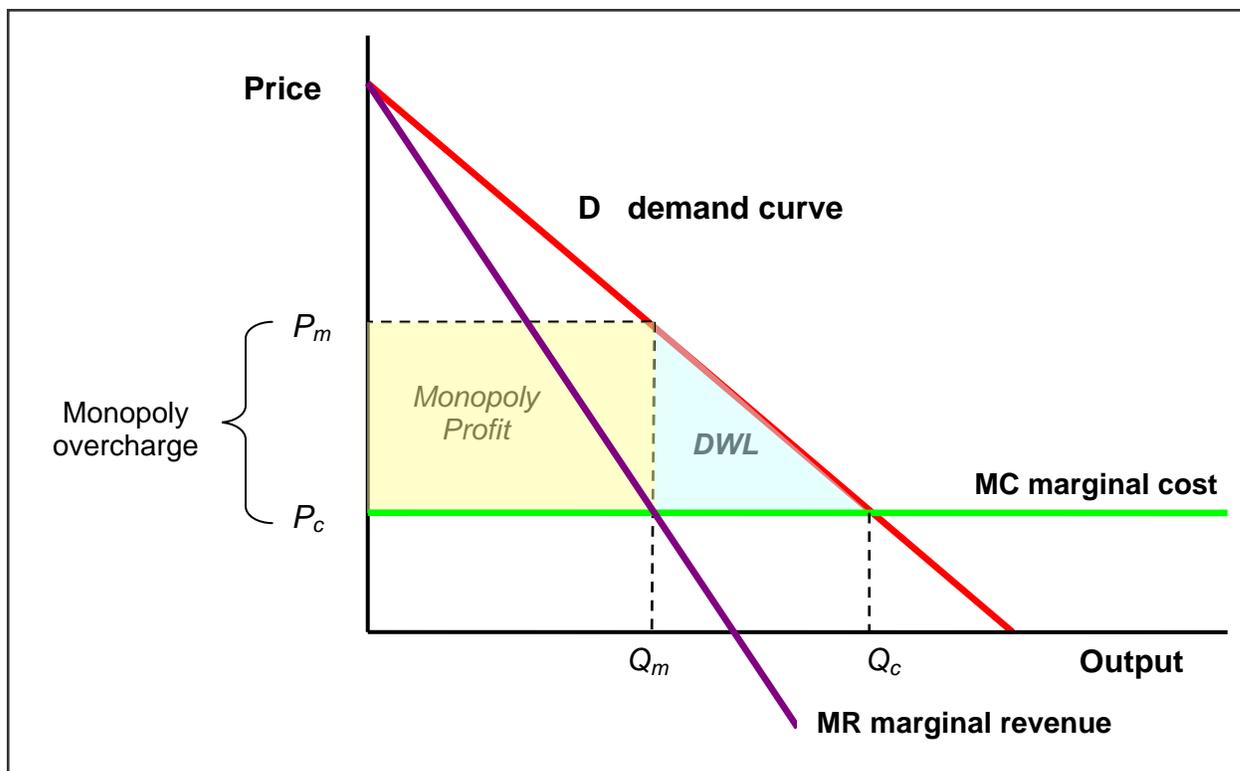
Ignoring cartels as these generally only operate outside of the law or in very unique circumstances (e.g. organised crime, OPEC etc.) Carlton and Perloff (2005) describe a monopoly as the only supplier of a product for which there is no close substitute and that a monopoly sets its price without fear that it will be undercut by a rival firm.

### 2.4.2. Monopoly

A monopoly faces a downward sloping demand curve and sets a price above marginal cost. As a result, less is sold than if the market were competitive (where price equals marginal cost) and society suffers a deadweight loss.

To maximise its profit, it has an incentive to produce its output efficiently and only its behaviour and government regulations influences the firm's ability to become and remain a monopoly.

**Figure 2.6: Monopoly profit maximisation**



Source: Carlton and Perloff (2005)

A monopoly maximises its profit when the extra revenue from selling one more unit just equals the extra cost of producing the last unit of output. That is, profit is maximised when marginal revenue equals marginal cost ( $MR = MC$ ).

The profit maximising output  $Q_m$ , is smaller than the competitive output  $Q_c$ , determined by the intersection of the demand curve with the marginal cost curve at price  $P_c$ . The monopoly does not have a supply curve that can be specified solely as a function of the price because the monopoly's output depends on marginal revenue (which depends on the slope of the demand curve) and marginal cost.

In contrast to a price taking competitive firm, a monopoly knows that it can set its own price and that the price chosen affects the quantity it sells and it is common practice to say that whenever a firm can profitably set its price above its marginal cost without making a loss it has monopoly or market power.

Carlton and Perloff (2005) expand their view on monopolistic behaviour and state that the consequences of inefficient behaviour are different for monopolies and competitive firms. An inefficient competitive firm may not be able to remain in business because it is unprofitable, but an inefficient monopoly can profitably remain in business. This observation has led some to conclude that the monopoly strives less hard to be efficient (called *x-inefficiency* by Leibenstein, 1966) than does a competitive firm.

This argument is rejected by many economists who believe that monopolies, like other firms, prefer more to less. Monopolies want to maximise profits and the only way a firm can do this is to minimise its costs at its chosen level of output. Therefore to postulate that monopolies want to maximise their profits is to assume implicitly that they also minimise their costs (Carlton and Perloff, 2005).

It is perhaps important to recognise the phenomenon of Dynamic Efficiency and its effect on a free market. McAleese (2004) proposes that whilst competition tends to lead an economy to static efficiency, over time the pressures of such competition will also ensure that costs are kept to a minimum and that firms have a powerful incentive to seek more effective ways of producing and distributing their output. Any additional surplus can then be re-invested into R & D and innovation processes to further reduce costs or improve on quality.

#### **2.4.3. Monopsony**

A monopsony is the opposite of a monopoly in that it is a single buyer in a market and can also result in a deadweight loss to society. The monopsony decides how much to buy of a resource (normally more associated to labour rather than physical goods) and it too affects the price for the resource. A monopsony buys more of the resource as long as the value of the extra consumption as given by its demand curve equals or exceeds its marginal cost of consuming one more unit.

#### **2.4.4. Dominant firms with a competitive fringe**

More common in commodity markets is the concept of dominant firms with a large market share. The larger, dominant firms is the price setter and faces smaller, price taking firms often called fringe firms that together may have a substantial share of the market (Carlton and Perloff, 2005).

Analysis has shown that a dominant firm's price setting behaviour depends on the ease of entry by fringe firms. This leads to two conclusions:

- Generally it is not in a profit maximising dominant firm's best interest to set its price so low that it drives all competitive fringe firms out of the market.

- The presence of competitive fringe firms or the threat of entry by additional firms may force a dominant firm to set a price lower than the price a monopoly would set.

#### **2.4.5. Oligopoly**

Although there is only one model of competition and one model of monopoly, there are many models of oligopoly: a small number of firms acting independently, but aware of one another's existence. Because there are only a few firms, each firm can affect market price and thus oligopoly differs from competition and monopoly in that a firm must consider rivals' behaviour to determine its own best policy (Carlton and Perloff, 2005).

Much has been written about oligopolies and there exists many models on how they function, the more common models being the Nash equilibrium (Nash, 1951), the Cournot duopoly and group models (1838), the Bertrand model (1883) and Stackelberg (1934) (Carlton and Perloff, 2005). These models are relevant background information but are not examined in detail in this study.

#### **2.4.6. Concentration**

An important factor in determining the structure of a market or industry is the degree of concentration and one technique economists use to quantify the extent to which a market is dominated by a small number of large firms is the four-firm concentration ratio (Mohr and Fourie, 2005).

Mohr and Fourie (2005) explain this as the percentage of total value of assets, output or sales in an industry that is accounted for by the four largest firms in the industry. These types of ratio measures are used around the world and have been developed into more complex models such as the Herfindahl-Hirschman Index (HHI) which is used extensively among competition authorities to measure degrees of competitiveness.

## 2.5. Competition law and its practical application

In South Africa, legal issues around competition, the evaluation of restrictive practices, abuse of dominant positions and mergers take their lead from the Competition Act, No.89 of 1998.

The Act sets out to provide guidance on issues of:

- Excessive concentrations of ownership and control within the economy.
- Inadequate restraints against anti-competitive practices.
- Unjust restrictions on full and free participation in the economy.
- The economy being open to greater ownership by a greater number of South Africans.
- Credible competition law and structures for an efficient functioning economy.
- Efficient economic environment balancing the interests of workers, owners and consumers.

This and other legislation is administered by the Competition Commission and Competition Tribunal who have powers to impose substantial fines on firms engaging in prohibited practices.

Zalk and Roberts (2004) examined in more detail the issues of concentration and market power in relation to issues such as Import Parity Price (IPP) models and concentration in certain key industries such as steel, motor vehicles and basic chemicals. They concluded that South Africa is under developed in comparison to other developing countries and that the effectiveness of competition policy needs to be revisited.

Further studies in the area of Import Parity Pricing were carried out by Holden (2005) who questioned whether Import Parity Pricing was *prima facie* evidence of exercise of market power. The author concluded that IPP was not necessarily

*prima facie* evidence of exercise of market power and it is actually a limiting price in an open economy.

Lewis (2002) examined the argument that competition law in developing countries is an unaffordable luxury and concluded that the only argument against competition regulation of any kind in a developing country relates to the capacity for effective implementation.

Lewis (2004) later proposed that 'natural monopolies' in South Africa (i.e. where market scale suggests that there is only room to support a single efficient provider) can be adequately controlled in two ways, namely by the competition authorities having jurisdiction over all competition issues without interference from other regulators and the vigilant monitoring of all current and previously state owned enterprises that have market dominance or an anti-competitive structure.

In the United Kingdom, the legal guidelines to their Competition Commission are set out in a similar manner to those in South Africa and focus on market definition, assessment of competition, remedial action and public interest cases (Competition Commission UK Guidelines, 2003).

It introduces the important idea of market definition being based on both product dimension and geography and raises the key issue of substitutability playing a crucial role in order to determine an accurate market definition.

## **2.6. Market definition and market power**

Massey (2000) identified that market definition has long been a controversial issue in competition and merger cases. It is important to clearly define a product market as this either confirms or denies whether a producer is dominant in that market and hence how the Competition Act is applied.

Massey (2000) refers to case law from the US, UK and Ireland as well as an economic test for market definition. This test examines cross-price elasticity, price correlations, product flows, a partial adjustment approach as well as causality as reviewed by numerous authors over the last 30 years.

The introduction of the SSNIP (Small, Significant, Non-transitory, Increase in Price) test in 1982 by the US Department of Justice established a new approach to market definition by testing whether a hypothetical monopolist could sustain a price increase of 5% for at least one year and ultimately whether this would force consumers to substitute products (Massey, 2000).

This SSNIP test was subsequently adopted in the UK by the Competition Commission and other Anti-Trust authorities across the globe and although is seen by some as the acid test as to how dominant a supplier, it is often challenged by suppliers (Massey, 2000).

Massey (2000) goes on to conclude that whilst market definition is important, it is only a means to an end and that ultimately market power is the real issue of interest and that this can be closely measured using analysis of the residual demand curve and its elasticity, as put forward by Kamerschen and Kohler (1993).

Parr (2005) questioned whether the practice of Import Parity Pricing was a source of market power or a competitive constraint that actually caps prices for locally produced goods and could go so far as killing a local industry such as textiles. In summarising, Parr found it difficult to condemn Import Parity Pricing outright and suggested that some of the negative effects of IPP should be addressed through other policy instruments as difficult as this may be.

## **2.7. Summary of relevant Competition Authority cases**

### **2.7.1. Competition Commission investigation : Sasol Polymers**

In December 2003, the Competition Commission South Africa found that Sasol Polymers was strongly dominant in the national market for polymers (plastics) such as Polyvinyl Chloride (PVC) and Low Density Polyethylene (LDPE). Sasol Polymers openly practiced pricing based on IPP, but the Commission found that this did not imply excessive pricing and even acknowledged that this may be a competitive constraint rather than the outcome of anti-competitive mechanisms (Competition Commission RSA, 2003, pp.14).

The report went on to say “in light of domestic polymer producers adopting an IPP strategy, the DTI might well be advised to investigate the role of tariffs in artificially holding up the domestic polymer price” (Competition Commission RSA, 2003, pp.14), thereby implying that Government’s role in tariff administration was a key driver of local prices and competitiveness.

### **2.7.2. Harmony Gold Mining Limited v Mittal Steel South Africa**

On 27th March 2007, the Competition Tribunal found that Mittal Steel SA (now ArcelorMittal South Africa) had contravened the Competition Act of 1998 by the charging an excessive price for its flat steel products to the detriment of consumers (Competition Tribunal, 2007). On 6<sup>th</sup> September 2007, the Tribunal imposed a R691,800,000 fine on ArcelorMittal South Africa which represented approx. 5.5% of the R12.7 billion flat steel sales of 2003 financial year. The Tribunal is entitled to impose a penalty of up to 10% of a firm’s annual turnover for such contraventions.

The Tribunal also ordered ArcelorMittal SA to stop imposing conditions on the resale of flat steel products brought from it. These conditions had effectively prevented merchants that received steel at comparatively attractive prices from

selling the product to domestic customers (Business Report, 7<sup>th</sup> September 2007).

## **2.8. Government objectives**

In 2004 the Government stated that its core objectives were to halve poverty and unemployment by 2014 (Office of Deputy President – South Africa, 2006). This was to be achieved through a sustained GDP growth rate of 5% per annum.

After analysis and consultation, a list of Binding Constraints on achieving these objectives was identified as follows (Office of the Presidency – South Africa, 2004):

- Volatility and level of the currency.
- The cost, efficiency and capacity of the national logistics system.
- Shortage of suitably skilled labour amplified by the impact of apartheid spatial patterns on the cost of labour.
- Barriers to entry, limits to competition and limited new investment opportunities.
- Regulatory environment and the burden on small and medium businesses.
- Deficiencies in state organisation, capacity and leadership.

Hence the Government has clearly identified that job creation, industry concentration and competition regulations are important issues in the future economic growth of South Africa.

### 3. Research Questions

*If it moves, tax it; If it still moves, regulate it; If it stops moving, subsidise it -  
Ronald Reagan*

In 2002, the Department of Trade and Industry (DTI) published a discussion paper titled *Accelerating Growth and Development – The contribution of an integrated manufacturing strategy*, in which it identified government actions and partnerships for performance to grow the South African economy through global expansion and a sustainable growth orientated macroeconomy. The following statement was made:

“South Africa’s economic development is founded upon its natural resources endowments. However, we have failed to fully capitalise on these resources even though there has been significant progress made in the past eight years in value addition and beneficiation of raw materials.... issues to be addressed include Import Parity Pricing... beneficiation is the core mechanism for the transformation of our economy” (DTI, 2002, pp.34).

Zalk and Roberts (2004) explored the issues of market power in a resourced based economy and identified the following research agendas as still outstanding:

- The role of large, resource based manufacturing firms in the post-apartheid economy. This is an area which has not received adequate attention in post-1994 policy discourse.
- The relationship between the state and such firms over this period, including consideration of the extent to which the ability of the State to discipline such firms has changed over this period.

- A review of the theoretical approaches pertinent to analysing these issues in a dynamic sense including competition and regulation theory, institutional economics and the determinants of corporate strategy of large firms.

Hence the chosen questions as stated include the basic theories of economics and strategy in conjunction with the response from consumers and the role and function of government to control and regulate dominant suppliers. These are repeated as follows:

- Determine the extent to which the gold mining sector is exposed to commodity raw materials using international parity pricing models.
- Examine the theoretical and practical market forces that affect the prices charged for such commodities.
- Review the responses made by the mining industry to what has been described as excessive pricing and abuse of market power by monopolistic suppliers.
- Explore the role and actions of government in its response to claims of anti-competitive behaviour and abuse by dominant suppliers.

## 4. Research Methodology

*Aeroflot Airlines: You have made the right choice – Ad campaign for the only airline in the then Soviet Union*

### 4.1. Research design and method

The research design used for the study was a qualitative analysis using inductive reasoning (Zikmund, 2003) and involved the following steps:

- Collection of background secondary data
- Discussion of facts in order to obtain an understanding of the problem.
- Using underlying reasons to draft general conclusions.
- Use of evidence to support the arguments.
- Processing of data collected from personal interviews.
- Analysis of the data collected.
- Formulation of conclusions and report preparation.

The collection of historical data on the suppliers and consumers under review was deemed to be important in order to obtain a better understanding of the firms involved, their financial positions and strategies going forward. This information proved invaluable during the interview process as it facilitated more in-depth discussions than the questionnaire perhaps suggests.

A relatively small sample size was chosen and as the underlying economic theories are generally well known a descriptive approach was preferred to one of an exploratory or causal nature.

Zikmund (2003) suggests that descriptive research seeks to determine the answers to who, what, when, where and how questions and that diagnostic

analysis is sometimes required as the answers do not provide evidence of a casual nature.

Qualitative research has been described as inductive reasoning (Zikmund, 2003) where a logical process of establishing a general proposition on the basis of observation of particular facts is made.

#### **4.2. Population of relevance**

Welman and Kruger (2005) define a population as an entire collection of cases or units about which one wishes to make conclusions. The population of relevance that applied to the research was 'suppliers/consumers and interested expert third parties of commodity materials in the South African gold mining industry'.

The sampling frame or working population was drawn up based on convenience and judgement sampling through personal networks and industry referrals.

#### **4.3. Unit of analysis**

Welman and Kruger (2005) define units of analysis as the members or elements of a population. The unit of analysis that applied to the research was 'the opinion of industry role players including consumers, suppliers, consultants, and other experts'.

#### **4.4. Sample size and sampling method**

The sampling method that was employed in the research was by way of non-probability, convenience & judgement sampling (Zikmund, 2003). People who were most convenient available and displayed appropriate characteristics of knowledge and access to information were targeted.

The bulk of the data was sourced from gold mining or mining contracting companies operating in South Africa, as they were the most likely to know detailed cost breakdowns, industry trends and the responses made by themselves to monopolistic, commodity suppliers of raw materials.

It was felt however, that it was important to source the opinions of the suppliers themselves, as they would probably have opposing, but just as determined views on the issues of market power, pricing and alleged abuse of dominant market share.

In addition to the suppliers and consumers, the opinions of expert, third parties were also sought, in order to achieve a more balanced point of view from interested but not affected parties. These experts were chosen from financial analysts and consultants that had long term relationships with the gold mining industry and could offer possible insights that those directly involved in the supply/demand side may have overlooked.

#### **4.4.1. Response rates**

A total of 17 potential interviewees were identified, 10 consumers, 2 suppliers and 5 independent third parties. All respondents were contacted telephonically and the nature and purpose of the research was explained and if required the questionnaire was sent out electronically prior to the face to face meeting. A total of 11 personal interviews were carried out, the balance was as a result of 4 failures to reply to interview requests and 2 that declined to be interviewed.

Zikmund (2003) defines response rate as the number of questionnaire returned or completed divided by the number of eligible people who were contacted or asked to participate in the study. The response rates for this study were as follows:

- Planned interviews 17
  - Actual interviews 11 (65%)
  - Failed to reply 4 (23%)
  - Declined 2 (12%)

The targeted companies for interviews are shown in Table 2, however, for reasons of anonymity the breakdown of respondents that participated in the study are not shown.

**Table 2: Targeted company respondents**

Description	Company Name
Corporate gold mining companies	Goldfields Limited AngloGold Ashanti Harmony Gold Mining DRD Gold Limited
Junior gold mining companies	Pamodzi Resources Central Rand Gold (2) Great Basin Gold
Mining contractors	Murray & Roberts Cementation DRA Mining
Mining consultants	RSG Global
Commodity suppliers	Sasol Nitro ArcelorMittal South Africa
Others – based on individual experience	Barnard Jacobs Mellet Anglo Platinum Independent mining consultants (2)

#### **4.4.2. Qualitative sampling method**

Qualitative research has also been described as a systematic, subjective approach used to describe life experiences, giving them meaning and thereby gaining insight and generating knowledge (Burns and Grove, 1993).

It is further proposed that with qualitative research, meanings are not obtained through establishing causality, but through improving our comprehension of the whole. Within a holistic framework, qualitative research is a means of exploring the depth, richness and complexity inherent in phenomena (Burns and Grove, 1993).

Burns and Grove (1993) state that the qualitative approach is based on a world view with the following beliefs

- There is not a single reality, reality is based on perceptions, is different for each person and changes over time.
- What we know has meaning only within a given situation or context.

#### **4.5. Details of data collection**

The data collection process was in two parts:

- Pre-reading about the gold mining industry and companies involved, studies of the relevant academic theories and a review of the basic economic models that have been described in Chapter 2.
- Personal, face to face interviews with individuals from the companies shown in table 2, whose opinions were expressly those of the individual and not those of the company.

The qualitative questionnaire used for the interviews (Appendix 3) was developed after consultation with my supervisor Mike Holland and consisted of four broad

sections to address the four questions under review. It was pre-tested with the assistance of a senior commodity procurement manager at Anglo Platinum and several questions were added or changed as a result of the pre-test.

Interviews were scheduled with the individuals identified and generally held at their offices due to the time constraints involved. The time allocated for each interview was 1 hour and most interviews were conducted within this time frame although some did run over time due to the openness of the discussions.

#### **4.5.1. My values**

In qualitative research, the role of the researcher as the primary data collection instrument necessitates the identification of personal values, assumptions and biases as the outset of the study because the findings from the study are influenced by these values, assumptions and biases (Creswell, 1994).

As an employee of Sasol Nitro (a company that openly practices Import Parity Pricing for ammonia) I tried to discard my views on the practice of IPP and take a neutral position on the subject. Having worked for a gold mining company previously, I felt some empathy for the views expressed by these companies and the effort that is required in making a deep level gold mine profitable.

#### **4.5.2. Ethical considerations**

Research should not only have the potential to generate and refine knowledge, but should also be ethical in its development and implementation (Burns and Grove, 1993)

Certain ethical requirements had to be considered, particularly with regards to the respondents:

- The need to explain the benefits of the study to the respondent, who may see this as information gathering for nefarious purposes.

- An acknowledgement that answering the questions was totally voluntary.
- A conscious effort by myself not to lead the respondent towards a specific answer to a question.
- A clear understanding that the respondent's answers and comments were confidential.
- The right for the respondent to remain anonymous.

#### **4.6. Process of data analysis**

Zikmund (2003) describes descriptive analysis as the transformation of raw data into a form that will make them easy to understand and interpret; rearranging, ordering, manipulating data to provide descriptive information.

Coding of the data was carried out in a structured table based on the answers recorded from the questionnaire and where appropriate, quantitative analysis was used to summarise the data into meaningful statistics.

#### **4.7. Limitations of the research**

##### **4.7.1. Assumptions**

All interviews were held in English and although some respondents were predominantly Afrikaans speaking, no translation was necessary and it was not felt that language was a source of any confusion or misunderstanding.

Assumptions around technical and economic terminology were explored within the body of the questionnaire and detailed explanations of e.g. Import Parity Pricing, monopsonies etc., were agreed upon during questioning

#### 4.7.2. Bias

Zikmund (2003) identifies several sources of bias which often overlap and are not mutually exclusive. These include:

- Acquiescence bias – where respondents want to say yes and agree with certain questions although they may not necessarily do so.
- Extremity bias – where respondents use extremes when responding to certain questions.
- Interviewer bias – where answers are skewed due to the influence of the interviewer.
- Auspices bias – where the respondent's answers are influenced by the environment or organisation conducting the interview.
- Social desirability bias – where the response are influenced by the desire (either consciously or unconsciously) to gain prestige or appear in a different role

Due to the nature of the respondents interviewed i.e. senior mining/procurement personnel who are successful and have high levels of self-confidence, it was felt that acquiescence, auspice and social desirability bias was not present in the interviews.

Extremity bias may have been present due to the preconceived views on Sasol as a company and previous dealing between the parties. This was addressed by taking a non-confrontational approach to respondent's answers and continually asking for further explanation of the views that they held.

Interviewer bias could also have been a factor as a result of the personal friendships between the respondents and myself. This was addressed by stating upfront that I was interviewing from the position of a MBA student and not from that of a Sasol employee and respondents were asked to be as open and honest as they could be.

#### 4.7.3. Administrative error

Zikmund (2003) comments that administrative errors can occur with this type of research, namely:

- Data processing error – where the use of technology, e.g. computer or voice recording equipment, results in incorrect data being recorded, processed or analysed.

This was addressed by the establishment of careful procedures such as copying and backing up audio files from the interviews the same day as they were made.

- Sample selection error – systematic errors that arise as a result of sample design or execution of the sampling procedure, resulting in an unrepresentative sample.

As the sample was made from personal acquaintances all of whom were known to have some experience in the gold mining industry and the use of commodity products it was not felt that this error was present during the research.

- Interviewer errors – normally experienced when interviewers record answers and are unable to write fast enough or take incorrect notes. They can also take the form of selective perceptions of the responses that are not somewhat supportive of their own attitudes and opinions.

This was addressed by the use of voice recording equipment to accurately record the interviews and a determined effort to record accurately what was being said.

- Interviewer cheating – occurs when an interviewer falsifies entire questionnaires or fills in the answers to key questions.



This was not considered to be an option and voice recordings are available for scrutiny if required.

## 5. Results

*A monopoly is socially reprehensible in the hands of others – Anon.*

### 5.1. Introduction

Of the 11 respondents interviewed, 7 were consumers, 2 suppliers and 2 independent third parties and hence it can be expected that the majority of answers will be biased against the monopolistic supply of commodity raw materials.

Information from the literature studied would indicate that such suppliers are often dominant in the markets they supply and exercise market power to maximise profits. This raises several key questions in respect as to what extent this affects consumers, whether such profits are morally right, how the industry dynamics function, the overall cost to society and what role should government play in the facilitation of business whilst addressing pressing social issues.

This was summarised by 4 general questions:

- Determine the extent to which the gold mining sector is exposed to commodity raw materials using international parity pricing models.
- Examine the theoretical and practical market forces that affect the prices charged for such commodities.
- Review the responses made by the mining industry to what has been described as excessive pricing and abuse of market power by monopolistic suppliers.
- Explore the role and actions of government in its response to claims of anti-competitive behaviour and excessive pricing by dominant suppliers.

These questions was explored by a series of specific study questions via direct interviews with industry personnel and these have be summarised into categories and subcategories as shown in Table 3.

**Table 3: Coding categories and sub-categories**

Category	Sub-category
Economic data	<ul style="list-style-type: none"> <li>• Business strategies</li> <li>• Cost structure</li> <li>• Extent of IP/EP pricing</li> <li>• Effect on mine profitability</li> </ul>
Market forces	<ul style="list-style-type: none"> <li>• Supplier power</li> <li>• Effectiveness of regulation</li> <li>• Levels of competition</li> <li>• Industry rivalry</li> </ul>
Responses from the gold mining sector	<ul style="list-style-type: none"> <li>• Industry consolidation</li> <li>• Buyer power</li> <li>• Product substitution</li> <li>• New entrants</li> </ul>
Role of government	<ul style="list-style-type: none"> <li>• State owned enterprises</li> <li>• Competition authorities</li> <li>• Government administered prices</li> <li>• Foreign Direct Investment</li> </ul>

Direct quotations taken from the interviews are shown as supporting evidence to the results shown and are shown in inverted commas and italicised for clarity.

## 5.2. Economic data

### 5.2.1. Business strategies

All the gold mining companies interviewed stated that their business strategies were centred on growing levels of gold output both locally or internationally. Economies of scale was an important factor to both the established and junior mining companies and access to capital funding via listings on either local or foreign securities exchanges was seen as vital for sustainability

***“Fixed costs are higher than variable costs, that’s why mining is such a volume induced game, the only way you can make it work is to push volumes”*** - respondent 1 (consumer)

***“You can’t fund mining companies internally; size is a critical success factor”*** - respondent 3 (consumer)

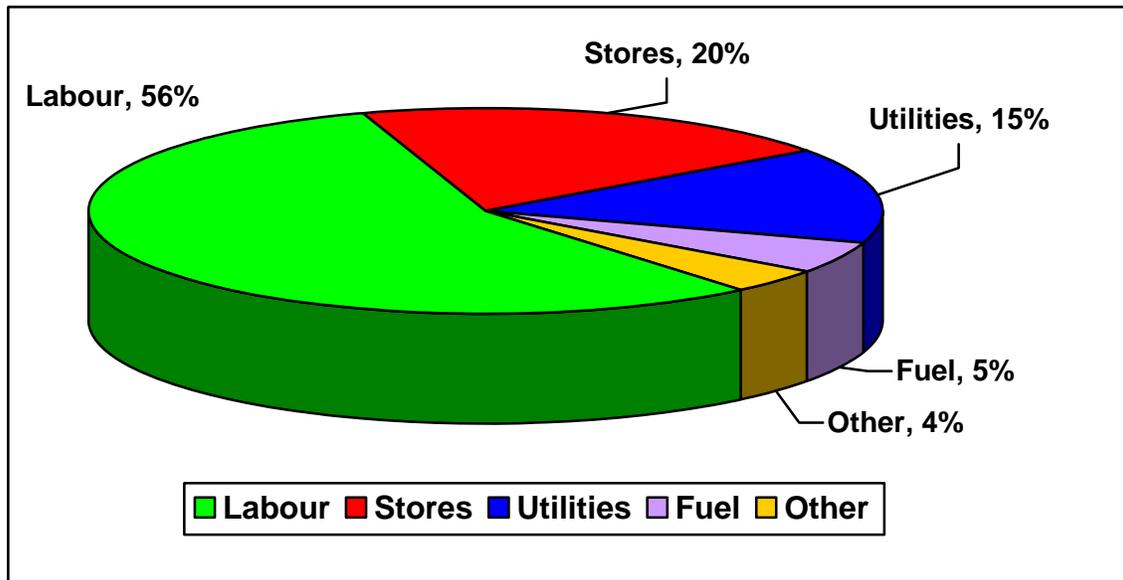
### 5.2.2. Cost breakdown

Detailed cost breakdown figures were difficult to obtain as most of the gold mining companies do not record stores items per raw material category, rather as per technical sub-unit e.g. mining support, drilling and blasting, plant maintenance etc. Varying accounting practices across companies did not allow for a straight forward comparison between mining houses.

Costs also vary according to mining practices, depth and technical considerations such as the age of the infrastructure. However, all 11 of the respondents interviewed confirmed that labour was the highest single cost element, ranging between 40 and 70% of overall cost of production per kg of gold produced.

Taking an arithmetic mean of each of the values given, the overall working cost per kg of gold (excluding capital) is shown in Figure 5.1

Figure 5.1 Breakdown of working costs per kg of gold



***“The real cost drivers are people, it’s not lying in the concrete or steel”*** - respondent 1 (consumer)

***“Our labour market has lost control, who hasn’t been on strike this year? Our labour costs means that we are no longer competitive, the unions have become too strong”*** - respondent 1 (consumer)

### 5.2.3. Extent of Import Parity Pricing

The following commodity items were identified as being the main stores items linked either directly or indirectly to some form of international pricing.

**Table 4: Products linked to international prices**

Item	Main cost driver(s)
Mining timber	International wood pulp prices (mainly USA) as an export opportunity for local suppliers: Timber price increase > 30% (2001 – 05) <sup>1</sup>
Steel products	ArcelorMittal domestic steel prices based on a monthly basket of international prices: MEPS Global steel index rise of almost 70% (97 – 05) <sup>1</sup>
Explosives	IPP of ammonia as calculated monthly by Sasol Nitro, ammonia constitutes approx 40-50% of explosive costs: Increase of >100% in Tampa index price (02 – 05) <sup>1</sup>
Plastic products	IPP of polymers as calculated by Sasol Polymers: Sasol is the largest manufacturer of polypropylene (PP) and is the sole producer of LDPE and PVC in SA <sup>2</sup>
Cyanide	International Caustic Soda and Natural gas prices: Increases contract price index of 23% (03 – 05) <sup>1</sup>
Fuel & lubricants	International oil prices: Historical 22 – 27US\$ pb crude vs >60US\$ pb current <sup>1</sup>
Rubber tyres	International rubber prices: Natural rubber price increase 97% (99 – 05) <sup>1</sup>
Batteries	International lead metal prices: Lead price increase 144% (06 – 07) <sup>3</sup>
Copper	International prices – London Metal Exchange US\$/lb
Other chemicals	International prices – sector specific, traded though central clearing houses in Europe and Middle East

Sources:

1: *Goldfields Ltd – Analyst presentation.* (2006)

2: *Trade & Industry Monitor (TIPS) newsletter, Vol. 34,* December 2005

3: *London Metal Exchange – [www.kitco.com](http://www.kitco.com),* 21<sup>st</sup> June 2007

It is perhaps important to note that currency volatility plays a crucial role in the costs of these goods and that certain items, such as capital equipment, have considerable lead times and are invoiced for in international currencies.

***“The cost of labour is the only cost that is not administered”*** – respondent 4 (consumer)

#### **5.2.4. Effect on mine profitability**

All the respondents interviewed found it very difficult to quantify what effect it would have on mine profitability if items such as steel and explosives were to move off IPP to a lower price. It would obviously lower the cost of production but the general perception would be that the effect would be negligible in terms of pay limits or cut off grade (the amount of gold per ton of rock that the mines identify at which it is economic or not to mine). Productivity and volume throughput improvements were seen as perhaps the best way of reducing unit costs in conjunction with minimising input costs inflation.

The 3 major commodity stores items that gold mines consumed were identified as being timber, steel and explosives, all of which are produced locally but are priced either directly or very closely to IPP or similar international pricing models.

***“All gold mining companies world wide are struggling with costs”*** – respondent 10 (consumer)

***“I will pay more for my explosives if they can help with other technical improvements”*** – respondent 2 (consumer)



### 5.3. Market forces

#### 5.3.1. Supplier power

When asked directly about the fairness of Import Parity Pricing, 54% of respondents felt it was fair whilst 46% felt it was unfair. Alternative pricing models such as “cost plus a reasonable margin” were suggested as alternative pricing regimes and comments were raised about IPP not being in the national interest and detrimental to the country as a whole. Comments on the issue of supplier power and the application of IPP included:

***“Take Mittal for example, they are pricing themselves out of the market but they are saying tough, what are you going to do about it”*** – respondent 2 (consumer)

***“IPP is a ridiculous price, it is against us the customer and it is against the country”*** – respondent 2 (consumer)

***“IPP is counter productive, because they don’t want to reduce costs, it is laziness”*** – respondent 3 (consumer)

***“Sasol is very guilty of Import Parity Pricing”*** – respondent 4 (consumer)

***“The supplier should have the opportunity to chase the highest margin, which is not necessarily IPP”*** – respondent 5 (consumer)

***“IPP encourages mediocrity in terms of the production process and that’s what is fundamentally wrong with it”*** – respondent 4 (consumer)

***“IPP is probably the most reasonable way to deal with global competitors”***  
– respondent 5 (consumer)

### 5.3.2. Effectiveness of regulation

All 11 respondents interviewed were aware of the Harmony/DRD v Mittal Steel case to some degree and views were split on whether the effort had been worth it with 3 (27%) saying yes, 5 (46%) saying no and 3 (27%) having no strong opinion.

When questioned on whether this type of legal action should be looked at for other monopoly suppliers such as Sasol or Eskom the answers were 6 (54%) yes, 4 (36%) no and 1 (9%) no strong opinion.

***“I’m always against monopolies, they are not a good thing, competition is a free market concept and it should be enforced”*** – respondent 2 (consumer)

***“IPP is indefensible”*** – respondent 4 (consumer)

***“If Harmony took R20m and put it in Mittal shares at the time they would probably have got a better return”*** – respondent 10 (consumer)

***“If they (Harmony & DRD) are the unsung heroes, then I guess we need to sing them some songs”*** – respondent 4 (consumer)

### 5.3.3. Levels of competition

When asked whether government should intervene pro-actively to increase competition in monopolised industries such as steel and chemicals 7 (64%) respondents said yes, 2 (18%) said no and 2 (18%) had no strong opinion.

***“Because Sasol has a monopoly (on ammonia), it’s not in the consumers best interest for Sasol to sell to itself”*** – respondent 1 (consumer)

***“If you are a producer of a raw material then that is where it should stop, vertical integration should be addressed”*** – respondent 10 (consumer)

***“Take Cadac for example, they couldn’t compete locally, now all their braais are made overseas, one argument was the labour issue, but the main reason was the cost of steel”*** – respondent 10 (consumer)

#### **5.3.4. Industry rivalry**

When asked if they thought that oligopolistic suppliers such as steel distributors or explosives manufacturers colluded on prices or market share, 7 (64%) respondents felt that there was some collusion, 3 (27%) said they did not think there was collusion and 1 (10%) had no strong opinion.

Question - ***“do you believe there is tacit collusion between suppliers?”***

Answer - ***“Yes – absolutely”*** - respondent 4 (consumer)

Question - ***“do you believe there is tacit collusion between suppliers?”***

Answer - ***“is the Pope a Catholic?”*** - respondent 10 (consumer)

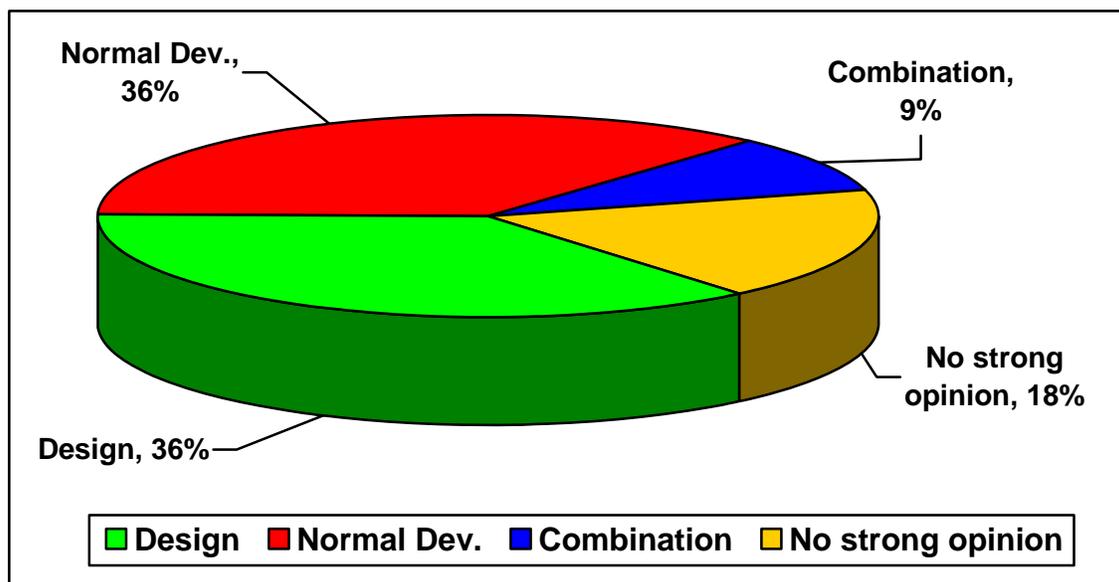
### **5.4. Responses from the gold mining sector**

#### **5.4.1. Industry consolidation**

The gold mining industry has seen major structural changes over the last 30 years and the respondents were questioned as to whether the consolidation that has taken place was by planned design or normal industry development.

4 (36%) of the respondents thought it done was by specific design, 4 (36%) thought it was by normal development, 1 (9%) thought it was a combination of the two processes and 2 (18%) did not have a strong opinion either way.

**Figure 5.2 Reasons for consolidation in gold mining industry**



***“Consolidation has been specifically by design and a very good design in most respects and there is more consolidation to come”*** - respondent 6 (independent)

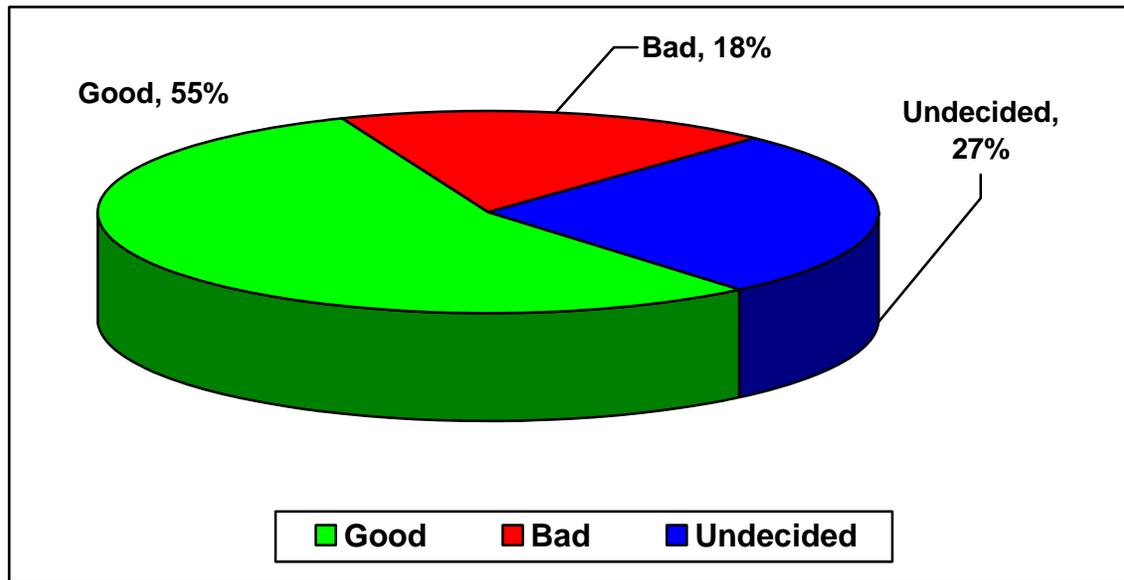
The impact of the Mining Charter was seen as having mixed blessings for the gold mining industry with 6 (55%) respondents feeling the overall impact was good, 2 (18%) feeling the overall impact was bad and 3 (27%) undecided.

***“The spirit of the mining charter has a lot of benefits in creating competition and bringing in some smaller players and reducing the impact of the larger companies”*** - respondent 1 (consumer)

***“The mining charter is the best thing since sliced bread - it has done the world of good, it has been the re-birth of the mining industry”*** - respondent 6 (independent)

***“It has had a negative impact and it is pushing companies off-shore for exploration”*** - respondent 7 (independent)

**Figure 5.3 Opinion as to the overall merits of the Mining Charter**



#### **5.4.2. Buyer power**

When asked about the advantages that larger companies have over smaller ones in terms of managing the procurement process, all 11 respondents agreed that there is normally increased leverage on prices through economies of scale and that this was justified. However, issues around corporate arrogance, speed of response, and internal bureaucracy were identified as being hindrances in larger organisations. Additional advantages for larger companies included networking, quicker learning curves and international locations leading to greater global information.

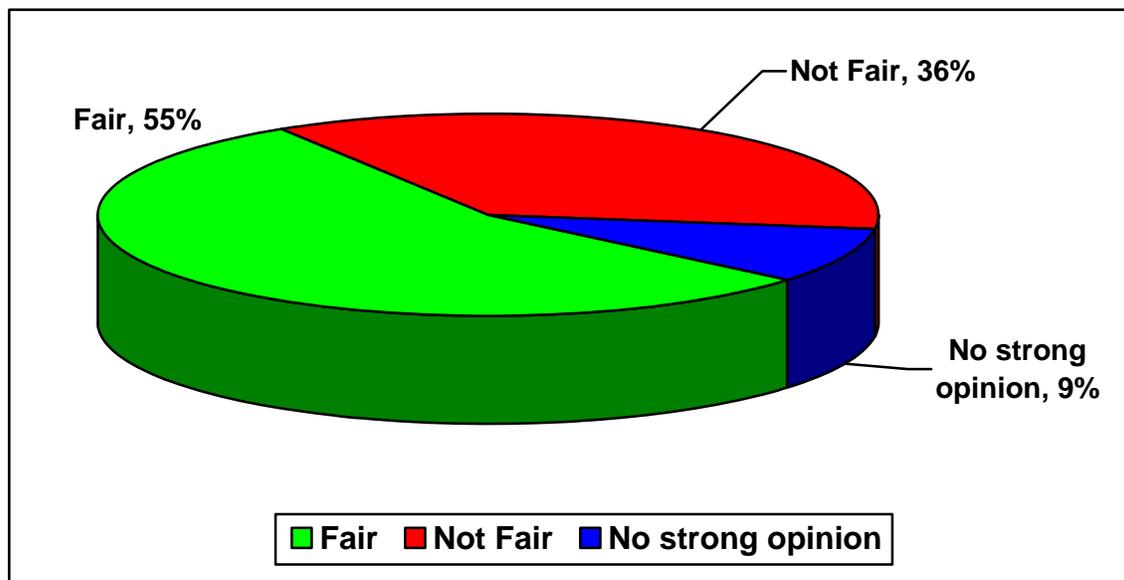
The partial monopsony power that large mining houses often exert when negotiating prices or international tenders was felt to be fair by 6 (54%) of respondents, unfair by 4 (36%) and 1 (9%) respondent had no strong opinion.

***“It’s not good (partial monopsony power) but inevitable through market forces”*** - respondent 2 (consumer)

***“It’s a pipe dream because we’ve looked at it and it’s difficult to get a global contract going, I’ve never seen one working.....we went out on a global fuel and lubricant tender and it was difficult to find one taker”*** - respondent 10 (consumer)

***“The most-favoured-nation clause was basically eroded away because of the new competition regulation.....there is a fair price to pay, but you can’t use your position of authority to force someone to give you the best price”***  
- respondent 10 (consumer)

**Figure 5.4 Opinion as to the fairness of volume leverage by large consumers**



#### **5.4.3. Product Substitution**

Normal economic theory suggests that when a product price rises to a certain level consumers will seek substitute products that perform the same function at a lower price. When asked about how far the gold mining industry had explored product substitution for commodity products 3 (27%) respondents felt that enough had to be done to explore alternatives, 6 (55%) felt not enough had been done and 2 (18%) had no strong opinion.

***“The problem (with R & D) is we do this “calling all pockets” where we try all technologies and hope one works, you should be looking at specific technologies for specific purposes e.g. replacing steel”*** - respondent 10 (consumer)

***“There is very little current research”*** - respondent 6 (independent)

#### **5.4.4. Backward integration and new entrants**

The attraction for new entrants into a market place is generally high when monopoly profits are being made. When respondents were asked if they believed that the gold mines should backward integrate into commodity products such as steel or chemicals, 3 (28%) respondents said yes, 4 (36%) said no and 4 (36%) had no strong opinion.

When asked whether they were supporting the import of commodities or finished goods from China, all 7 consumers said they were importing some goods (that are available locally) from China and all but one acknowledged that this was undermining the local economy and not in the national interest in terms of employment, taxes, current account deficit etc.

***“The problem with backward/forward integration is that you tend to eradicate competition and move away from a free market economy”*** - respondent 9 (consumer)

***“We are going back and buying forests today because the paper pulp market is a huge threat to mining....so you need to backward integrate those threats”*** - respondent 10 (consumer)

***“I haven’t got a problem importing from China if it’s ethically produced.....you don’t want to be seen as a company supporting child labour”*** - respondent 9 (consumer)

## 5.5. Role of government

### 5.5.1. State Owned Enterprises

When asked whether the Government should have kept strategic companies such as Iscor (ArcelorMittal) or Sasol as State Owned Enterprises, all 11 respondents thought that it was the right thing to do to privatise these organisations, although some respondents felt there should have been more regulation put in place as to the way they operate.

***“No, they shouldn’t have kept them in-house because government is useless at business”*** - respondent 9 (consumer)

### 5.5.2. Competition authorities

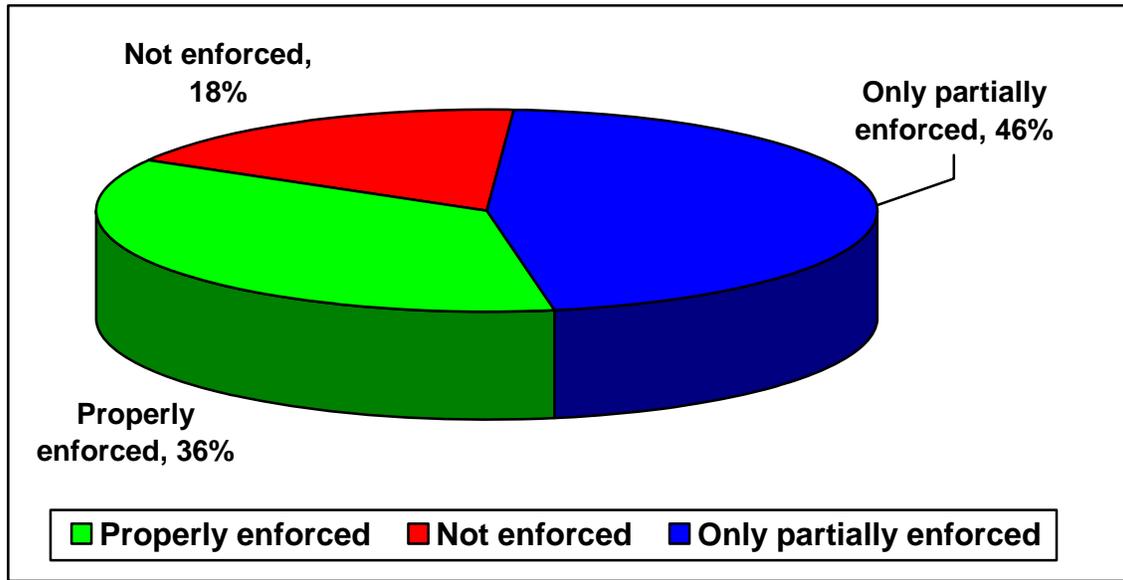
The Competition Act (1998) set out to provide for the establishment of a Competition Commission responsible for the investigation, control and evaluation of restrictive practices, abuse of dominant position and mergers; and for the establishment of a Competition Tribunal responsible to adjudicate such matters; and for the establishment of a Competition Appeal Court; and for related matters (Competition Act, Republic of South Africa, No.89 of 1998).

5 (46%) respondents felt that the competition authorities offered effective avenues to challenge dominant companies, 4 (36%) felt they did not and 2 (18%) had no strong opinion. However, only 4 (36%) respondents felt that the Competition Act was properly enforced, 2 (18%) felt that it wasn’t properly enforced and 5 (46%) felt it was only enforced in some ‘high profile’ cases.

***“Competition legislation is South Africa is most probably in its infancy and doesn’t have enough teeth”*** - respondent 9 (consumer)

***“It has caused me to think a hell of a lot about what I’m doing.....I am extremely aware of competition law and the fine is big threat”*** - respondent 11 (supplier)

**Figure 5.5 Opinion as to the enforcement of the Competition Act**



**5.5.3. Government administered prices**

All 11 respondents felt that it would be wrong if the Government interfered with the local price of gold as it is priced on a free market world price. Similarly, all 11 felt that it would not be credible for Government to interfere with Import Parity Pricing for other commodities whilst they support a very similar pricing model for local petroleum products (Crotty, 2005).

***“When government interferes, your business model is at risk”*** - respondent 1 (consumer)

**5.5.4. Foreign Direct Investment**

The ASGISA document identified Sector Strategies as one of the decisive interventions required in response to the six binding constraints and this included priority sectors such as chemicals, metals beneficiation and timber products

amongst others. In the same document, it identified inadequate competition and Import Parity Pricing as industrial policy challenges that are going to be addressed in order to promote private sector investment (Office of the Presidency – South Africa, 2004).

When respondents were asked whether the potential of government intervention on commodity prices were likely to harm the prospects for Foreign Direct Investment such as the US\$2.7bn Alcan aluminium smelter in the Coega Industrial Development Zone, 10 (91%) said yes it would potentially harm FDI and 1 (9%) said they were not sure.

***“Government’s role is to administrate and enhance business, not politics and they don’t understand that”*** - respondent 9 (consumer)

***“What you don’t want is the benefit of a country that’s enabled Sasol to develop this technology to be given to another country to disadvantage South Africa”*** - respondent 5 (consumer)

## 6. Discussion of results

*Where does the gorilla sleep? Anywhere the gorilla wants to sleep – Andrew Young*

### 6.1. Introduction

Prior to arranging the personal interviews, detailed industry and company information was sourced via various documents and websites. This provided background information on the gold mining industry as well as source of company specific secondary data that was used during the interview process.

11 interviews were carried out to ascertain the scope and relationship between suppliers and consumers of commodity raw materials in the gold mining industry. Although Business Report (8 November 2007) quotes that the gold price is currently at all time highs, many gold mining companies still face tough economic decisions around costs and future investment opportunities.

Four broad questions were raised and although aimed specifically at the gold mining industry, these questions could be equally applied across all sectors of the South African economy.

- Determine the extent to which the gold mining sector is exposed to commodity raw materials using international parity pricing models.
- Examine the theoretical and practical market forces that affect the prices charged for such commodities.
- Review the responses made by the mining industry to what has been described as excessive pricing and abuse of market power by monopolistic suppliers (Roberts, 2006).
- Explore the role and actions of government in its response to claims of anti-competitive behaviour and excessive pricing by dominant suppliers.



## 6.2. Economic Data

**Q1 - Determine the extent to which the gold mining sector is exposed to commodity raw materials using international parity pricing models**

### 6.2.1. Cost breakdown

All of the corporate gold mining companies contacted have their primary listings on the JSE Limited and publish annual reports which include detailed financial statements. Although the formats are generally the same layout, some companies report in greater detail than others. Table 5 highlights some salient points in terms of their latest abridged group income statements.

**Table 5: Abridged financial highlights of the top 4 South African gold mining companies** (all figures Rm unless otherwise stated)

	Goldfields <sup>1</sup>	AngloGold Ashanti <sup>2</sup>	Harmony <sup>3</sup>	DRDGold <sup>4</sup>
Revenue from sales	19,693	21,104	9,148	2,209
Cost of sales	(14,949)	(18,404)	(6,866)	(2,244)
Gross Profit/(loss)	4,744	2,700	2,282	(35)
Gross Margin	24.1%	12.8%	24.9%	(1.6%)
Other income/(expenses)	(538)	(1,841)	(1,086)	(1,124)
Operating profit before tax	4,206	859	1,196	(1,159)
Net margin (before tax)	21.3%	4.1%	13.1%	(52.5%)
Taxation	(1,572)	(1,232)	(249)	(6)
Profit/(loss) for the year	2,634	(385)	947	(1,165)

Sources:

1 – Goldfields Limited: *Annual Report 2007 for the year ending 30<sup>th</sup> June 2007*, p200

2 – AngloGold Ashanti Limited: *Annual Report 2006 for the year ending 31<sup>st</sup> Dec. 2007*, p150

3 – Harmony Gold Mining Limited: *Annual Report 2007 for the year ending 30<sup>th</sup> June 2007*, p114

4 – DRDGold Limited: *Annual Report 2007 for the year ending 30<sup>th</sup> June 2007*, p54

Goldfields Limited provides a more detailed breakdown of their operational costs as part of their notes to the consolidated financial statements and this is summarised in table 6.

**Table 6: Abridged cost of sales** (all figures Rm unless otherwise stated)

	Goldfields <sup>1</sup>	
Cost of sales	(14,949)	
Salaries & wages	(5,526)	} (12,193)
Consumable stores	(3,021)	
Utilities	(1,312)	
Mine contracts	(1,929)	
Other	(405)	
Gold inventory change	246	
Amortisation and depreciation	(3,002)	

Source: 1 – Goldfields Limited: *Annual Report 2007 year ending 30<sup>th</sup> June 2007*, p207

If these costs are analysed from an operational cost perspective, then the controllable cash costs can be summarised as R12,193m and this is further analysed in table 7.

**Table 7: Controllable cash costs** (all figures Rm unless otherwise stated)

	Goldfields <sup>1</sup>	Cost breakdown %
Controllable cash costs	(12,193)	100.0%
Salaries & wages	(5,526)	45.3%
Consumable stores	(3,021)	24.8%
Utilities	(1,312)	10.8%
Mine contracts	(1,929)	15.8%
Other	(405)	3.3%

Source: 1 – Goldfields Limited: *Annual Report 2007 year ending 30<sup>th</sup> June 2007*, p207

These figures can be compared to the data provided during the personal interviews which is summarised in chapter 5.2.2, as well as data compiled by the Chamber of Mines (COM) in 2004 (Williams et al, 2006). It may also be pertinent to note that the use of contractors for outsourcing is a common occurrence with most mining companies and most of the R1,929m is probably labour costs. The 3 sets of figures are shown in Table 8 for comparison purposes.

**Table 8: Comparison of Goldfields data vs interview data vs COM data**

	Goldfields <sup>1</sup> data cost breakdown		Interview <sup>2</sup> data cost breakdown	COM <sup>3</sup> data cost breakdown
Total controllable cash costs	(12,193)	100.0%	100%	100%
Salaries & wages	(5,526)	45.3%	56%	58.4%
Consumable stores	(3,021)	24.8%	20%	23.3%
Utilities	(1,312)	10.8%	15%	12.4%
Mine contracts	(1,929) <sup>a</sup>	15.8%	-	-
Other	(405)	3.3%	4%	5.9%
Fuel	-	-	5%	-

Sources:

- 1 – Goldfields Limited: *Annual Report 2007 year ending 30<sup>th</sup> June 2007*, p207
- 2 – Personal interviews with 11 respondents August/September/October 2007
- 3 – Chamber of Mines 2004 (Williams et al, 2006)

Notes: a – the majority can be assumed to be labour costs

Whilst the 3 sets of figures do not show perfect alignment, it does confirm that labour costs are the single largest cost element for gold mining companies and that consumable stores costs are the 2<sup>nd</sup> highest cost element.

### **6.2.2. Extent of Import Parity Pricing**

Insufficient data was available from the interviews to analyse a detailed breakdown of the stores costs, however, 1 respondent did provide an estimate of the stores cost breakdown although this could not be confirmed by other

respondents. This estimated breakdown is shown in table 9 with the ranges shown being the result of the different phases in the life of a mine, infrastructure differences between mines and varying mining methods across the group operations.

**Table 9: Estimate of stores costs breakdown from 1 respondent**

	Estimated cost breakdown	Linked to some form of international prices or IPP?
Total stores costs	20 - 25%	-
Timber	7 – 10%	Yes
Steel products	8 – 12% <sup>a</sup>	Yes
Explosives	2 – 3%	Yes
Other chemicals	1 – 2%	Yes
Other mining	2 – 3%	No
Other non-mining	2 – 3%	No

Source: Respondent 2 (consumer)

Notes: a – DRDGold publicly quoted steel at 8% of its South African costs (Graulich, 2007)

Interpreting these results in response to the 1<sup>st</sup> question raised in chapter 1.3 - *Determine the extent to which the gold mining sector is exposed to commodity raw materials using international parity pricing models* and the data shown in Chapter 5.2.3. It can be summarised that approximately 75 - 85% of stores costs are directly linked to some form of international parity pricing and that this represents approximately (assuming 80% of stores costs are priced using IPP) 20% of the overall cost of sales (80% x 25%).

If the cost of sales for Goldfields, AngloGold Ashanti and Harmony are averaged (arithmetic mean average) out at 80%, then the 20% IPP stores costs figure can be further extrapolated to show that IPP stores costs represent approximately (80% x 20%) **16% of total costs for gold mining companies.**

In conclusion, question 1 asks whether commodity raw materials priced along IPP principles are a significant cost to gold mining companies and in my opinion the data has shown that they are a significant cost to the gold mines at approximately 16% of total costs. This contradicts the general perception by most respondents (Chapter 5.2.4) that these costs are negligible and would not have a significant effect on mine profitability.

This data also confirms another point that came out of the interviews (Chapter 5.2.1) and that is volumes are important for gold mining companies. A considerable amount of 'other expenses' as recorded in the various annual reports, can be considered as sunk fixed costs e.g. exploration, market development, corporate administration etc. and as such are unlikely to diminish with lower levels of production.

Hence volumes play a major role in the calculation of overall cost per kg of gold, something that is normally recorded at a high level by the mining companies and mining analysts alike. This is often used as a measure of efficiency and hence can affect market sentiment, the share price and therefore a mining company's ability to raise capital for future projects.

This large fixed cost base also supports the rationale behind the consolidation that has taken place in the gold mining sector and that continues with more recent planned mergers such as BHP Billiton and RTZ Mining as noted in Business Day (9<sup>th</sup> November 2007).

### **6.3. Market forces**

**Q2 - Examine the theoretical and practical market forces that affect the prices charged for such commodities.**

#### **6.3.1. Supplier power (Porter's 5 force model)**

When asked about supplier power and the use of Import Parity Pricing, chapter 5.3.1 showed that slightly less than half of the respondents stated that it was not a fair way to charge for commodity products. Alternative suggestions included a "cost plus a fixed margin" price or a world spot price without the notional transport costs that are included in an IPP model.

The remaining respondents acknowledged that South African companies are competing in a global market place and that suppliers such as Sasol and ArcelorMittal can exert high bargaining power due to their monopolistic situations (Porter, 1979). The resultant high prices for steel and ammonia do represent a deadweight loss to society (Parkin, 2003) and reduce the quantity demanded but due to the low level of price elasticity, reducing/increasing the price by 30% would not see a resultant 30% increase/reduction in quantity demand, the change in quantity demanded would be much lower (Richardson, 1999).

Local ammonia prices used to be based on a "cost plus" model until the point was reached that it became cheaper to import than to purchase locally, this was due to the lack of efficiency of local producers, who at the time did not control costs as there was no incentive to do so under a "cost plus" scenario. Only after consumer groups pressurised local producers by importing ammonia based products such as fertilisers did Sasol and African Explosives and Chemical Industries (AECI) improve efficiencies and Import Parity Pricing became the new

price equilibrium. This confirms the view that IPP is a limit price in an open economy and that market power is curtailed by pricing to IPP and marginal cost (Holden, 2005).

Carlton and Perloff (2005) describe the benefits that monopoly profits offer which are often ignored when economists calculate the deadweight loss to society, these benefits include:

- The drive to improve the quality of existing products
- The drive to find lower-cost methods of manufacturing
- The desire for monopoly profits driving levels of innovation

Perhaps the biggest benefit provided by such profits is the desire and ability to invest in to the research and development of new products. Should there be no patent law enabling monopoly profits to exist, these products would simply be copied and the innovative firm would receive no more than the competitive level of profits and not recover its expenditures of research and development (Carlton and Perloff, 2005).

Conclusion – The bargaining power of monopoly suppliers is high and in spite of the deadweight loss to society, they do employ large numbers of people, contribute considerable tax income to the economy, support the development of new products and should in time attract new entrants into the market.

### **6.3.2. Threat of substitutes (Porter's 5 force model)**

Chapter 5.4.3 showed that most respondents felt that not enough investment had been made into substitute products for steel, explosives and timber products.

Previous mechanical mining research carried out by COMRO (Chamber of Mines Research Organisation) has not resulted in a commercially viable alternative to the use of explosives for rock breaking and although backfill (re-cycled mine tailings) has been extensively trialled over the last 30 years as a substitute for timber support, it has been abandoned by most deep level gold mines.

Product substitution appears to have been abandoned in favour of cheaper imports as indicated in Chapter 5.4.4 where all consumer respondents interviewed acknowledged they were supporting the import of commodities from China.

Conclusion – In spite of the scale of the current Sub-Saharan African mining industry and the forecasted growth opportunities, it is unlikely that major investment will be made into alternative commodity mining products and as such the threat of substitutes for timber, steel and explosives is low.

### **6.3.3. Buyer power (Porter's 5 force model)**

Volume leverage for the purchasing of stores items was generally recognised as being the major advantage of large mining companies (Chapter 5.4.2). Although the practicality of global supply contracts appears limited, the continuing consolidation within the gold mining industry does offer the remaining companies greater scope to exert volume leverage on suppliers.

Some of the gold mining companies are exploring new procurement initiatives and looking to partner with suppliers in order to reduce the Total Cost of Ownership. Goldfields Limited introduced its Project Beyond to look at an integrated supply chain for over 50 high spend items focusing on supplier rationalisation, product standardisation and reverse auction bidding processes (Holland, 2006). The use of technology in a globalised market place will lead to a

breakdown of barriers to entry and greater competitive challenges for producers (Gray, 2000).

The recent Competition Tribunal finding against Mittal Steel South Africa will also exert increased pressure on suppliers to re-examine pricing models and any potential changes to the regulation around Import Parity Pricing will most likely result in lower commodity prices.

Conclusion – Even with further consolidation of the gold mining industry, buyer power remains low to medium and only through government intervention such as the removal of tariffs on imported steel (I-Net Bridge, 7 November 2007) or direct intervention by stricter competition law, is it likely that prices will be substantially reduced.

#### **6.3.4. Threat of new entrants (Porter’s 5 force model)**

Chapter 5.4.4 showed that the appetite for gold mining companies to backward integrate into commodity industries is low, although one consumer did identify the possibility of entering the timber market but this was mainly to ensure continuation of supply and address quality issues, rather than drive prices down.

The main barriers to entry consist of absolute cost earnings, economies of large scale production requiring large capital expenditure and product differentiation so as to reduce the degree of substitution (Carlton & Perloff, 2005). Singh (2006) identified that commodity industries are “on a race to the bottom” in terms of production costs and economies of scale play an important role in creating barriers to entry.

However, recent announcements by the DTI indicated that it was considering building a state backed, but privately operated, steel mill to compete with ArcelorMittal South Africa indicate that such barriers to entry are not insurmountable. This project is aimed at stimulating competitive input pricing to downstream industries such as mining, construction and infrastructure development (Bridge, 2007).

Conclusion – the threat of new entrants into the steel and chemical industry remains low to medium and it will be some time before a meaningful challenge to ArcelorMittal and Sasol's dominant positions is presented.

### **6.3.5. Rivalry amongst competitors (Porter's 5 force model)**

Chapter 5.3.4 indicated that most respondents believed there was collusion in the certain industries over market share and prices. By definition a monopoly supplier does not have rivals and the perceived collusion referred to secondary products such as explosives (from ammonia), which are manufactured by oligopoly suppliers with generally less than 5 local suppliers.

Mohr and Fourie (2005) identified certain conditions that normally have to be in place for collusion to occur:

- The number of firms must be small and they must be well known to each other.
- The firms should have similar production methods and average costs and therefore have an incentive to change prices at the same time by the same percentage.
- The product should be homogeneous rather than heterogeneous, making it easier to agree on price.

- There should be significant barriers to entry which reduce the possibility (and fear) of disruption by new firms.
- The market should be stable.
- There should be no government measures to curb or prohibit collusion.

In practice, governments often prohibit collusion between firms and there for anti-trust actions are usually important elements of competition regulation (Mohr and Fourie, 2005).

Conclusion – In spite of strict penalties for anti-competitive behaviour, it is often difficult to prove collusion between suppliers and as such may occur with oligopoly suppliers. Hence the rivalry amongst existing competitors could be seen as low, however this will vary between industries depending on existing capacity and its utilisation.

Overall conclusion to Porter's 5 force model – Porter (1979) proposed that the strongest force determines the profitability or otherwise of the industry and this can be seen to be the bargaining power of suppliers. The continuing use of Import Parity Pricing or similar international pricing models is the most obvious evidence of this power.

### **6.3.6. Competition law and it's practical application**

Chapter 5.3.2 shows that there is a high awareness of Competition Tribunal cases such as Harmony/DRD v Mittal Steel and believed that other monopoly suppliers should be scrutinised for similar practices. Chapter 5.5.2 however, indicates that there is limited faith in the capacity and ability of the regulatory authorities to effectively apply existing competition legislation.

Zalk and Roberts (2004) examined in more detail the issues of concentration and market power in relation to issues such as Import Parity Price (IPP) models and concentration in certain key industries such as steel, motor vehicles and basic chemicals. They concluded that South Africa is under developed in comparison to other developing countries and that the effectiveness of competition policy needs to be revisited.

Lewis (2002) examined the argument that competition law in developing countries is an unaffordable luxury and concluded that the only argument against competition regulation of any kind in a developing country relates to the capacity for effective implementation.

Lewis (2004) later proposed that 'natural monopolies' in South Africa (i.e. where market scale suggests that there is only room to support a single efficient provider) can be adequately controlled in two ways, namely by the competition authorities having jurisdiction over all competition issues without interference from other regulators and the vigilant monitoring of all current and previously state owned enterprises that have market dominance or an anti-competitive structure.

Conclusion – Limited resources and abilities to effectively implement current competition legislation appear to be hampering the perceived abuse of market power by dominant monopoly suppliers. Such suppliers would vigorously repudiate such claims, stating that they operate within the law and exert market power within the current legislation based on a free market economy. Whilst not wishing to comment here on the moral argument of monopolies v perfect competition, it does appear that government has recognised the shortcomings of such monopolies and has embarked on a path for stricter enforcement of existing competition law and possible amendments with respect to Import Parity Pricing.

Overall conclusion for Question 2:

It is recognised that monopoly suppliers have high levels of market power which has been given to them through historical factors and previous public funding. This has raised huge barriers to entry in terms of capital requirements, absolute costs and economies of scale.

Whether South Africa has the appetite or capacity to develop additional steel or chemical suppliers is questionable and there are strong arguments that the formation of oligopolies in these sectors would simply increase costs and not result in lower prices for the consumer. It would negatively impact on the profitability of existing firms and could ultimately result in their closure if the growth in imports continues from low cost producers such as China.

In the current commodity boom, it is unlikely consumers will see lower prices in the near future; this is mainly as a result of increased globalised demand for such products, high world energy costs and limited local supply capacity.

## **6.4. Responses from the gold mining sector**

**Q3 - Review the responses made by the mining industry to what has been described as excessive pricing and abuse of market power by monopolistic suppliers.**

### **6.4.1. Industry consolidation**

Chapter 5.4.1 recognised that consolidation in the gold mining industry was a mixture of high level planning and macro-economic factors such as exchange rates and the gold price. This consolidation has been a mixed blessing for various stakeholders with job losses for some employees, improved wages for those workers employed, better returns for shareholders and localised economic decay for those communities affected by the closure of uneconomic operations.

Malherbe and Segal (2000) observed that at the end of World War Two, there were 7 gold mining houses in South Africa; Anglo American, General Mining, Union Corporation, Gold Fields of South Africa, Rand Mines/Central Mining, JCI and Anglo Vaal. Examples of consolidation that took place include the merger of General Mining with Union Corporation to form Gencor, which subsequently merged with Gold Fields of South Africa to form Goldfields Limited. Rand Mines broke apart and eventually became Harmony – a single mine that became the world's 5<sup>th</sup> largest gold producer (after merging with African Rainbow Minerals) taking over most of JCI's and Anglo Vaal's operations. DRD emerged out of the break up of Rand Mines and have expanded into the Australasia region (Williams et al, 2006).

The Mining Charter was recognised as being a good overall intervention (Chapter 5.4.1.) as it supported the proliferation of numerous small junior gold mining companies on the back of Black Economic Employment (BEE) legislation. Current JSE Limited listing for junior gold mining companies includes Aflase Gold, Great Basin Gold, Halogen, Pamodzi Gold, Simmer and Jack, Village Main

Reef and Wits Gold, other listed mining companies that have gold interests include Metorex and Uranium One and Central Rand Gold is about to list both on the JSE Limited and London FTSE (Business Report, 8 November 2007).

Responses from the gold mining to monopolistic pricing of raw materials therefore include:

- Consolidation (thereby gaining volume leverage)

Whilst consolidation was not in direct response to commodity raw material prices, it reflected the need for size as a means of survival and has given the surviving gold mining companies greater leverage when negotiating raw material prices. Chapter 5.4.2 indicated that the respondents felt that the exercise of market power for price negotiations was fair, although it was not always applicable across international operations. It should perhaps be noted however, that competition law also applies to gold mining companies and this was evident during the 2004/5 planned takeover of Goldfields by Harmony. Goldfields successfully fought off Harmony by the use of anti-trust stalling tactics to gain sufficient time and support from key shareholders into not supporting the takeover (Rose et al, 2007).

- Partnerships with suppliers

As previous mentioned, some of the gold mining companies are engaging with suppliers for greater value add propositions for the supply of commodity products. Whilst this may not be applicable to the source or primary supplier, it is perhaps more prevalent with secondary industries such as explosives, drill steel and lubricants where suppliers are entering into pay-for-performance supply agreements where profit gain sharing is used to drive efficiency. These models do not address the underlying

commodity price but assist with issues of wastage and correct application of products.

#### **6.4.2. Substitution**

- Substitution into other products

1 respondent confirmed that they has moved away from steel pipes to plastic pipes in order to reduce costs, however despite numerous attempts to find substitute technologies timber and explosives are still the primary resources required for underground support and rock breaking activities. Chapter 5.4.3 confirmed that the generally held view of respondents was that not enough investment was being made into alternative mining methods and that levels of innovation were generally low.

- Substitution into other suppliers

Chapter 5.4.4 confirmed that all of the consumer respondents interviewed are purchasing some locally available stores items from countries such as China. Through personal experience it is known that an independent local distributor is importing explosives and capped fuse detonators from Chinese manufacturers and that Sasol Nitro has also commenced with the import of Chinese capped fuse in response to the monopoly position held by African Explosives Limited (AEL) on these products. Other commodity items that are being imported include steel rails, steel rope and steel grinding media for milling requirements. Recent changes to the application of VAT to Chinese exports, where items that were previously zero rated now carry up to an 8% export charge (Snell, 2007) will however erode the savings achieved by such imports.

### 6.4.3. Backward integration

- Backward integration to control the supply chain

Due to the size and nature of the steel and chemicals business it would be very difficult for even the largest gold mining company to enter into this market apart from possible direct investment via share ownership. The comment made in Chapter 5.3.2 that Harmony might have been better off investing R20m in Mittal Steel rather than taking them on with the competition authorities may make economic sense but does not address the moral issue that Bernard Swanepoel (former CEO of Harmony) was grappling with.

It is perhaps interesting to note that Neal Froneman, CEO Uranium One recently confirmed that it was cutting its 2008 uranium production forecast due to delays in the commissioning of its treatment process plants in Kazakhstan as a direct result of a shortage of sulphuric acid. The company is considering a joint share in the building of a regional acid plant in Kazakhstan and that this would require them to invest US\$19m as part of US\$100m overall cost (McKay, 2007).

Overall conclusion for Question 3:

The responses made by the mining industry to what has been described as excessive pricing and abuse of market power by monopolistic suppliers can be summarised as follows:

- Direct attempts to reduce prices through legal action in association with the competition authorities.

- Partnerships with suppliers in order to improve volume leverage and minimise inefficiencies at mines.
- Supplier substitution for cheaper imports from lower cost producers such as China.
- Limited product substitution into alternative technologies and products.

Whilst it is unlikely that any of these solutions alone will seriously impact local prices for commodity materials, it is possible that these actions in conjunction with possible changes in competition law and the development of new entrants into the steel and chemical sectors will result in reduced prices in the future.

## **6.5. Role of government**

**Q4 - Explore the role and actions of government in its response to claims of anti-competitive behaviour and excessive pricing by dominant suppliers.**

### **6.5.1. State owned enterprises**

Chapter 5.5.1 showed that all respondents interviewed felt that the privatisation of Iscor (ArcelorMittal) and Sasol was the right thing to do and it was the general belief that governments do not run such large organisations particularly efficiently. Carlton and Perloff (2005) suggest that private firms are more efficient by about 2%, require fewer workers, are less likely to engage in cross subsidisation of different consumer groups and rely much less on debt than State Owned Enterprises (SOEs).

A caveat to this belief was the recognition that the privatisation of companies such as Iscor (ArcelorMittal) and Sasol should have been done with greater

regulation and that such monopolies were given too much market power in their current format. Lewis (2004) comments that “the corporatised entity often remains a licensed monopoly and even when the government commits itself to competition through licensing new entrants, the erstwhile SOE invariably enjoys any number of massive advantages over its rivals. In short the long-suffering citizens’ graduate from public monopoly to private monopoly and can often be forgiven for feeling cheated”.

Conclusion - perhaps it is the fact that such organisations were created with public funding for strategic State needs at the time that is the biggest source of ill-feeling, rather than the fact that they are now dominant and exercise market power.

#### **6.5.2. Competition authorities**

Chapter 5.5.2 showed that the consumer respondents were somewhat sceptical about the effectiveness of the competition authorities and even less optimistic about the proper enforcement of the Competition Act. This bears out sentiment expressed by Harmony’s former CEO, Bernard Swanepoel in respect to the failed take over of Goldfields when he stated that “in any deal, time is the big enemy and it took six months for our offer for Goldfields to die.....the case was as study of just how legal actions won the day” (Rose et al, 2007).

The competition authorities in South Africa consist primarily of the Competition Commission ([www.compcom.co.za](http://www.compcom.co.za)), the Competition Tribunal ([www.comptrib.co.za](http://www.comptrib.co.za)) and the Competition Appeal court (headed by Judge Dennis Davis), all of which fall under the Department of Trade and Industry. The Commission’s purpose is to be responsible for the investigation, control and evaluation of restrictive practices, abuse of dominant position and mergers, whilst the Tribunal was established to be responsible for the adjudication of such matters (Competition Act, 1998).

The primary legislation pertaining to competition is the Competition Act, No. 89 of 1998 which was legislated to provide focus on three main areas:

- the investigation, control and evaluation of restrictive practices
- the abuse of dominant position
- mergers

The Act sets out to provide guidance on issues of:

- Excessive concentrations of ownership and control within the economy.
- Inadequate restraints against anti-competitive practices.
- Unjust restrictions on full and free participation in the economy.
- The economy being open to greater ownership by a greater number of South Africans.
- Credible competition law and structures for an efficient functioning economy.
- Efficient economic environment balancing the interests of workers, owners and consumers.

It is perhaps pertinent to ask the question of ‘why competition and its regulation?’ The Investment Analysts Society of Southern Africa (IASSA) (2007) asked the question “Why not simply view competition - as some do - as the very antithesis of regulation and celebrate it for that reason, as the triumph of market forces over administrative intervention. Why re-introduce regulatory oversight over the resurgent and insurgent market forces”?

One of the answers put forward by IASSA was “the appreciation that the market is an institution like any other and, like any other institution, it requires a set of enforceable rules that regulate the conduct of its participants.....in the anxiety to

label markets economies ‘free’, what has been forgotten was that these ‘free markets’ were in fact governed by a complex set of rules, some of which were enshrined in statute, others of which were established in court and still others of which resided in strongly held custom and convention.....We have been presented with some sobering evidence of what happens even in those societies with long established rules and conventions when the rules break down – Enron is but one example of the importance of rules”.

Even if such rules are poorly enforced, the threat from their existence may be an important deterrent for monopolistic suppliers, Chapter 5.5.2 shows that such suppliers are acutely aware of competition law and the potential results that could occur if transgressions are made. This view however, is not shared by all, Rose et al (2007) believe that the relatively low fines handed down by the Tribunal do little to enforce this deterrent, citing the recent South African Airways (SAA) where SAA were eventually only fined R45m, compared to the R1.6bn that was calculated as 10% of their 2003 total revenue.

Future changes are however in the pipeline, Fungai Sibanda, Chief Director for Policy and Legislation at the DTI was recently quoted as saying the department aims to strengthen the powers of the commission.....and that the commission is likely be granted “wide powers of investigation” (Rose et al, 2007)

Conclusion – David Lewis, Chairman of the Competition Tribunal, states that the recent British Airways case (where BA were fined R3.9bn for collusion on ticket prices with Virgin Atlantic) shows the effectiveness of the Tribunal and that in some respects they are ahead of overseas competition authorities (Rose et al, 2007). Whilst it is important to recognise what the South African competition authorities have achieved given their age, funding and limited powers, the perception gained during this study is that there is a long way to go for the

authorities to meet consumer's expectations in terms of the time taken to resolve cases, sufficient follow through on penalties imposed and the power to reach the highest levels of management of firms under investigation.

### **6.5.3. Government administered prices**

The practice of government administered prices has been greatly reduced in South Africa although SARS confirmed that more than 20% of the goods and services in the CPI basket can be classified as administered prices. These include medical services, petrol and diesel, communication services, electricity, education, public transport services, water and licenses (Mohr and Fourie, 2005).

So whilst all 11 of the respondents interviewed felt it would be wrong for the Government to interfere with a local gold price for South African consumers (Chapter 5.5.3) it is not such an uncommon occurrence in other industries.

This raises one of the contradictions highlighted in this study, in the fact that consumers wanted government to regulate and set prices for input commodity products such as steel and ammonia but were not prepared for the same application to the gold that they sold. The fact that fuel was identified as key input cost to some gold mining companies (estimated at between 3 – 5% of controllable cash costs by 1 respondent in Chapter 6.2.1.) this should raise some alarm bells as to the even-handedness of consumers desires to see cheaper prices for the products that they purchase.

Conclusion – It would appear unlikely that the government is about to remove the use of administered prices for certain key products and services to the South African consumer. Limited information was found on this subject, but it would appear to be an important part of the macro-economic climate that future competition law should take note of. It will certainly play an important role in the

challenge of cost containment and inflation control under the ASGISA initiatives going forward.

It also raises the question of tariffs and how they are applied to imported goods, as any import tariff applied to such goods effectively raises the IPP price for such goods, regardless of whether or not the goods are actually imported or not. In effect any tariffs levied effectively make the price of such goods an administered price. The recent removal of tariffs on imported steel should see reduced prices for the local consumer and further “reviews” are being considered on pulp, paper, chemicals and aluminium (I-Net Bridge, 2007).

#### **6.5.4. Foreign Direct Investment**

The ASGISA document clearly sets out the benefits associated with FDI, stating that “inflows of foreign capital have been exceptionally high since 2003m with an inflow of R80 billion into the JSE share market between the beginning of 2005 and the first quarter of 2006.....good economic policies, positive domestic sentiment and a favourable international environment have created the opportunity to consolidate these gains and to take our performance to yet a higher level” (Office of the Deputy President, 2006).

In Chapter 5.5.4, the vast majority of respondents felt that government intervention into the prices for commodity products would have a negative effect on the potential for attracting FDI such as the planned US\$2bn investment by Alcan into a new aluminium smelter at the Coega Industrial Development Zone. Such investments are arguably the best type of capital inflows when compared to the easily reversed, confidence-sensitive portfolio investment (Mohr and Fourie, 2005).

Sergeant (2007) noted that in its findings on the Harmony/DRD v Mittal Steel case, the Competition Tribunal commented that “if Mittal does not apply the remedies in good faith, if it attempts to circumvent the remedy and finds itself back at the Tribunal accused of excessive pricing, then the prospect of more invasive remedies will loom large. As already suggested, these may include the enforced divestiture of steel producing plant”.

If such measures were to be implemented and plants were closed, then the South African consumer would no longer be paying Import Parity Prices, they would be paying fully imported prices with the resultant losses in foreign exchange and additional costs for long lead-time stock.

Conclusion – FDI is crucial for the planned growth in the South Economy and the aims of ASGISA to reduce poverty and unemployment by 50% by 2104. Whilst it is recognised that competition regulation has its place, the government must be very careful that the attraction for FDI is not severely hampered by the implementation of administered prices for commodity products into the local market.

Overall conclusion to question 4:

Government has implemented adequate competition legislation in terms of the Competition Act, however it would appear that there is a lack of capacity or will to fully enforce the provisions of this legislation. This has given rise to considerable consumer frustration as the perceptions are that there are high levels of bureaucracy resulting in cases taking years to resolve and that private firms simply have greater resources or skills to delay or defend themselves in such cases.

Whilst the government clearly has plans to “beef up” the powers and resources of the competition authorities’, care should be taken not to only take on high profile commodity suppliers as this could ultimately lead to disinvestment from such firms and the dissuasion of potential FDI into the country.

Moves to reduce tariffs should be accelerated and the use of administered prices for commodity products should be carefully considered before implementation.

## 7. Conclusion

*When the One Great Scorer comes to write against your name – He marks – not that you won or lost – but how you played the game – Grantland Rice*

### 7.1. Review

This study aimed to explore the relationships between commodity raw material suppliers, the South African gold mining industry and the competition authorities to better understand the issues around monopolies, market power and allegations of excessive pricing.

Whilst this study focused on commodity suppliers and the gold mining industry, based upon the responses from the interviews, it may be a reasonable deduction to state that the issues raised apply equally to other areas of the economy such as the banking, telecommunications, airlines and construction sectors all of which are closely monitored from a market power perspective. In fact, issues of competition apply to every transaction carried out in the economy, even to the price of a loaf of bread as was seen recently with findings of price fixing in the baking industry as was reported recently in Business Day (13 November 2007).

The growth of the South African economy is fundamentally rooted in our ability to be competitive in a global market place and although this may seem to be an issue only for large companies, the repercussions of their actions will affect every person across all economic levels in the country.

### 7.2. Summary

Both sets of firms consist of multi-national companies with large market capitalisations, employing large numbers of people, supplying products that most of us use every day. Their continued success plays a major role in the GDP of

the economy and ensures the direct or indirect employment for hundreds of thousands of people.

### **The Consumers**

The gold mines accuse suppliers such as Sasol or ArcelorMittal of being monopolies who are super dominant in their industries and are therefore able to exercise market power to impose excessively high prices for their products. They claim that the use of Import Parity is both unfair and immoral as it charges notional costs for shipping, port fees and inbound logistics that are not actually incurred but which would be incurred if the goods were actually imported from an external supplier.

These high prices affect their profitability and hence their share price, ability to raise capital and investment choices for the future. In an industry that has been in decline for over 30 years and has little control over the price it receives for its gold, the future of the gold mines is tenuous at best. Hence it is right that the gold mines should challenge the price of such commodities but should perhaps focus on improving productivity as a primary goal and the cost of labour next, as this is the highest cost element in their organisations.

### **The Suppliers**

The suppliers have invested billions of Rand into their operations and technology, (albeit in some cases this may have been supplied through public funding) and they claim to be good corporate citizens acting in a free market economy with a duty to their shareholders to maximise profits in a responsible and ethical manner.

Their profits are a high source of tax revenues (both corporate and personal income tax) for the country and they also employ tens of thousands of people directly and thousands of others rely on the downstream businesses to survive. The local manufacturing of their products saves the country billions of Rand in

terms of the current account deficit and generates equal amounts of foreign exchange from exports - they are important role players in the macro economy.

The suppliers should constantly strive to reduce costs and improve on quality and not allow their monopolistic advantage to erode efficiency.

### **The Government**

The Government struggles to meet the expectations its citizens in many areas ranging from health care to housing, from education to public safety, but in its defence it inherited a system that was so imbalanced that it will take decades to normalise.

In trying to answer the challenges of improving the quality of life of all and the development of a free market democracy, issues such as competition will inevitably play a key role not only in the facilitation of big business, but in the quality of life of every single person.

Whilst being criticised (somewhat unfairly?) for a lack of capacity within the competition authorities, there is a lot to be proud of and significant improvements have been made in a relatively short time, although there is still a considerable way to go. Increased investment is required in order to speed up the process of handling the work load and if needs be changes to the law to further develop competition across all sectors.

### **7.3. Recommendations**

Whilst having a limited exposure to the complexities of competition, economics and market structures, the study does appear to bring up several issues that the parties should consider going forward, these recommendations include:

### **Gold mining companies**

- Should understand the rationale of suppliers who want to maximise profits in a legal and sustainable way, as this is the fundamental driver of commerce.
- Review their internal costs structures to see which are the highest spend items and therefore which should get the greatest attention.
- Acknowledge the fact that a 10% improvement in productivity will do far more for their bottom line than a 10% reduction in costs.
- Be prepared to allocate more resources to innovation and R & D than they are currently doing.
- Accept the fact that they often do not own the moral high ground.

### **Commodity suppliers**

- Understand that they have important role to play in the larger economic picture of South African other than their own shareholder interests.
- Whilst it is the duty of business to profits, this should obviously be done within the legal framework and spirit of competition legislation.
- Be aware of impending tighter competition legislation and the growing perception that they are sailing very close to the wind.
- Look at ways to add value rather than just increasing prices because of market power.
- Continue to invest in further innovation to reduce their costs and improve the quality of their products.
- Be conscious of the emotion attached to all issues of pricing as this can affect individual key performance areas.

### **Government**

- Acknowledge the criticism aimed at them is the result of a lack of service delivery rather than a personal attack on individuals.
- Allocate greater resources and powers to the competition authorities to enforce the current legislation.

- Understand that their one of their biggest roles is the facilitation of business for the benefits of all its citizens.
- Ensure that excessive regulation is not implemented as this will hinder business and reduce the efficiency of the economy.
- Look to further reduce tariffs and other barriers to economic growth
- Ensure that potential Foreign Direct Investment is attracted through consistent application of policy and a fair system of competition legislation.

#### **7.4. Personal learnings from this study**

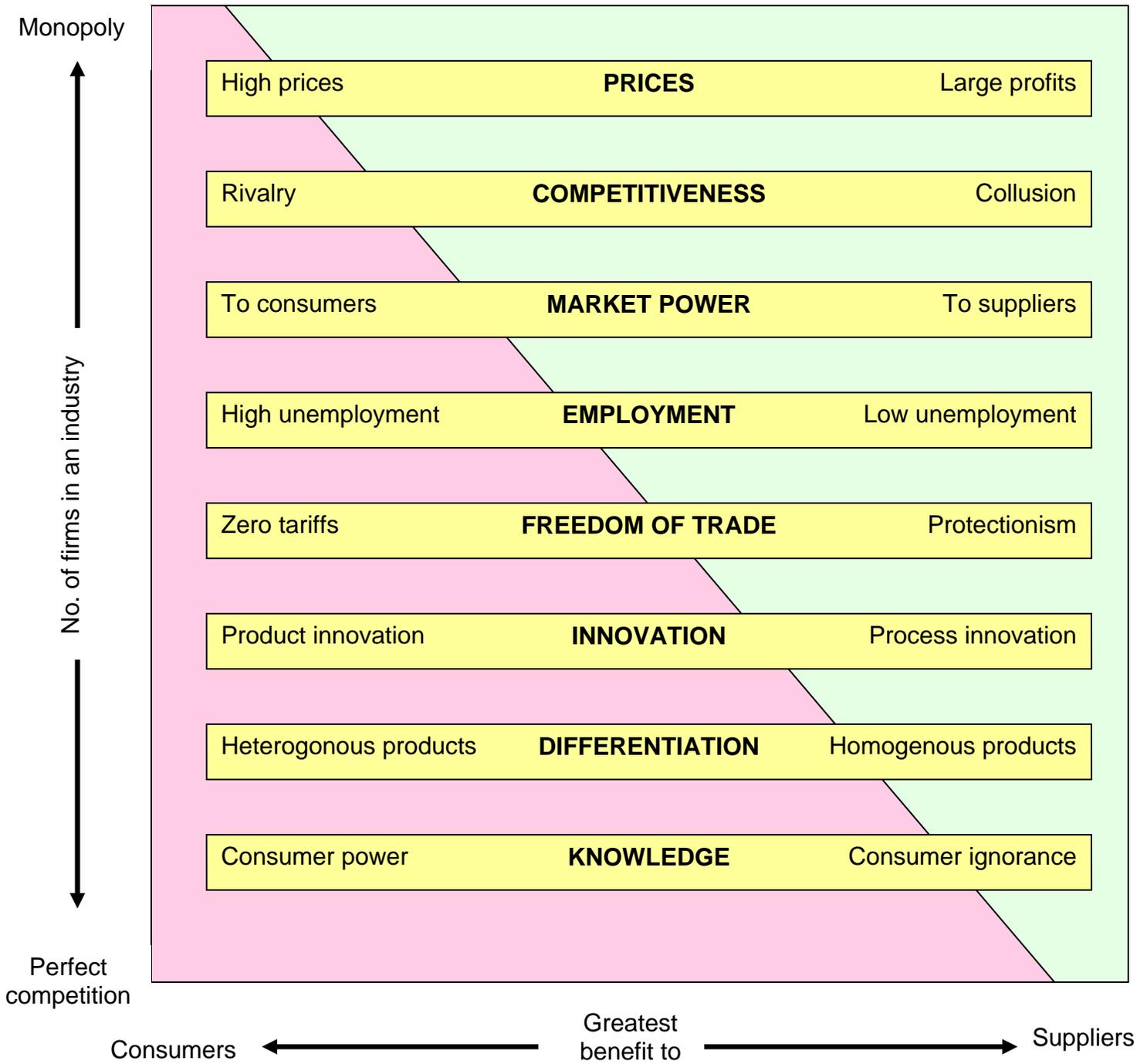
The long term purpose of this study can be broadly defined as “to what extent should the South African government and competition authorities become involved in a free market economy in order to promote competition without over regulation?” Whilst over regulation is a very subjective term, key learnings that I will take away from this study include:

- It is not wrong to want to be successful and make money
- Consumers tend to want everything for nothing
- Some form of competition regulation is required in all markets
- What worked in the past does not necessarily work today
- Very few organisations can claim to have the moral high ground
- Successful business drives an economy and supports society at large
- Governments generally don't manage private business very well
- One of the major roles of government is to facilitate the economy by providing infrastructure and a supportive climate for business
- Emotions place a big role with pricing issues, even when it is the firms money, as this can often have an affect on an individual's performance rating



### 7.5. Qualitative Deadweight Loss to society model

The model attempts to identify the key issues when comparing the number of firms in a sector with the benefits to consumers/suppliers and how the sector could be seen to be functioning.



## 7.6. Future research ideas

This study only skims the complex and sensitive issues around competition, pricing, market power, elasticity of demand, barriers to entry, collusion, regulation and industry efficiency.

Areas that could be considered for future research include:

- Protectionism for local manufacturing industries – is it worth the effort?
- The price of energy and how this supports the South African manufacturing sector?
- The re-direction of ammonia into the production of fertilisers for the bio-fuels industry.
- Movement of firms along the value chain to further benefit their own products.
- Backward integration into raw materials for mining companies to ensure continuity of supply and to hedge their costs.
- ASGISA and competition law.
- Tariff structures for imported products.
- Corporate social responsibility – at what cost and who foots the bill?

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## Appendix 1 - Market demand curve: a summary

Determinants, factors and results of changes in the demand side of a market

Determinant	Change	Effect on market demand curve	Correct description of effect
Price of the good	Increase	Upward movement along the demand curve	A fall in the quantity demanded
	Decrease	Downward movement along the demand curve	An increase in the quantity demanded
Prices of related goods - substitutes  - complements	Increase	Rightward shift of the demand curve	An increase in demand
	Decrease	Leftward shift of the demand curve	A fall in demand
	Increase	Leftward shift of the demand curve	A fall in demand
	Decrease	Rightward shift of the demand curve	An increase in demand
Income (normal good)	Increase	Rightward shift of the demand curve	An increase in demand
	Decrease	Leftward shift of the demand curve	A fall in demand
Taste/preferences	An increased desire to buy	Rightward shift of the demand curve	An increase in demand
	A reduced desire to buy	Leftward shift of the demand curve	A fall in demand
Population	Increase	Rightward shift of the demand curve	An increase in demand
	Decrease	Leftward shift of the demand curve	A fall in demand
Expected future price of the good	Increase	Rightward shift of the demand curve	An increase in demand
	Decrease	Leftward shift of the demand curve	A fall in demand

Source: Mohr and Fourie (2005).

## Appendix 2 - Market supply curve: a summary

Determinants, factors and results of changes in the supply side of a market

Determinant	Change	Effect on market supply curve	Correct description of effect
Price of the good	Increase	Upward movement along the supply curve	An increase in the quantity supplied
	Decrease	Downward movement along the supply curve	An decrease in the quantity supplied
Prices of alternative products (substitutes in production)	Increase	Leftward shift of the supply curve	A decrease in supply
	Decrease	Rightward shift of the supply curve	An increase in supply
Prices of joint products (complements in production)	Increase	Rightward shift of the supply curve	An increase in supply
	Decrease	Leftward shift of the supply curve	A decrease in supply
Prices of inputs	Increase	Leftward (upward) shift of the supply curve	A decrease in supply
	Decrease	Rightward (downward) shift of the supply curve	An increase in supply
Expected future prices	Expected to increase	Rightward shift of the supply curve	An increase in supply
	Expected to decrease	Leftward shift of the supply curve	A decrease in supply
Technology	Cost reducing improvements	Rightward shift of the supply curve	An increase in supply
	Cost increasing changes	Leftward shift of the supply curve	A decrease in supply
Number of firms (sellers)	More firms enter market	Rightward shift of the supply curve	An increase in supply
	Firms leave market	Leftward shift of the supply curve	A decrease in supply

Source: Mohr and Fourie (2005).

## Appendix 3 - Questionnaire used during interviews

Bob Brown

GIBS MBA 2006/7

Dissertation Questionnaire

### **1 Economics - discuss annual report figures prior to engaging in detailed questions**

1 1.1 Can you confirm your business strategy over the last 3 years? Cost management, Expansion, hurdle rates, ROE?

2 1.2 Can you provide me with an average cost breakdown % per kg of gold into the following categories over the last 12 mth?

Labour	Electricity	water	Stores/consumables	fuel	other 1	other 2

3 1.3 Can you provide me with an average cost breakdown % per kg of gold of the stores costs over the last 12 mth?

Timber	Steel products	Explosives	Other chemicals	Other mining	other 1	other 2

4 1.4 Can you indicate which of these products are somehow linked to foreign prices or IPP/EPP linked? or what are the drivers of the prices

<u>Driver</u>	<u>Driver</u>
Explosives	Timber
Other chem	Steel

5 1.5 Are you able to share the historical spend on these items and the price mechanisms used?

6 1.6 How many suppliers are there for the top 3 stores spend items and who are they?

7 1.7 What effect would these products have on your pay limits and reserves if say they double or halved overnight?

## 2 Market forces - discuss theory (Supply & Demand, Porter etc.) prior to engaging in detailed discussion

- 8 2.1 May I confirm with you my understanding of IPP/EPP so as to ensure we are clear on the meaning?
- 9 2.2 Do you believe that IPP/EPP is a fair way to charge for such commodities, if not why not? What other price systems should be used?
- 10 2.3 Are you familiar with the Harmony & DRD case against Mittal and the recent findings? Discuss
- 11 2.4 Has the action taken by Harmony/DRD against Mittal been worth the effort and should the industry as a whole take legal action?
- 12 2.5 Should this type of legal action be expanded to other commodity suppliers - e.g. Sasol or Eskom?
- 13 2.6 Do you believe the government should assist private sector companies into entering the steel or chemical sector to increase competition?  
e.g. preferential tax, low cost financing, direct investment (PIC) etc
- 14 2.7 Do you believe there is tacit collusion between commodity suppliers on market share or prices?

### 3 Responses from mining sector - discuss consolidation in the mining sector

- 15 3.1 What benefits do larger mining groups have over smaller ones in terms of skills, labour negotiations, buying power etc.
- 16 3.2 Do you think consolidation in the gold mining sector has been by design or by accident?
- 17 3.3 What impact did the mining charter have on growth or other key strategies
- 18 3.4 Monopsonies (sole buyer of a good or service) often request the best price in the industry based on volumes - is this fair / legal ?
- 19 3.5 Do you think the mining industry has explored substitute raw materials/mining methods e.g. mechanical mining sufficiently?
- 20 3.6 Are you supporting the import of stores items from countries such as China, if so what are your largest spend items?
- 21 3.7 Are imports in the national interest or do they not undermine local employment, balance of payments, local tax base etc?
- 22 3.8 Would you welcome or even JV with a new competitor to Mittal or Sasol into the local manufacturing business even though there is excess capacity at current facilities?

#### 4 Role of government - discussion on competition authorities, Mittal, FDI etc

- 23 4.1 Mittal and Sasol were both parastatals, should the govt. have kept these strategic resources in house when the likes of SAA are such failures?
- 24 4.2 Do the competition authorities offer effective avenues to challenge dominant companies and possible excessive prices?
- 25 4.3 Do you believe that the Competition Act is properly enforced and that dominant suppliers are sufficiently compliant?
- 26 4.4 Given that you sell gold on world market prices if the govt. was to force you to sell to local customers at reduced prices would this be acceptable?
- 27 4.5 If govt. sets the petrol price based on an IPP model, is it credible for them to force other companies to abandon such pricing regimes?
- 28 4.6 Should the govt. interfere with a free market economy and to what extent, given the shortcomings of controlled markets previously e.g. Soviet Block, Zimbabwe
- 29 4.7 In order to attract FDI such as Alcan into South Africa, stability is required, does the threat of government controlled prices potentially harm this FDI?



## **Appendix 4 – Websites used:**

[www.ael.co.za](http://www.ael.co.za)

[www.anglogold.co.za](http://www.anglogold.co.za)

[www.arcelormittal.com](http://www.arcelormittal.com)

[www.bullion.org.za](http://www.bullion.org.za)

[www.comptrib.co.za](http://www.comptrib.co.za)

[www.compcom.co.za](http://www.compcom.co.za)

[www.dme.gov.za](http://www.dme.gov.za)

[www.drdgold.co.za](http://www.drdgold.co.za)

[www.dti.gov.za](http://www.dti.gov.za)

[www.fin24.co.za](http://www.fin24.co.za)

[www.gibs.co.za](http://www.gibs.co.za)

[www.goldfields.co.za](http://www.goldfields.co.za)

[www.harmony.co.za](http://www.harmony.co.za)

[www.info.gov.za](http://www.info.gov.za)

[www.mq.co.za](http://www.mq.co.za)

[www.mineweb.com](http://www.mineweb.com)

[www.miningmx.co.za](http://www.miningmx.co.za)

[www.moneyweb.co.za](http://www.moneyweb.co.za)

[www.newmont.com](http://www.newmont.com)

[www.sasol.com](http://www.sasol.com)

[www.simmers.co.za](http://www.simmers.co.za)

[www.southafrica.info](http://www.southafrica.info)

[www.tips.org.za](http://www.tips.org.za)

[www.tralac.org](http://www.tralac.org)

[www.wits.ac.za](http://www.wits.ac.za)