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Impact of the macro and micro economic environment on business strategy.

A case study on Lonmin Platinum.

Andrew Adrian Brown

A research report submitted to the Faculty of Engineering and the Built Environment, University of the Witwatersrand, Johannesburg, in partial fulfilment of the requirements for the degree of **Master of Science in Mining Engineering.**

Johannesburg, 2015

DECLARATION:

I declare that this research report is my own unaided work. It is being submitted to the degree of Master of Science in Mining Engineering to the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination to any other University.

I have read the University Policy on Plagiarism and hereby confirm that no Plagiarism exists in this report. I also confirm that there is no copying nor is there any copyright infringement. I willingly submit to any investigation in this regard and I undertake to abide by the decision of any such investigation.

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ABSTRACT

Business strategies are formalised to meet the long term objectives of the organisation while considering influences from the macro and micro economic environments.

A series of events preceding 2014 influenced Lonmin's business strategy. Most significantly – the persistent low platinum price, the Marikana incident in August 2012, the successful conclusion of the Rights Issue in 2012 and the premature departure of the Chief Executive, Ian Farmer during the same year.

Divestment in the mining sector limited access to capital funding. Rising utility and labour costs resulted in increasing unit costs. This compelled Lonmin to focus their objectives on cash conservation rather than growth. Lonmin's marginality would be tested against its peers considering the platinum industries cost curves and a reengineering of the business was required to ensure Lonmin secured its financial future (Lonmin Regulatory Release, 2012) in order to meet their banking covenants and attract investment.

The well-publicised platinum industry strike from January to June 2014 resulted in R4 billion losses in revenue for Lonmin (PWN, 2014). Prior to this strike, Lonmin was well on their way to delivering on the expectations of the board in terms of safety, productivity and cost reduction. This performance was expected to be maintained during the 2014 financial year.

In conclusion, the ramification of these events from 2010 would compel Lonmin to review the long term strategy and these revisions would remove approximately six million platinum ounces from the plan placing Lonmin at risk of value destruction, waning investor confidence in the company and the prospect that Lonmin will not recover from the down cycle.

ACKNOWLEDGEMENTS

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A sincere gratitude is extended to my colleagues at Lonmin, Bernabe Kloppers and Victor Nagel, whose business acumen and knowledge of financial modelling proved invaluable.

Finally, the diligent and consistent guidance and coaching from my supervisors - Doctor Jeannette McGill and Professor Richard Minnitt of the University of the Witwatersrand was highly professional and paramount in ensuring the successful completion of this research report.

The author is currently employed by Lonmin in a capacity that enabled him to have access to information on the business. To that end, the author had to exercise caution on the type and quality of information he used in this research report. Only information that resided in the public domain in the form of annual reports and public documents could be researched and considered in formulating the author's views on this subject. Under guidance from the author's supervisors in Lonmin, confidentiality had to be practiced before any information was disseminated.

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CHAPTER 1: INTRODUCTION

Lonmin is a company that mines, processes, refines and markets its platinum group metals (PGM's) primarily from the Marikana operations based in the Rustenburg district of South Africa. The platinum industry in which Lonmin operates is cyclical. In order for Lonmin to maximise profits during these cycles requires three elements; firstly, a diligent management of operational flexibility to react swiftly on an upswing in the demand cycle and secondly, the integrity of the long term plan must be ensured through responsible employment of capital which will ensure growth opportunity within the business and finally, a prudent cost management strategy.

The organisational effectiveness of the company's leadership must focus on entrenching the objectives required to deliver on the business strategy, as indicated by Rio Tinto (2008) that a group's alignment and delivery on the long term strategy will be ensured only if a consistent framework is adopted. In the case of Lonmin, the leadership in the executives has been the subject of numerous changes in a relatively short period.

The Global Financial Crisis (GFC) of 2008 was a catalyst in many respects to the change in the platinum supply and demand balance due to the influence of the credit crunch. The platinum producers both globally and locally in South Africa were significantly impacted as these mining companies are susceptible to cyclical changes in the metals pricing. Interpreting and forecasting the cycles of the metal price and the exchange rates is not an exact science and as has been the case in the past, this has been over and under estimated when, for example, projects with long lead periods and high capital requirements, were approved (Frankel and Sturzenegger, 2008).

Since South African producers supply 70% of the metal, as discussed in Chapter 3, to the global market; the impact of labour unrest, government interventions through imposed safety stoppages and the diminishing investment into this sector,

would influence the profitability of these mining companies in the short and medium term. Lonmin's opportunity to maximise profits during cyclic upswings is inhibited by the limited operational readiness within the South African based Marikana operations due to deferred capital, the influence of the labour unions on the shafts and the ever present government legislation. These challenges pose a threat to Lonmin meeting the strategic objectives of the company.

1.1. Hypothesis

The primary macro and micro economic drivers influenced Lonmin's decision to pursue a Rights Issue. Lonmin was in the process of instituting cost saving initiatives prior to the Rights Issue. This pursuance was supported by a robust operational, technical and financial plan; however, the external influences by the legislature and stakeholder expectations were not fully accounted for in the risk determination.

The Rights Issue had the purpose of reducing the debt burden on Lonmin which was at risk of breaching its banking covenants. Indirectly, this debt reduction aimed to improve Lonmin's capital forecast and cost management in the near future, enabling a stronger business platform from which to maintain sustainability and create flexibility.

Based on the outcomes of the relatively strong 2013 financial year as well as the negative 2014 financial year, impacted by the extended labour strike, this research evaluates Lonmin's lost opportunity as a business looking forward to the long term.

1.2. Research Objectives

1.2.1. Investigate the platinum markets that lead Lonmin to seek a Rights Issue in 2012.

1.2.2. Determine what the expectation for the business strategy was from this funding in terms of capital expansion, upgrading infrastructure and industry competitiveness.

1.2.3. Analyse the impact of the labour, political and economic issues in South Africa that impacted the operational sustainability of Lonmin.

1.2.4. What would the forward looking effect be in terms of Lonmin's strategic business model?

1.3. Research Questions

1.3.1. What were the macro and micro economic market drivers that placed Lonmin in a financial position to seek funding through a Rights Issue?

1.3.2. Would the expectations of the Rights Issue improve output for Lonmin in order to realise the objectives of the long term strategic plan?

1.3.3. What effect did the commodity market and industrial action have on the strategy adopted by Lonmin?

1.4. Research Methodology

This research will develop an understanding of the global platinum market while assessing the primary factors like costs and risks that influenced the local South African mining industry. The commercial rank of Lonmin in the market compared to the industry peers will be studied while developing an understanding of what precursors existed to compel Lonmin to seek a Rights Issue in 2012.

As a result of several business rationalising interventions in Lonmin, this study will further aim to create an understanding of the change in Lonmin's long term plan due to capital deferments. Finally, a conclusion will be sought on the outlook of Lonmin's business model by comparing the latest 2014 operational plan and the 2010 LTP plan – had the capital deferments and strikes associated with the industrial disruptions, not taken place.

1.4.1. *Background and context. Understanding the market supply and demand for the commodity that influences Lonmin* - In this section, it is important to develop an understanding of what the prevailing market conditions were from 2010 through to 2013 that influenced Lonmin's strategic approach. Amongst these were commodity recoveries after the global recession, changing demand and supply balance across different sectors of the globe as well as increasing pressure on companies to improve on the safety and cost environment.

1.4.2. *Defining Lonmin's commercial position in the South African platinum industry* – Lonmin is regarded as the third largest platinum producer, albeit significantly smaller than its competitors in market capitalisation and annual production of platinum. This section of the research will focus on the three large South African platinum producers and attempt to compare their operational performance for the period of review. These comparisons will enable the author to understand the complexities of the operational performance drivers and how each company planned to address the prevailing global market conditions.

1.4.3. *Determining the financial environment that compelled Lonmin to seek a Rights Issue* – Having established the market environment in which Lonmin operates, this section will aim to unpack the motivations and reasons for Lonmin pursuing a Rights Issue in 2012. This section will set out what the Rights Issue was to achieve in terms of Lonmin's sustainability and operational flexibility.

1.4.4. *Lonmin strategic plan* – The long term plan (LTP) is the most descriptive plan that represents what Lonmin's revised strategy has been. In this plan, capital deferments and curtailments as well as various scenario plans have been tested. Each scenario, irrespective how it is assessed, has had a negative impact on Lonmin's LTP outlook.

1.5. Conclusion

This research will conclude on the negative impact on the long term sustainability of Lonmin through the revised capital deferments and curtailments as well as the organisational restructuring during which key people, who were responsible for meeting the objectives of the business strategy, were be replaced.

During 2015, the platinum industry will continue to experience significant changes in terms of supply constraints, market pressure, and industrial challenges with labour and increasing demand to cut costs. As a result, the operators in this mining spectrum will constantly be evaluating their operational and financial positions, especially as the companies approach their respective financial year end.

In finalising the outcome of this research report, the author chose to set a 'cut off' period as at the 8th July 2015 in respect of the researched information and apply this information to inform the outcome of this research.

CHAPTER 2: LITERATURE REVIEW

Business strategies of mining companies are developed and aligned to maximising that company's value as well as ensuring a sustainable shareholder return (Rio Tinto, 2008). These strategic objectives are established so that all stakeholders benefit from the successful execution thereof and achieving these objectives can only be done when the company fully understands the mining-specific risks associated with these organisations (Bell, A., 2015, p10).

In the period post the GFC, the underlying strategic intent of the three major platinum producers in South Africa was to focus on stakeholder value rather than growth prospects considering the prevailing platinum market conditions.

Anglo American Platinum (AAP) changed their business strategies from growth-driven to value-driven in order to ensure that the business could sustain profitability, remain competitive and sustain their long term objectives. To achieve this, AAP was determined to focus on their lower risk and higher margin operations (AAP, 2013). Lonmin (LON) adopted a business strategy to protect short-term value of the company's assets and forgo growth by strict focus on cost controls, maximising output from the larger operations and significantly curtailing capital expenditure (LON, 2012, p19). Impala Platinum's (IMP) strategic focus would be toward operational excellence and preservation of natural resources while improving stakeholder relations and cultural transformation (IMP, 2013, p34).

The basic elements that guided the business strategies for platinum companies in South Africa during 2012 and 2013 was operational excellence through improved productivity and cost management, business sustainability through improved stakeholder relations and preservation of long term value prospects and natural resources.

Since this research aims to understand the impact on the future strategies Lonmin would consider, there is currently no specific literature, with the exception of the company's public reports, which discusses the impact on Lonmin's business due to influencing agents from 2010 to 2013. In respect of the South African market, the information of the other companies researched was obtained from their annual statutory reports and presentations available from the investor portfolio. There are however macro and micro economic aspects that did influence Lonmin's decision in formulating their strategy and the literature associated with this information has been reviewed and considered during this research study.

In November 2012, Lonmin urged their shareholders to approve a Rights Issue, as achieving financial certainty for Lonmin through this process was conditional on a majority of shareholders voting in favour of the resolution at the General meeting stakeholders (Lonmin Rights Issue, 2012). Lonmin executives were certain that if this Rights Issue was not approved, that the sustainability of the business would be jeopardised. The Rights Issue prospectus of 2012 defined the strategic intent of Lonmin as that which would preserve a balance sheet focused on maintaining access to sufficient funds to ensure that the Company can both facilitate all ongoing operations and finance prudent capital expenditure programmes.

The global supply and demand balance would contribute significantly to Lonmin's revised strategy. Solomon (2014) indicated that the basic mineral economic dynamics for demand in metals such as platinum was consumerism of manufactured goods such as motor vehicles, jewellery and appliances. The advent of the GFC therefore impacted consumer spending and thus directly, the demand for platinum which resulted in a 285 000oz surplus of supply to the market in 2009 (Johnson Matthey, 2010, p4).

While Lonmin functions mainly within the individual parts (micro-environment) of the South African economy, the influences of the total economic behaviour of the macro-environment, as pointed out by Mohr and Fourie (1995) must be taken into consideration when defining a strategy. Lonmin's strategic capability is

considered to be limited in that the company has struggled to interpret the market and thereby, either been reactive in terms of defining a strategic objective or has not adjusted their objective timeously.

Platinum supplies from South Africa rose by 5% to 4.86 million ounces in 2011 and this increase was entirely due to releases of metal from in-process and refined inventories while underground mine production decreased by 3% (Johnson Matthey, 2013).

According to Johnson Matthey (2012), unit costs in the South African mining industry continued to rise faster than inflation associated with utility and labour costs while increasing volume of supply was being generated from platinum producers outside of this country at lower unit costs. During this period, ramping up at new operations in Zimbabwe also helped reduce the risk to supply. A combination of these factors placed pressure on the ranking of South African mining companies on the industries cost curve.

The supply to the global market emanating from South Africa accounted for c.70%, primarily from the top three primary producers in 2012 (Bell, T., 2012). These were Anglo Platinum with 2,378,600 ounces, Impala Platinum with 1,582,000 ounces and Lonmin with 687,372 ounces. In his view, Anglo Platinum alone produced roughly 30% of total global platinum production. During 2012, the demand for this metal was on the increase and was predicted to hit a record 8.42 million ounces in 2013, lifted by a strong recovery in sales to industrial users and unprecedented offtake by investors (Johnson Matthey, 2012).

However, Rosenau-Tornow et al (2009) points out that supply and demand forecasts should be considered with prudence due to the status of mining projects and exploration changing year on year while Frankel and Sturzenegger (2008) indicate that there is also evidence that growth strategies are based on undervalued exchange rates which have sometimes worked well in a developing world.

Generally these forecasts should only be used to determine trends and possible market failures.

Producers of platinum are price-takers in that the metal price is defined by changes in the global supply and demand on a daily basis (Keeton, 2014). Lonmin's revenue is thus dictated by the prevailing market price (Bell, A., 2015) which saw lower commodity prices testing the viability of marginal mines in the face of increasing costs (Elliot, 2013), particularly as the platinum price declined by 22% in US Dollar terms from 2010 to 2014 (Figure 8). Platinum is also likely to act as a financial instrument comparable to gold as pointed out by Batten et al (2009) that platinum responds to monetary as well as financial variables compared to gold volatility which responds to monetary variables.

Characteristic of the challenges the mining industry in South Africa faced was the impact of ailing infrastructure, government policy uncertainty and poor legal systems which are likely to curb foreign direct investment into Africa (Cheadle, 2015). As pointed out by Calldo (2008), the White Paper of 1998 said that the country would run out of electricity by 2007 and in the absence of a stable national electricity supply for the increasing energy demand in South Africa, capital projects on the mines would be impacted by additional costs for substitute power generation. This risk to business is further supported by Singh (2015) who noted that besides constraints on power, infrastructure access were also a risk. Furthermore, he noted that should these obligations not be met, uncertainty existed in the businesses regarding the mining company's obligations in respect of the Mining Charter.

Fragile labour issues were a major consideration for Lonmin after the Marikana incident in August 2012 and Prinsloo (2015) pointed out that increasingly fraught labour relations were yet another consequence of the plunging platinum price. Keeton (2014) describes how cutting platinum production leads to the closing down of shafts which results in job losses and placing the relations between stakeholders such as labour unions and communities under strain.

Government agencies such as the Department of Mineral Resources in South Africa also impacted the platinum production from the major producers in this country through the imposition of safety induced Section 54 stoppages as defined in the policy of the Mine Health and Safety Act (Johnson Matthey (2012).

Platinum producer's dependent on equity to fund capital projects found it increasingly difficult to secure additional funding and underwrite existing loans with banks as Solomon (2014) explains that the scarcity of capital has challenged the South African mining industry during recent years as investors have chosen to invest their money into cash generative counters in times of economic uncertainty thereby resulting in a flight of funds from resource growth stocks. This shift would make it increasingly difficult for Lonmin to secure funding.

CHAPTER 3: GLOBAL PLATINUM MARKET - BACKGROUND AND CONTEXT

3.1 Introduction

Lonmin is a company listed on the Johannesburg (JSE:LON) and London (LSE:LMI) stock exchanges which owns mining rights over areas in the Marikana district, extracts the platinum group metals from these Mineral Resources and refines the same at base metal and precious metal refineries.

Platinum is primarily used for its application in the automotive industry which has experienced disruption in supply particularly from South Africa and declining demand since 2008. South African mined platinum accounted for 71% of the world's supply in 2013 and as pointed out by Cutifani (2014), this country also possesses the largest minerals inventory in the world. The platinum miners, Anglo American Platinum, Impala and Lonmin ranked as the top three producers (Bell, T., 2012) in this country and had to adapt their operating strategies to account for the change in demand since according to Cutifani (2014), real term value of these companies had declined by 30% since 2007.

Risks that influence the fundamentals of supply and demand in this industry are government legislation, fiscal policies, relations with organised labour, tenure of mining rights and substitution. Since pricing procedures for platinum is not an exact science, forecasting is often inaccurate since planners cannot adequately determine price volatility and cyclic behaviour. This metal is consumed in all applications with the exception of jewellery and Exchange Traded Funds (ETF's), compared to that of gold which is fungible.

The mining industry in South Africa was fraught with economic, labour and political disruptions from the advent of the GFC up to 2014. Annual global production still exceeded 8 million ounces despite platinum group metal (PGM) production being plagued by work disruptions due to strikes, safety stoppages and

mine closures in 2012 (Bell, T., 2012). The majority of these disruptions emanated from the Marikana and Rustenburg districts during 2012.

3.2 Platinum Supply Dynamics

The global platinum market has experienced a significant shift in the supply of the metal by *region* as well as change in *demand volume*. A map of the world's primary suppliers of platinum during the period 2004 to 2010 indicates how South Africa's output has declined by the order of 7% (Figure 1).

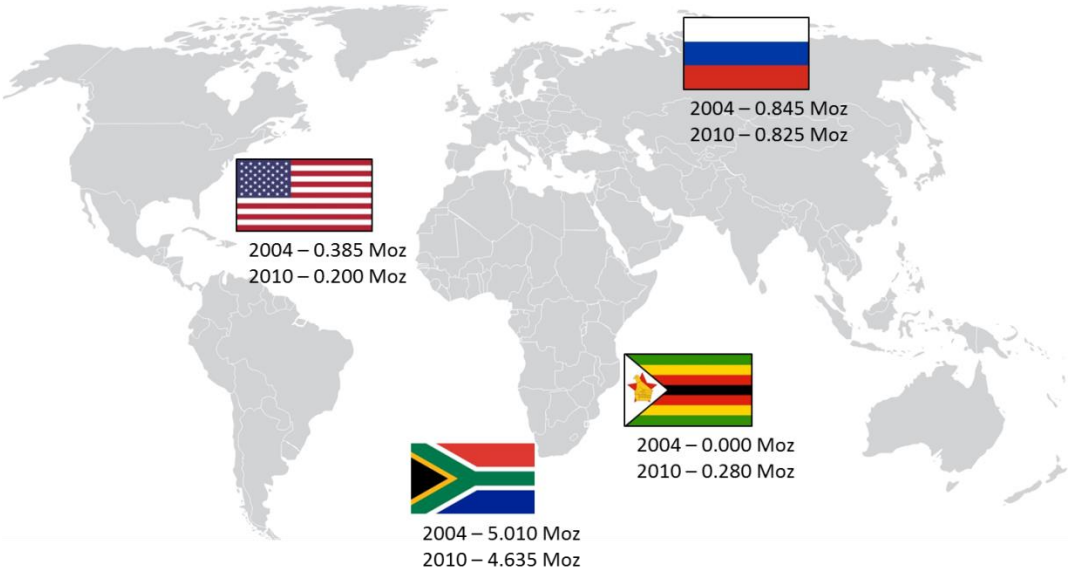


Figure 1: Change in world platinum supply volume (2004 - 2010) (Data Source: Johnson Matthey)

In the decade preceding 2010, South African produced platinum accounted for more than 77% of the global supply as observed by McGill (2010) , but declined to 71% by 2013 while the total supply in volume globally had declined by 7% from 6.49million ounces (2004) to 6.025million ounces (2010) (Figure 2). The emergence of Zimbabwe as an increasing contributor to the global market is observed where supplies from Zimbabwe grew 50,000 oz in 2010 (Johnson Matthey, 2011) while the supply from Russia remained relatively consistent and that from America declined. Furthermore, Zimbabwe has the largest quantified platinum mineral resources outside of South Africa. These are relatively shallow deposits and lend the orebodies to be mined mechanically with relatively shorter

project lead times than that in South Africa (Rossouw, 2015). The increasing supply from Zimbabwe may however be at risk in the foreseeable future as sanctions placed on financing partners like Russia will negatively impact the investment into joint venture platinum opportunities (Zimbabwe Independent, 2015).

Since South Africa is the largest supplier of platinum globally, disruption to supply forms a pivotal function in the volatility of supply to the global market. Labour disruptions, industrial activities and unplanned safety stoppages were listed as the dominant influencing factors in the threat to supply. Increasing operating unit costs and lack of capital for replacement projects has led to the closure of shafts impacting the volume of platinum produced from this industry.

A concern for the platinum miners is the increase in recycled platinum into the market which as at 2010, accounted for 1.83 million Pt ounces. The supply from recycling over the preceding decade increased by the order of 300% (Figure 2).

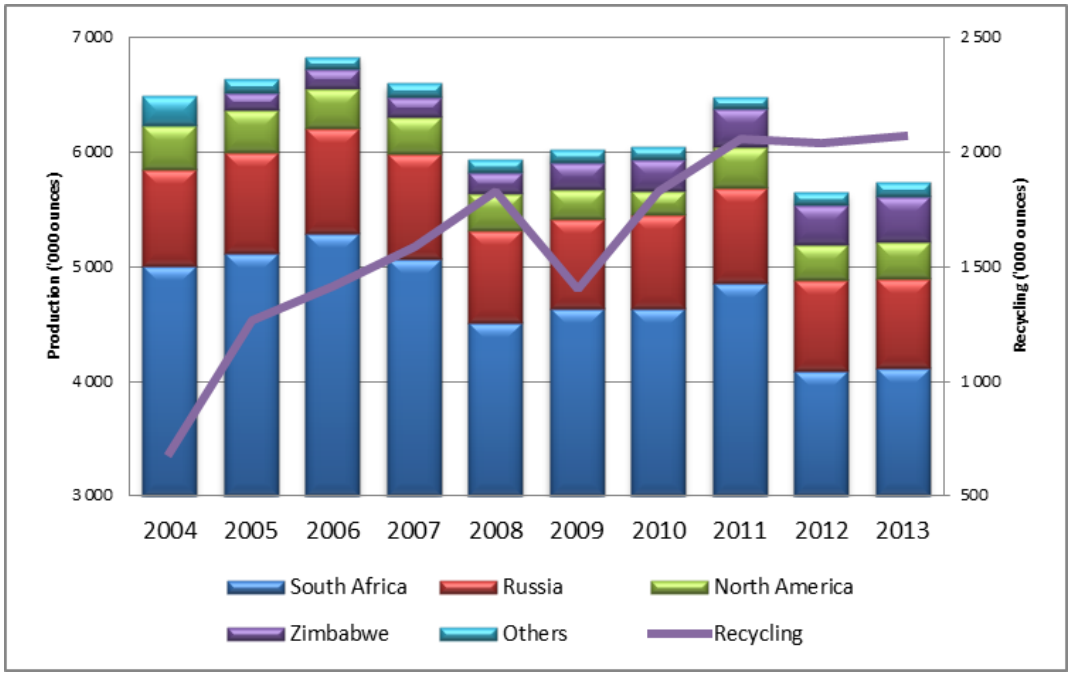


Figure 2: Platinum supply by region including the recycled contribution (Data Source: Johnson Matthey)

Platinum supply from the extractive industry has constantly been subject to risk of substitution either through alternative products or recycling. The shortfall experienced in the global supply, principally due to the disruptions experienced in South Africa, was mitigated by recycled platinum. This is evident as the metal price declined during the 2014 strike in South Africa, rather than increase on the back of risk to global supply. The recycling sector has been stimulated due to increased disposal of the product through additional scrapping of old vehicles and evolving technology which improves the recoveries of platinum from catalysts. Surface stocks of platinum are estimated to be in the order of 2.56 million fine ounces in 2014 (de Lange, 2014), however, the actual quantities and location of this metal has always been uncertain.

3.3 Platinum Demand Drivers

Demand for platinum was dominated by the automotive industry up until 2008 however, post the GFC, a slight offset saw the autocatalyst market lose ground to increasing demand from the jewellery and investment market. The autocatalyst market would be unlikely to increase due to a decline in production of light diesel motor vehicles, especially due to a fall in registrations in these vehicle categories in France, Germany and Italy (Johnson Matthey, 2013). The demand for platinum in gasoline vehicles is also in a decline as the propensity for substitution increases (Johnson Matthey, 2013). Although the absolute platinum demand has increased from 7.23 million ounces in 2004 to 8.42 million ounces in 2013, the autocatalyst demand has declined from 3.49 million ounces to 3.12 million ounces for the same period (Figure 3). In contrast, the demand from the investment market increased 17 fold and in 2013, this sector consumed 765 000 ounces while the jewellery sector increased by 580 000 ounces to reflect 2.74million ounces in 2013. Industrial demand also increased by c.28% for this period.

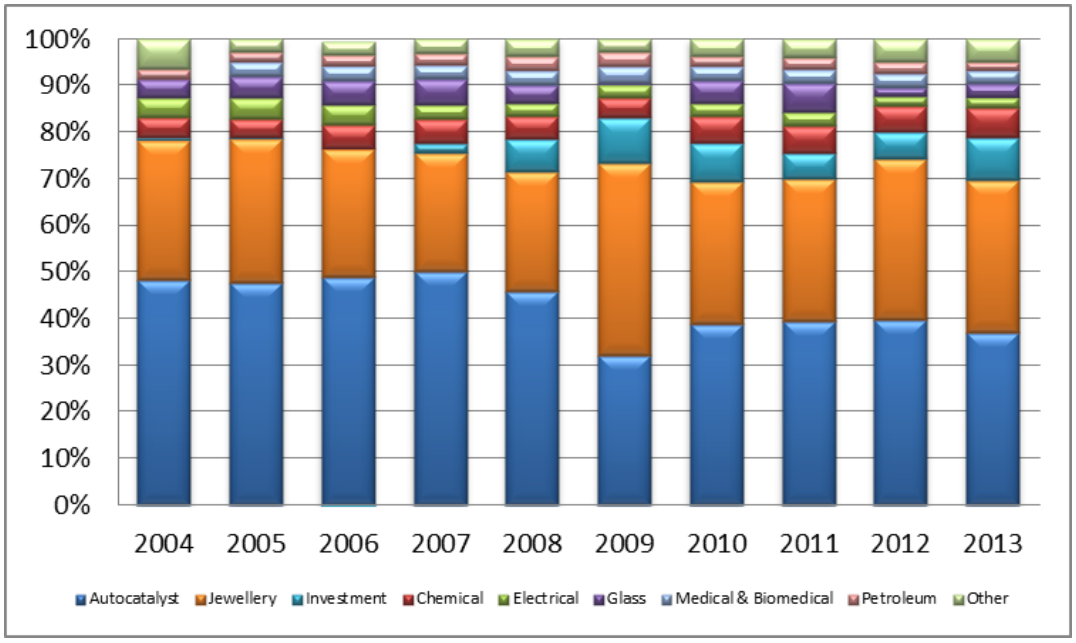


Figure 3: Platinum demand by application 2004 - 2013. (Data Source: Johnson Matthey)

Automotive

Production of motor vehicles worldwide in 2010 and 2011 was predominantly affected by the credit crunch and the Eurozone debt crisis. In addition, factors such as the earthquake in Japan and the policies in China regarding new vehicle registrations also restricted growth in the automotive sector (Johnson Matthey, 2012). The data of the decreasing market share for the demand of autocatalyst presented in Figure 3 is in contrast with the increasing number of vehicles manufactured which increased consistently by c.34% from 2004 to 2013 totalling 87.35 million units produced in 2013 (Figure 4). This presents a perspective on the increasing availability of recycled material and improved development in technology for the reduction of platinum in the design of the autocatalyst, notwithstanding the stringent requirements of the Euro VI legislations.

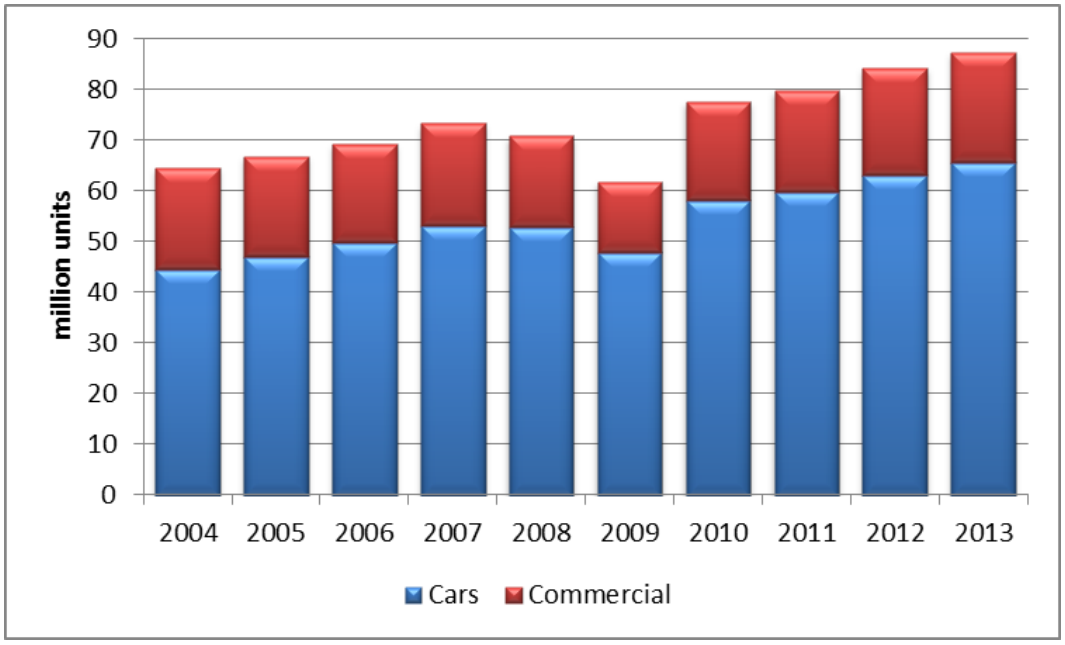


Figure 4: Worldwide vehicle manufacture (Data Source: OICA)

Investment

The overall growth on demand from this sector increased 8% from 2004 to 2013 (Figure 5).

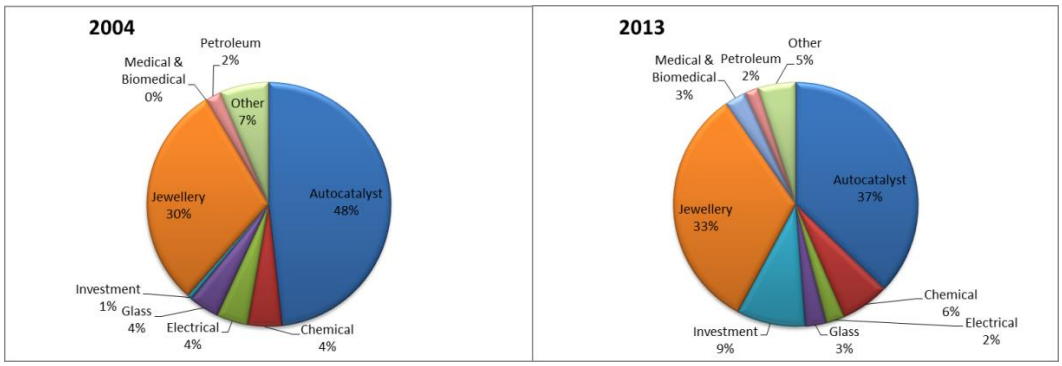


Figure 5: Change in Platinum demand by application from 2004 – 2013 (Data Source: Johnson Matthey)

The appetite for investing in platinum has increased with the exception of Europe and Japan (Johnson Matthey, 2013 p.20), displaying a confidence in platinum as an attractive investment tool. A positive inflow from speculative investors grows as institutional investment portfolios expand (Johnson Matthey, 2012) and this

increase in demand would see the investment market expand to over 2 million Pt ounces from 2004 to 2013.

3.4 South African Endowment

South Africa can be regarded as a natural resource intensive country and similar to Australia (Maxwell, 2011, pg40), will export minerals either in a refined or unrefined form and import manufacturing goods. The platinum mining sector is reliant on a large labour workforce and has experienced increasing strain in terms of industrial and employee relations with stakeholders, utility disruptions, capital deferment and legislative requirements.

Wages in the mining sector show higher median compared to other sectors and a 70% increase during the period 2003 – 2010 (Figure 6). Labour employed by the mining sector increased by 22.9% between 2000 and 2010 and the increases in the wages as a percentage of total costs increased by more than 30% year on year (Gwatidzo and Benhura, 2013, p17).

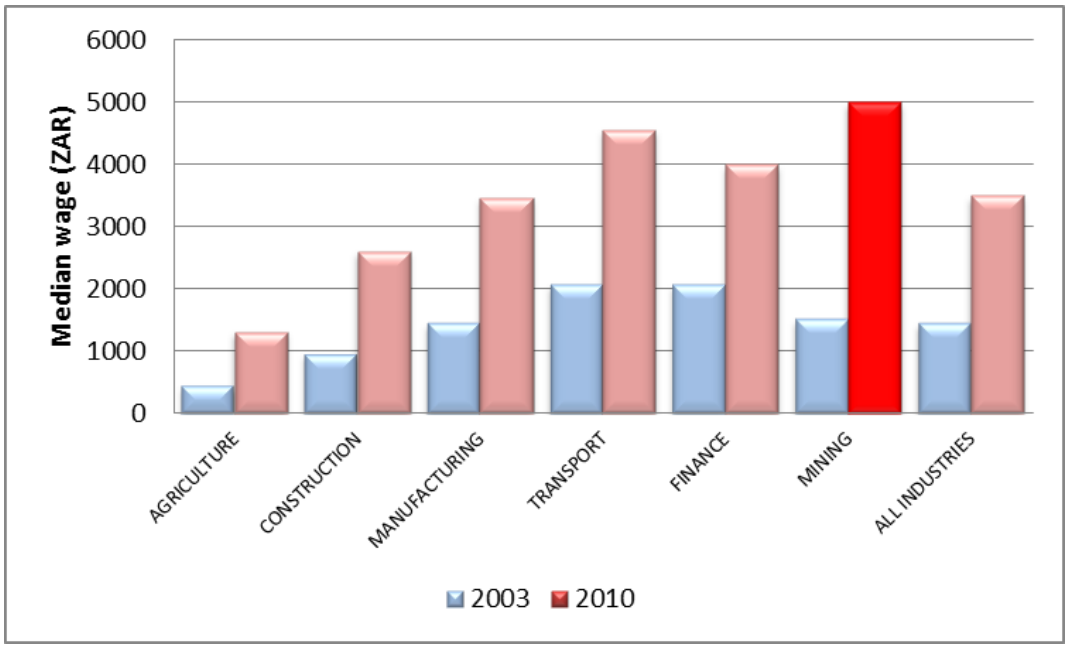


Figure 6: South African median wage sector change in 2003 -2010 (ZAR) (Source: Gwatidzo & Benhura, 2013)

Platinum price and FOREX cycles

The platinum price cycle over the past decade (Figure 7) has experienced significant volatility which influenced the sales revenues of the platinum mining industry while a decline in output from South Africa lead to a reduction in supply (Johnson Matthey, 2012). The South African platinum mining companies have no direct influence over the listed price of the metal as it is generally determined by a commodity exchange reference price on the base of Johnson Matthey's market value for the metal in sponge form (Damarupurshad, 2014).

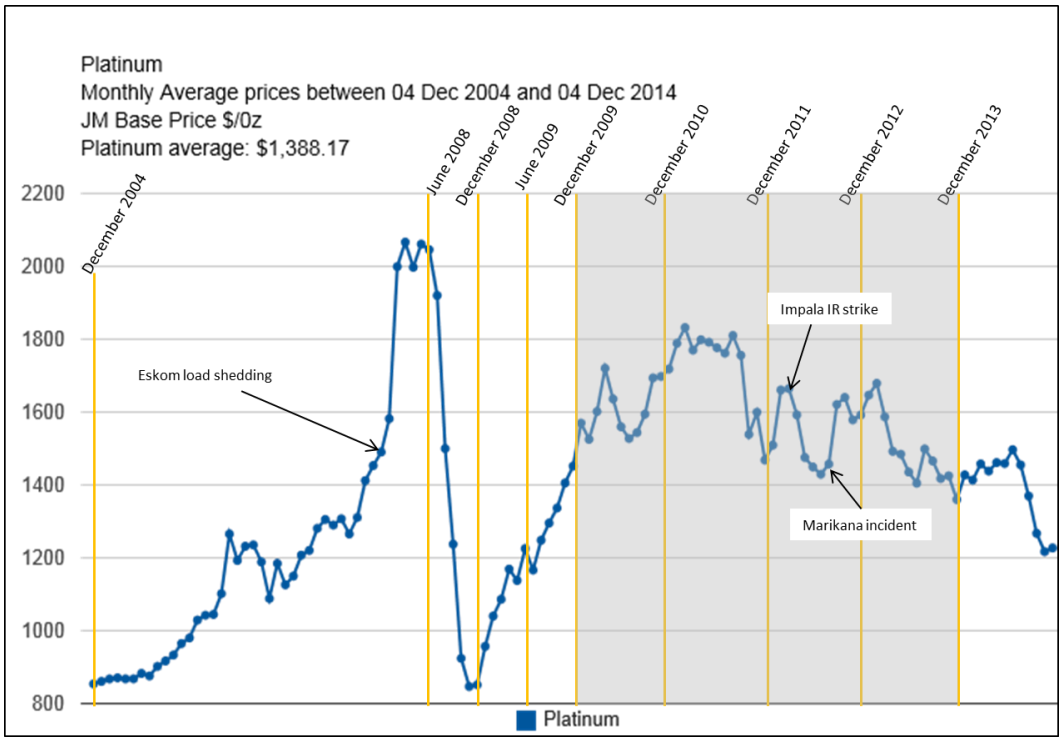


Figure 7: Historic platinum price (USD/oz) (Source: Johnson Matthey)

Floating exchange rates exist in the South African foreign exchange market and as such, adjust up or down. The mining industry exports goods to other nation's thereby attracting foreign income (Maxwell, 2011) while equipment and manufactured goods applied in the mines is generally imported and prone to the weakening of the local currency which impacts capital.

The period post the GFC was characterised by a declining platinum price (USD) by the order of 22% from 2010 to 2014 while the South African Rand weakened by 49% (Figure 8).

Investors and analysts have continually been concerned that the associated weakening of the ZAR exchange rate masks the real impact of the decrease in the USD of the platinum price which somewhat shielded the South African mining industry from the decline. PWC determined that the effective rand Pt price growth from 2009 to 2014 was only 3.7% (Boegman & Rossouw, 2014).

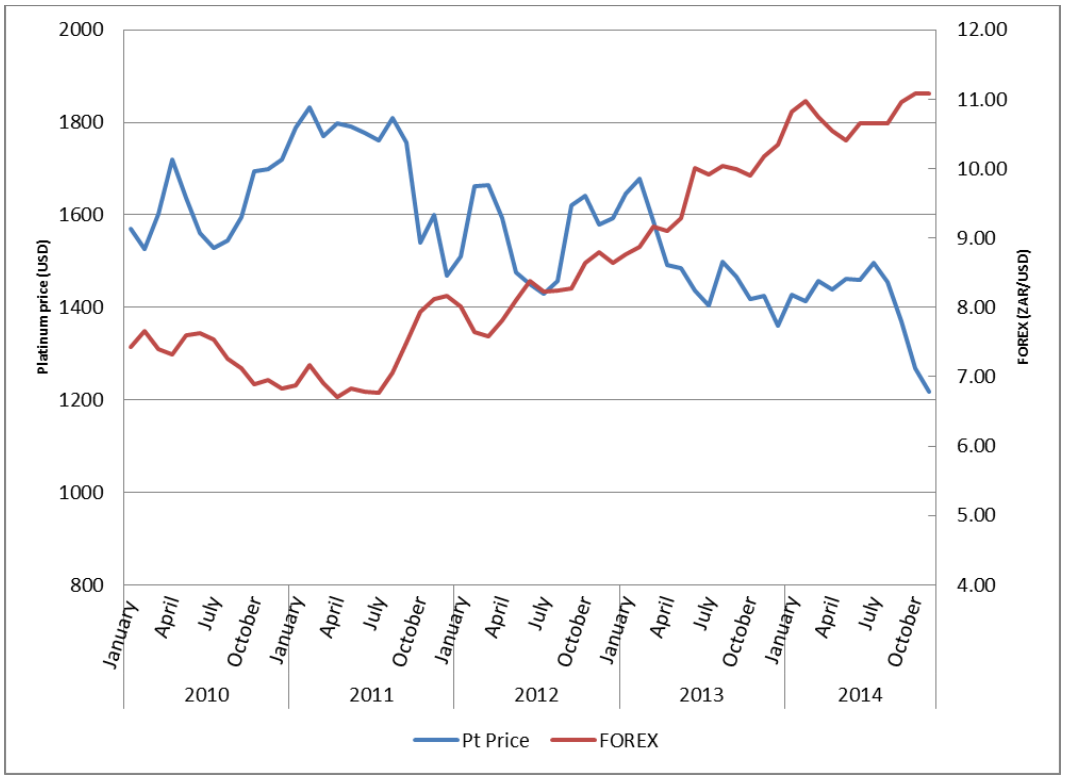


Figure 8: Platinum price vs foreign exchange rate (Data Source: price – JM, FOREX – Oanda)

A short reprieve saw the platinum price rise to $1700 in 2011 due to concerns over disruption to supply associated with industrial action in the platinum sector in South Africa but then decline rapidly impacted by the decreasing gold price and unresponsive to supply risks (Johnson Matthey, 2013). The commodity price would not be influenced irrespective of risk to supply brought about by factors like the introduction of load shedding in South Africa from the parastatal energy

provider, unprotected strikes that were experienced by Impala in March 2012 and the August 2012 Marikana event. This is attributed to the large inventory of surface platinum stock held by consumers which offset the demand requirements and reduced market volatility (Boegman & Rossouw, 2014).

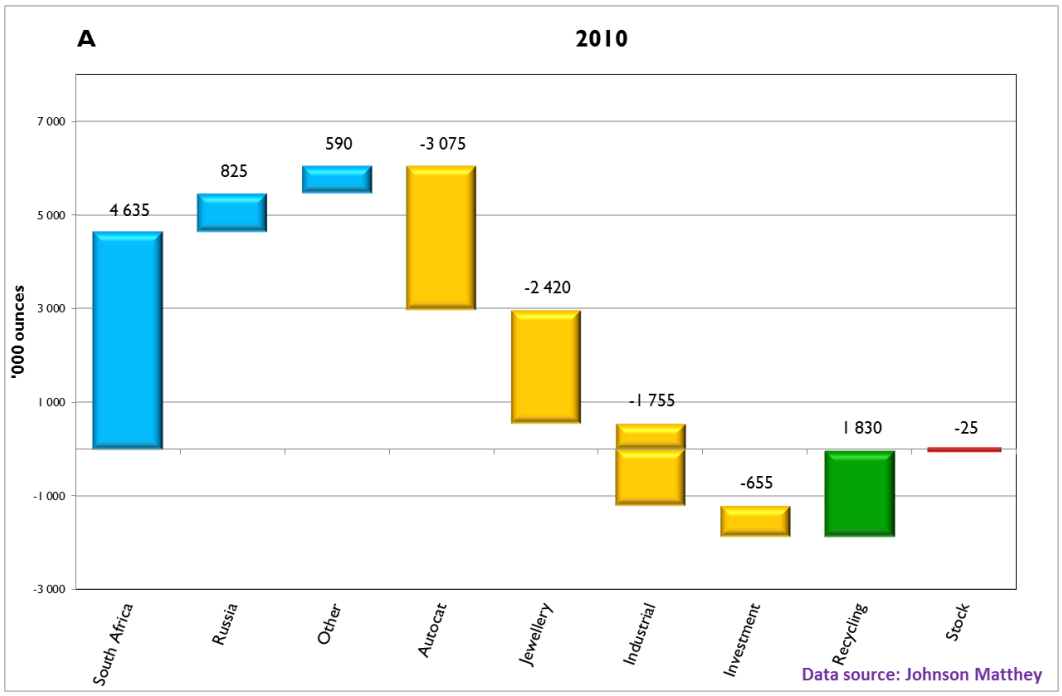
Contrary to the typical behaviour of price elasticity of demand which should have been negative (Mohr and Fourie, 1995) as the metal price decreased, the demand for the metal remained below forecasts and the resulting price was under strain to realise an increase. It is probable that the market feared a rebound of the platinum price back up to the $2000/oz levels and in response, relied on above ground stocks and inventories held in repositories and vaults to supplement the a shortfall.

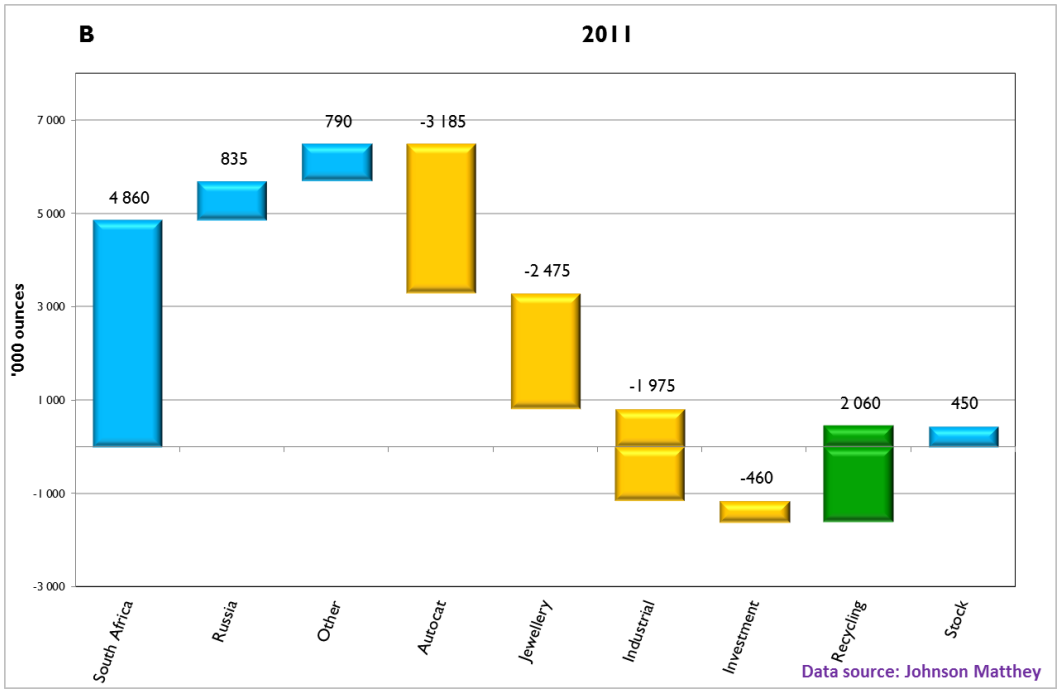
3.5 Macro Economic Environment

The world's economic health was in slow recovery after the GFC and this was significant for the platinum sector in respect of declining demand due to limited production of automotive vehicles both in Europe and the USA. South Africa was amongst several other 'developing countries' globally who experienced a negative real GDP growth rate in 2009 (GEP, 2010) while being the only country in the sub-Saharan category to experience this.

The expected recovery in the global platinum demand after 2009 was not realised due to the negative impact of difficult economic conditions driving demand for platinum in many sectors down 11.9% (Johnson Matthey, 2010). South Africa's platinum industry is influenced by the global economic environment when compared to the movements of the mining indices (Boegman & Rossouw, 2014). Stringent reviews of capital expenditure, marginality of shafts and reduced platinum production through closure of shafts and deferment of projects would be on the top of the agenda for platinum miners.

During this period, platinum mining companies would experience increasing pressure to improve their performance on the legislative, safety and operating cost environment.





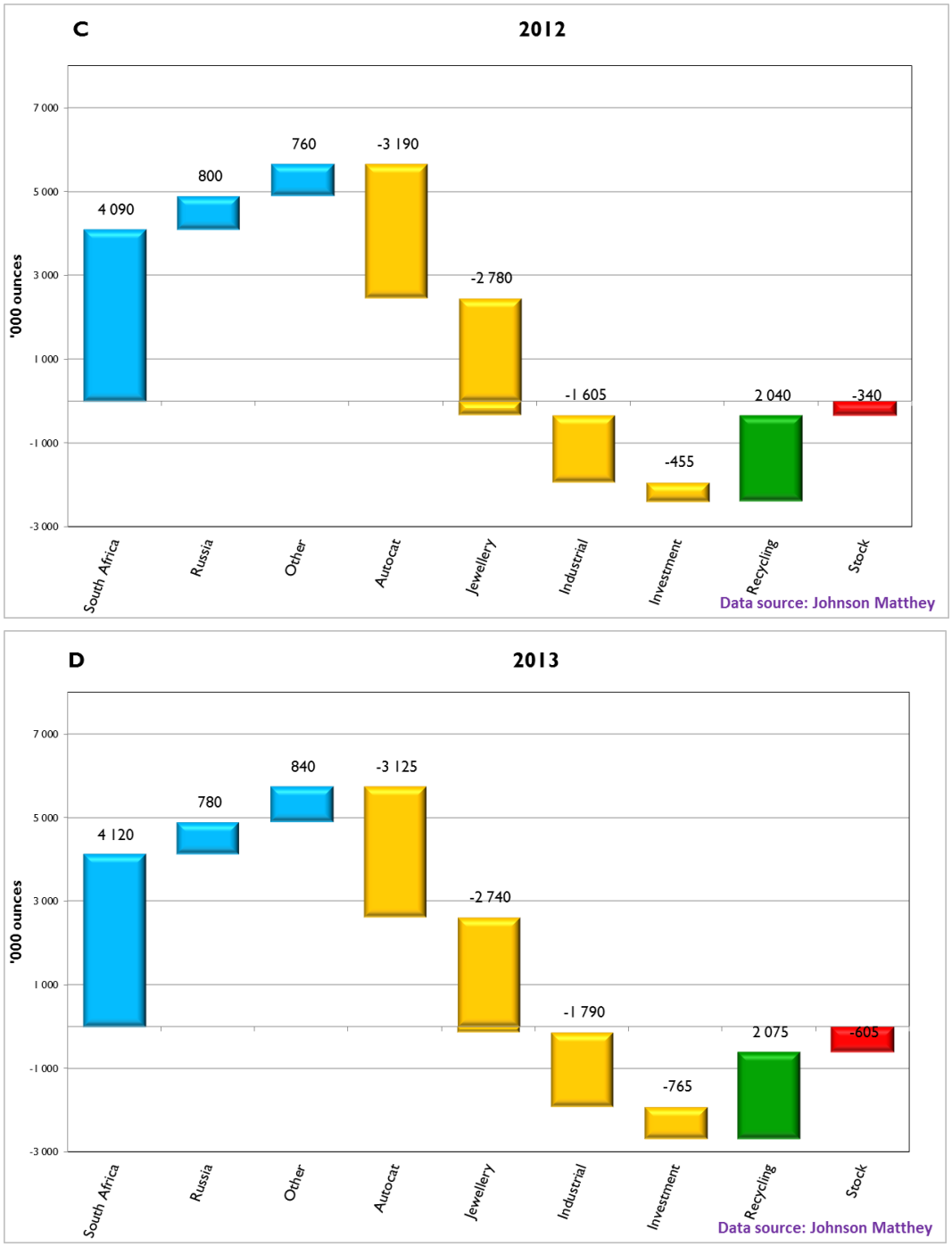


Figure 9: Global Platinum supply and demand reconciliation A) 2010, B) 2011, C) 2012 and D) 2013. (Data Source: Johnson Matthey)

A global platinum market in 2010 was close to balance (Johnson Matthey, 2011) and the 'waterfall' reconciliation (Figure 9) indicates that a minor deficit of 25 000oz existed at the end of 2010 (Figure 9A) with the only excess in global balance reflected as 450 000oz in 2011 (Figure 9B). The successive two years

(Figure 9C and 9D) both recorded deficits of the metal to the order of 340 000oz and 605 000oz.

While increases in global demand from the jewellery, investment and industrial sectors compelled the need for stable supply (Johnson Matthey, 2013), this supply had decreased by 5% from 2010 to 2013 and 11% from 2011 owing primarily to disruptions to platinum operations in South Africa while the demand increased by 7% for the period.

3.6 Micro Economic Environment

Platinum extracted from South African Mineral Rights is subject to beneficiation prior to export. Factors such as unreliable power, limited access to capital either through equity or debt, fragile labour and stakeholder relations and increasing legislative aspects inhibits these mining companies to fully exploit Mineral Reserves cost effectively and efficiently. Mining companies are therefore subjected to increasing cost pressures and the supply of metal from this extractive industry has become constrained since 2012.

Industrial actions in 2012 initiated by rival labour unions disrupted mining operations on all the platinum mines in the western Bushveld of South Africa. The effects of these incidents were far reaching in that the local communities where the major population of the workforce resided were financially impacted. Traders and store merchants in those communities were impacted due to diminishing purchase power since people were not at work and thus not earning wages. Domestic unrest began to take place between families and communities exacerbating the conflict amongst the communities.

3.7 Conclusion

South African platinum miners experienced increasing pressure on their operating costs and their strategic outlook focused on remaining competitive. In this context, risks that influenced these strategic drivers were labour and unionisation, nationalisation, mining policy, social licenses to operate, influence on stakeholders like the local communities and the increasing dependence on mining companies to remain profitable.

Besides the commercial and environmental sustainability, the economic sustainability had to be value accretive to attract investors while ensuring cost containment and responsible management of projects. Lonmin's competitive positioning in the South African market would define whether this company could endure the metal price pressures and maintain its operational capability in the short to medium term.

CHAPTER 4: SOUTH AFRICAN PLATINUM INDUSTRY

4.1 Introduction

Lonmin had to adopt a strategy that would enable the company to position itself as a low cost producer of platinum to ensure its sustainability in an ever challenging environment. Lonmin is the third largest platinum producer, not just in South Africa, but globally, albeit significantly smaller than its competitors in market capitalisation and annual production (Bell, 2012).

Lonmin historically straddled the third and fourth quartiles of the platinum industries cost curve compared to its competitors due to lower volumes produced at higher unit costs. Furthermore, high cost capital projects associated with mechanisation and shaft extensions increased the company's vulnerability in a depressed price market.

Investor confidence in Lonmin was waning during the period 2010 – 2013 speared on by two Rights Issues and the absence of dividends being declared. Attracting investment through equity was becoming increasingly difficult as the company's financial resilience to qualify for additional loans was diminishing.

Lonmin's aspiration then to increase volume of refined Pt ounces would only be realised if additional capital was secured to develop replacement as a well as expansion projects like the K4 shaft project. The Mineral Resources and Reserves within the Lonmin Marikana district were being depleted without much opportunity to replace these ore reserves.

4.2 Major South African Mining Companies

The three mining companies – Anglo American Platinum ("AAP"), Impala Platinum Holdings ("IMP") and Lonmin Platinum ("LON") have been categorised

as the top platinum producers globally (Bell, 2012). AAP and IMP have regional diversification by operating in Zimbabwe while Lonmin's entire platinum production is from the Marikana lease area near Brits situated on the western limb of the Bushveld complex (Figure 10). Operationally, the dominant production for all these companies emanates from the western Bushveld where the Merensky and UG2 reefs are relatively similar in deposition and geological structure. The depth of mining varies between these mining operations and range from shallow (100m below surface) to deeper mining levels (>1500m below surface).

The Lonmin Marikana operations consist of the Karee Mine, Western Platinum and Eastern Platinum mines. The declines from surface (generation 1) are categorised as the shallow operations and there are six operating shafts in this category. The primary vertical shafts (generation 2) which encompass Rowland, Saffy, K3, K4 and Hossy, extract the orebody from depths of ±1500m below surface.

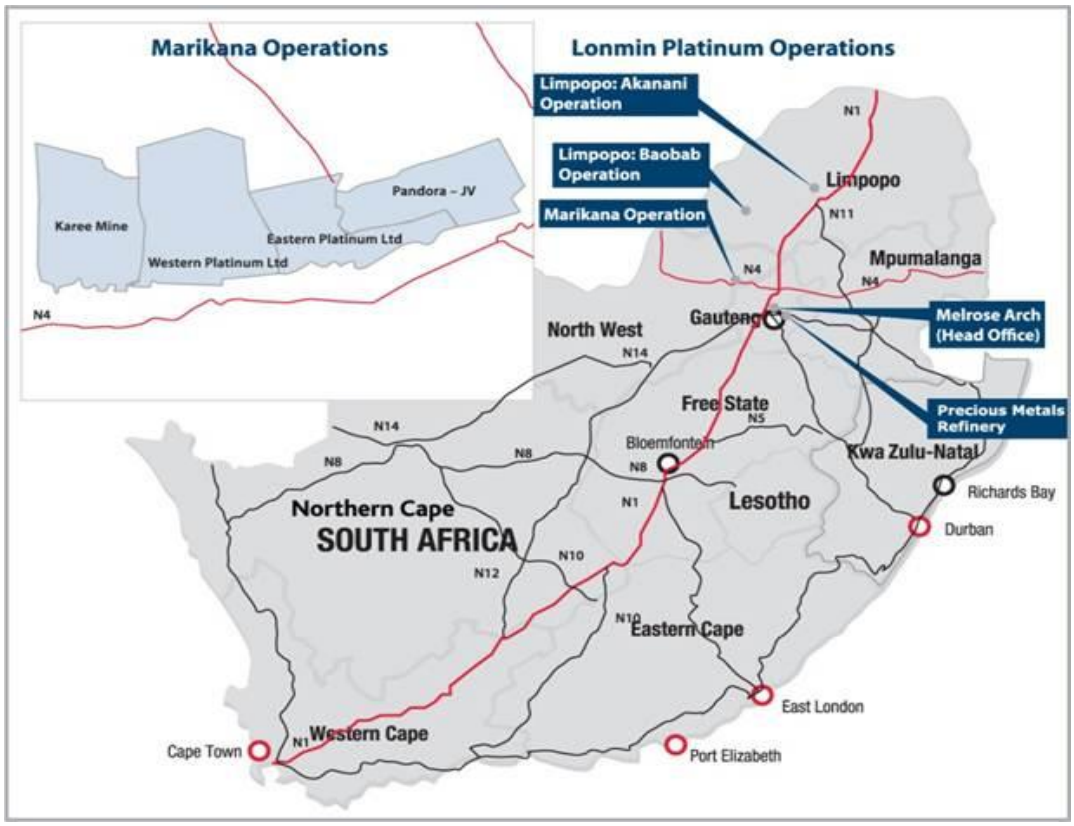
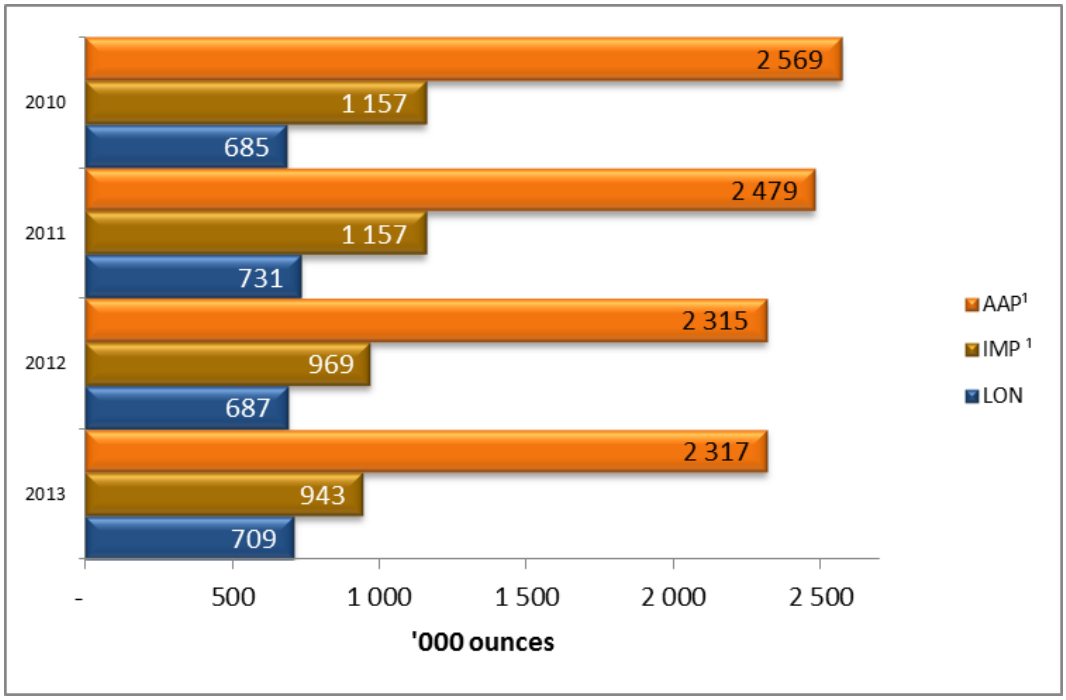


Figure 10: Lonmin's Marikana operations in South Africa

This section of the research will compare the operational performance of the three major platinum producers with the purpose of understanding the complexities of the economic drivers and how each company addressed the prevailing market conditions in determining strategic goals.

4.2.1 Refined Platinum Produced



Note¹: Only operations in South Africa inclusive of attributable ounces produced from joint ventures as reported in the company annual reports.

Figure 11: Refined platinum ounces – AAP, IMP, and LON. (Source: Annual Results)

The refined platinum ounces (Figure 11) produced by the three largest companies in **South Africa** account for c.94% of all platinum from this country's mineral reserves. AAP has maintained a c.55% share of the refined Pt produced market and remained the world's largest producer of the metal (Bell, 2012) while IMP has averaged a 23% share and LON accounting for approximately 16% of this market while the balance of 6% was made up from several other South African companies. These three companies were the dominant contributors to the world's supply which amounted to 70% of global supply annually.

The bulk of the platinum production of these three companies emanates from the Western Bushveld complex which is geographically and logistically located in a concentrated area in South Africa, that being Rustenburg and Brits where two thirds of the countries platinum is mined (McGill, 2010). The supply dependence on the platinum produced from this single geographical and logistical area is immense. Valid concerns exist about labour unrest and capacity rationalisation in South Africa that would affect supply volatility (Johnson Matthey, 2013).

The production decline from 2011 to 2012 for both IMP and AAP are attributed to industrial action and the unplanned safety stoppages incurred at the operations. IMP, specifically in 2011 experienced additional pressure on output due to a lack of mining flexibility associated with delays in production from new shafts while Lonmin on the other hand, recorded improved operational performance in 2011 in spite of industrial action at its Karee operations. (Johnson Matthey, 2012).

LON reduction for 2012 was directly attributed to the effect of the Marikana incident in August 2012 as well as safety stoppages, both self-induced and those imposed by the Department of Mineral Resources (DMR). Besides other operational constraints associated with concentrators and shafts, the dominant factor cited for the declining production, was industrial action and volatile labour environment (Implats, 2013).

4.3 Analysis of Major Producers

In respect of the financial parameters assessed in this chapter, LON reports in accordance with the London Stock Exchange and is reported in US dollars while the reporting for AAP and IMP are in South African Rand (ZAR) terms. In determining the rand value in respect of Lonmin, the average exchange rate determined for that financial period was used as published by LON.

No adjustments were made for the different financial year ends applied by these three companies where AAP is December, IMP is June and LON is September.

These different year ends bring about slightly different price deck, exchange rate and strike impacts on results, but do not detract from the overall trends.

Parameters were selected that would define the financial performance from operations as well as the influence on capital.

4.3.1 Revenue

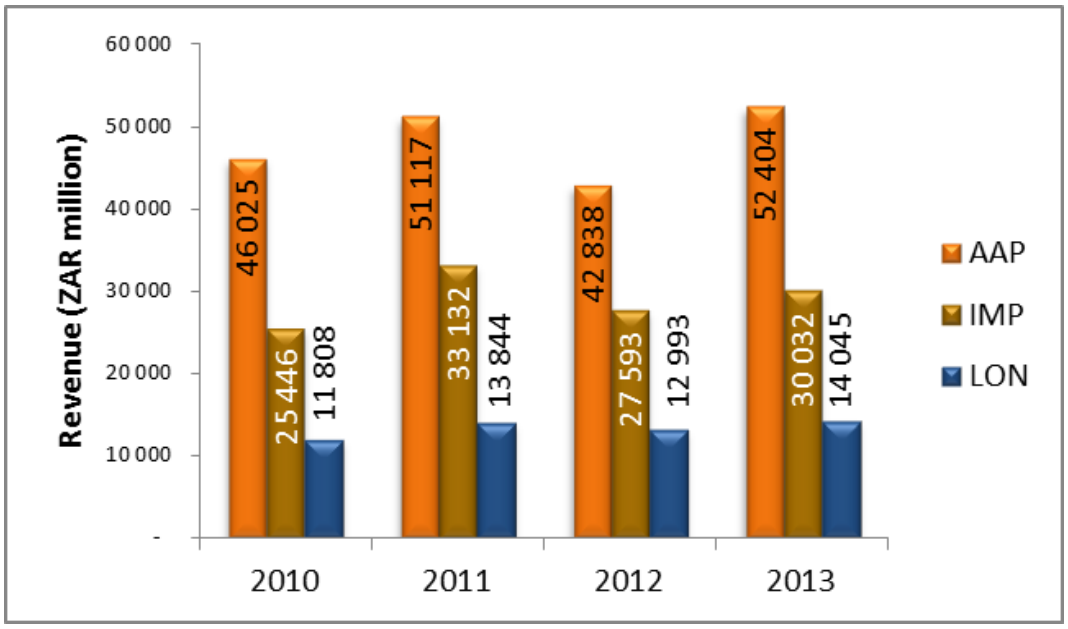


Figure 12: Annual sales revenues. (Data Source: Annual Reports)

Total revenue was favourably influenced by the weakening of the South African rand which during the period 2012 to 2013, weakened by 18% (Amplats, 2013) in contrast to the declining platinum dollar price in the order of 10%.

AAP experienced a reduction in revenue from 2011 to 2012 of R8.2 billion resulting from lower production (Figure 12). In the case of IMP, a weakened rand enabled a revenue increase of R2.4 billion from 2012 to 2013 (Implats, 2013), this despite a lower output of platinum production and depressed commodity price. LON reports sales revenues and earnings before taxation and depreciation in USD and therefore does not regard a benefit in terms of a weakening currency as a benefit to revenue.

Revenues for these companies were supplemented by sale of other metals like Palladium (Pd) and Rhodium (Rh). Generally however, platinum accounted for the majority of the sales revenue (Figure 13).

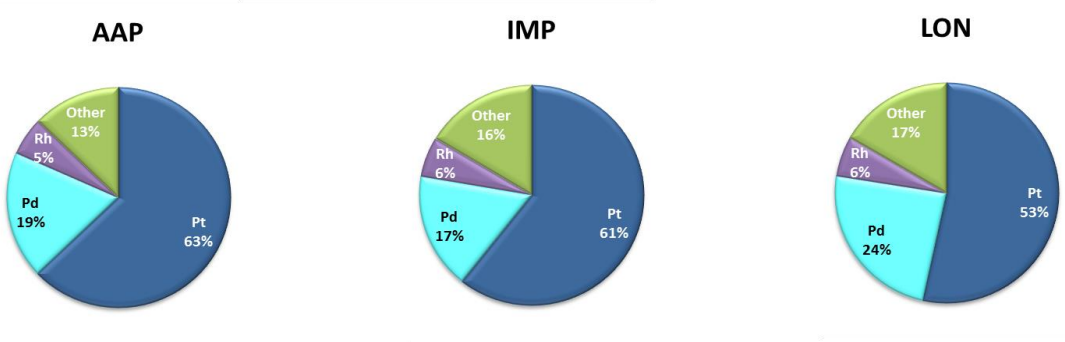


Figure 13: Percentage of contribution to 2013's revenue by metal content. (Data Source: Annual Reports)

LON production is made up of c.65% UG2 reef which contains a higher percentage of Palladium due to the prill split while IMP and AAP have a significant contribution from Merensky. Revenues in LON is further influenced by the dependence on Rhodium compared to its peers and hence the decline in revenues for LON affected by a decline in Rhodium prices since 2012 (LON board, 2012).

4.3.2 Profit/ (Loss) Before Taxation (excluding impairments)

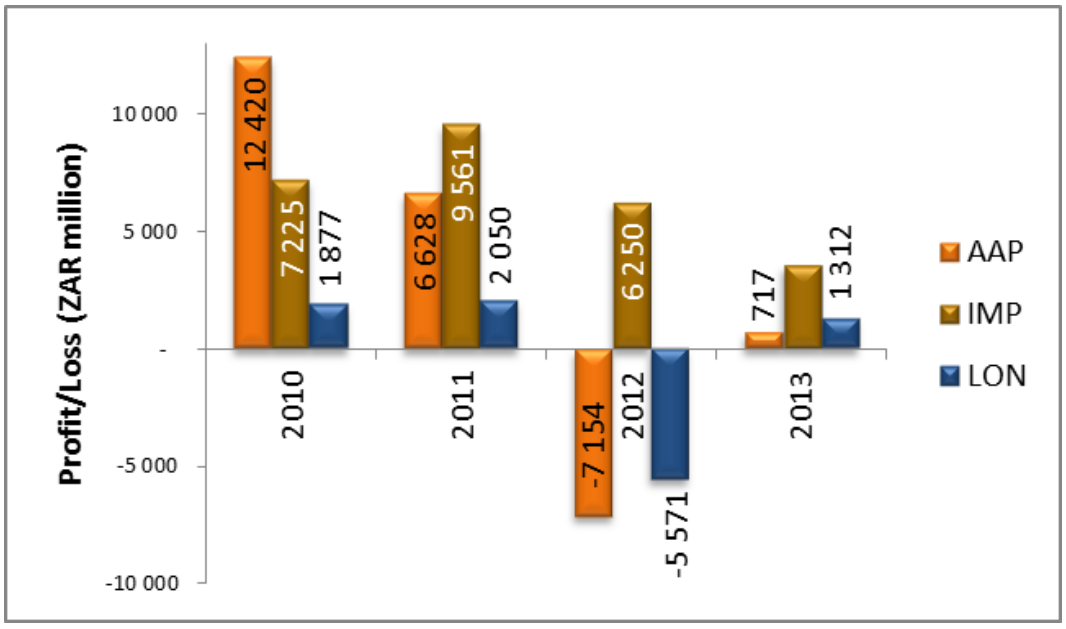


Figure 14: Profit / (Loss) before taxation. (Data Source: Annual Reports)

The performance of the operations current performance is evaluated without the incumbency of impairment of assets, hence, the profit/ (loss) before taxation with the exclusion of impairments.

At the outset, all these companies posted a decline in profits over the period assessed (Figure 14). Even though IMP reflected a profit in 2012, it was still c.37% below the preceding year while in 2013; the profits were down due to an increase in cost of sales without a corresponding increase in production (IMP, 2013). AAP and LON's losses in 2012 were attributed to the industrial action during that year which impacted production as well as additional costs incurred for safety and security measures. This industrial action was also concentrated in a single geographical area, Rustenburg.

4.3.3 Cashflow from Operations

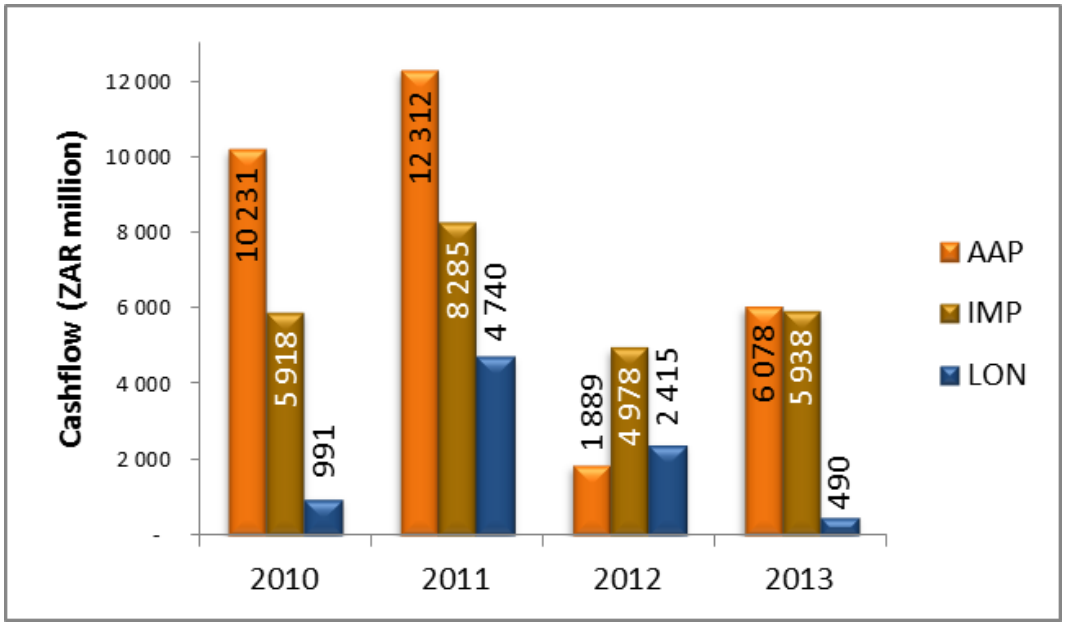


Figure 15: Cashflow from operations. (Data Source: Annual Reports)

Cash from operations reflects the health of the operations without distortions (Figure 15) of interest and fees. Despite the impact of the Marikana incident in the last quarter of FY12, LON still managed a positive contribution from operations

in 2012. The 2013 cashflow of R490 million was significantly lower than the 2012 R2.4 billion.

This is attributed firstly to a change in inventory of -$189 million due to stock movement and refilling the pipeline following a drawdown during the 2012 strike and secondly, forward sales of gold to the order of $107 million as deferred revenue in 2012 compared to no further sales in 2013 (LON, 2013).

AAP's revenue in 2012 was impacted by a stock retention of R3.024 billion (AAP 2012, pg239) which negatively influenced the cash from operations.

IMP managed to improve Cashflow in 2013 due to adjustments made to the profit before tax of R5.1 billion compared to R1.499 billion in 2012 (IMP, 2013, p136).

4.3.4 Capital Expenditure

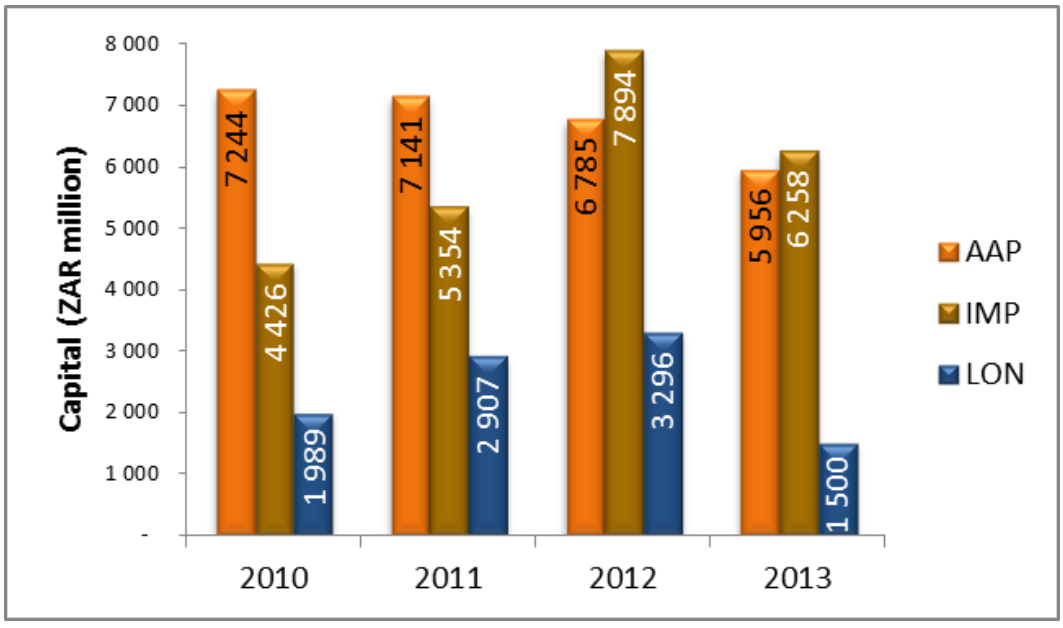


Figure 16: Capital expenditure. (Data Source: Annual Reports)

AAP reflects a prudent approach to capital spend during the period of review. Although minor increases were experienced in Stay in Business (SIB) capital to satisfy safety issues, project capital expenditure was reduced in line with the

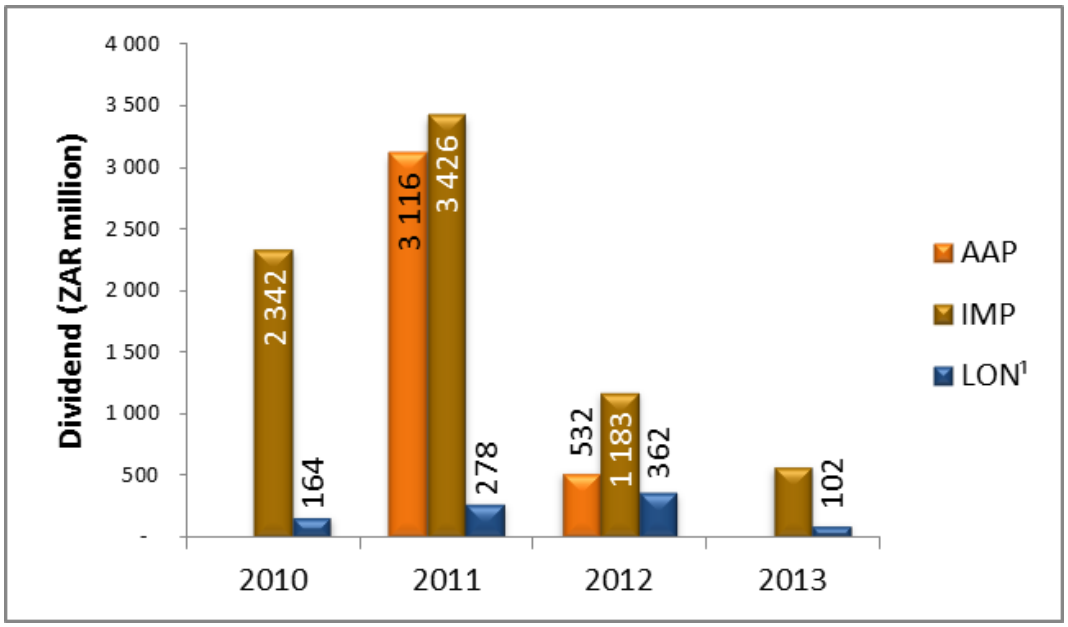
company's capital discipline instituted in 2010 (Figure 16). Only specific business units which would generate replacement volume and improve processing efficiencies were allocated capital.

IMP had existing projects in execution at their No.16, 17 and 20 shaft projects. These projects could not be curtailed or deferred as contractual commitments were in place and the execution of these projects was in advanced stage. IMP capital spend would decline post 2012 as some of these projects were commissioned and production ramp up was taking place. Impala's board had maintained a robust approach in ensuring these projects were commissioned. In order to fund these projects, a bond was secured in February 2013 to raise additional funds (Impala, 2013).

In the case of LON, project capital was committed in 2012 to replacement projects like Rowland and K3 shafts and ramp up projects at Saffy shaft. During 2012 however, a cash conservation strategy was adopted that would involve the preferential ranking of all the projects. The major driver of the project capital reduction was to have a self-funding plan.

In this regard, an immediate lever at Lonmin's disposal was to reduce the capital expenditure. During this process, the implementation of capital budgeting techniques at Lonmin brought about multi-criteria project ranking to maximise the medium term portfolio of projects selected (Choolan, 2014). As a result, the deferment of several projects lead to a capital reduction of R1.796 billion from 2012 to 2013.

4.3.5 Dividend



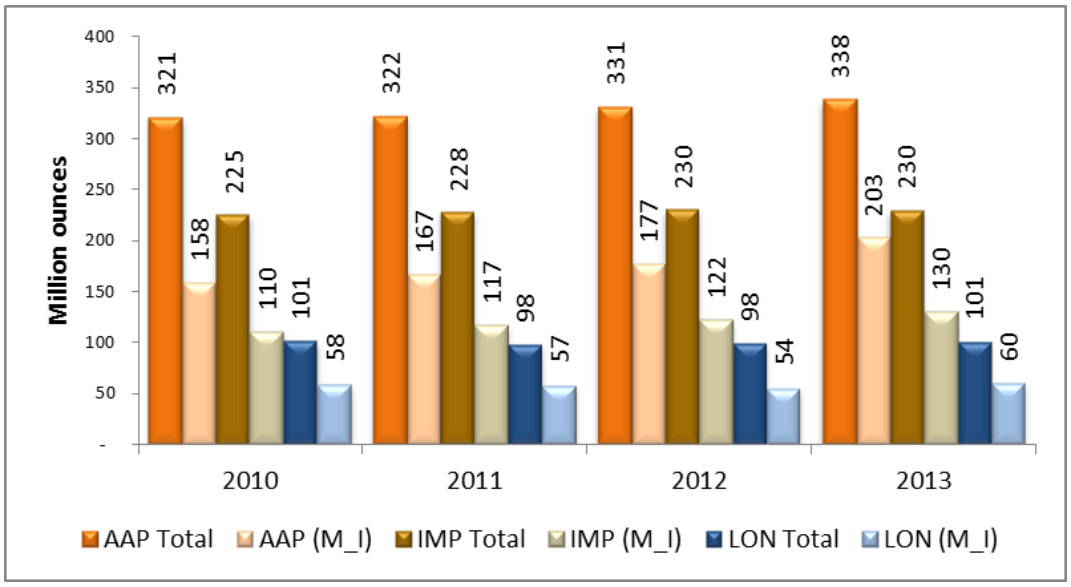
Note¹: Lonmin dividends include payments to minority shareholder Incwala Resources.

Figure 17: Dividend value. (Data Source: Annual Reports)

Shareholders have borne the brunt of diminishing returns from these three platinum companies as increasing cost of production and reduced outputs have placed these companies under financial pressure. While AAP has been conservative with their declaration of dividends, seeking to preserve those funds for operational priorities, IMP has maintained an annual dividend. In proportion, these dividends represent less than half a percent of the respective company's market capitalisation. The full dividends shown in the annual reports have been included (Figure 17).

LON did not declare official dividends during 2011, 2012 and 2013. However, dividends were paid during this period by Western Platinum Limited, a subsidiary of Lonmin Plc to minority shareholders, Incwala Resources to facilitate the funding of their transactions (LON, 2012). The only official dividends declared were in 2010 in line with the revised Lonmin Dividend policy for US$30 million and released in the 2011 financial year (LON, 2011).

4.3.6 Mineral Resources



***Notes**: Solid bar denotes the total Pt Mineral Resources as published while the 'M_I' category denotes Measured and Indicated*

Figure 18: Platinum Mineral Resources. (Data Source: Annual Reports)

The total ATTRIBUTABLE South African Platinum Mineral Resource ounces are captured (Figure 18) as well as that portion of the Mineral Resources in the Measured and Indicated (M_I) category (SAMREC, 2007, p15). The year on year change in the measured/indicated category would indicate the improvement in the level of confidence generally brought about by increased exploration in inferred polygons and increased output from projects in study phase.

AAP's Mineral Resources are reported exclusive of Ore Reserves in the annual reports for each operation. The Mineral Resources for IMP and LON are inclusive of Mineral Reserves. For the purpose of the model, the exclusion is not relevant as the graph depicts the change in the measured resource category as an indication of the conversion associated with capital.

AAP's total Pt Resources increased marginally by 5% over the period while the M_I category increased by 28%. The significant increases were realised at Siphumelele, Tumela and Twickenham mines while a decline in total Mineral Resource was observed at the older Rustenburg mines and Union mine.

Impala Platinum's M_I category increased by 18% during the period principally due to the commissioning of one of their newer shafts while there was negligible increases in the Lonmin M_I category. In the latter's case, the curtailment of capital, especially in exploration drilling as well as postponement of replacement projects, limited the potential to either increase the Mineral Resource base or convert from Inferred to Indicated category.

4.3.7 Summary

It is evident from the revenue loss how significant the industrial action which IMP and LON experienced in 2012 affected these mining companies. Since these companies operated primarily in the same geographical region, AAP was also affected by these disruptions and thus also experienced business losses. These companies were compelled to review their operating costs and capital with the result being a reduction in capital and the implementation of various cost saving initiatives on operations.

A loss in profits was experienced in 2012 which negatively influenced the contribution to state taxes and royalties. The investor bore the brunt of this periods decline in profits when a reduction of as much as 80% in dividends from 2011 to 2012 was experienced. In Lonmin's case, diminishing profits from 2011 to 2012 increased the risk of the company not meeting its covenants in respect of the loans and motivated the company to consider refinancing its long term funding. Cost cutting initiatives brought about restructuring in LON which resulted in staff reductions and loss of skillsets.

Although 2012 was a challenging year for the platinum miners due to industrial action and declining metal prices, LON initiatives implemented during 2012 positively influenced the company's position to the first quartile of the 2013 cost curve.

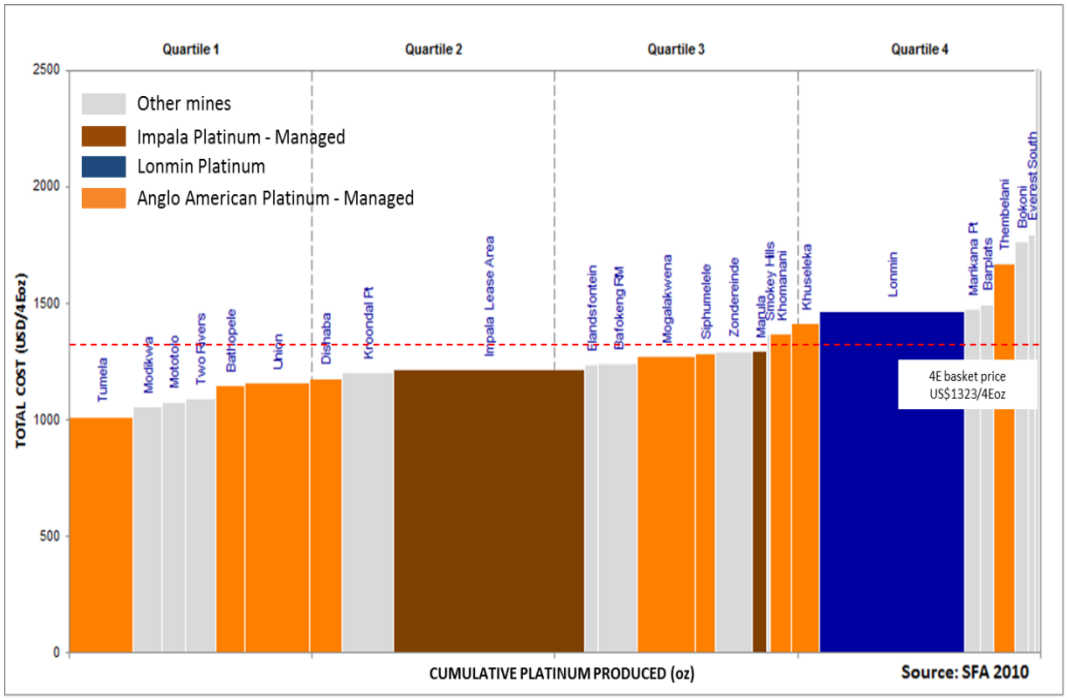
4.4 Platinum Industry Cost Curves

The cost curve analysis was carried out to assess the competitiveness of the platinum mining companies in South Africa in respect of the unit costs as a function of the quantity of platinum produced annually. The purpose was to develop an understanding of the unit costs of the operators in this industry while assessing relative competitiveness of the operators in this industry. The marginality of mining operations is tested the closer the total cost is to the prevailing metal price defined for the period.

The importance of understanding this curve for Lonmin was to determine the company resilience in relation to the rest of the industry and guide the company's forward-looking strategy.

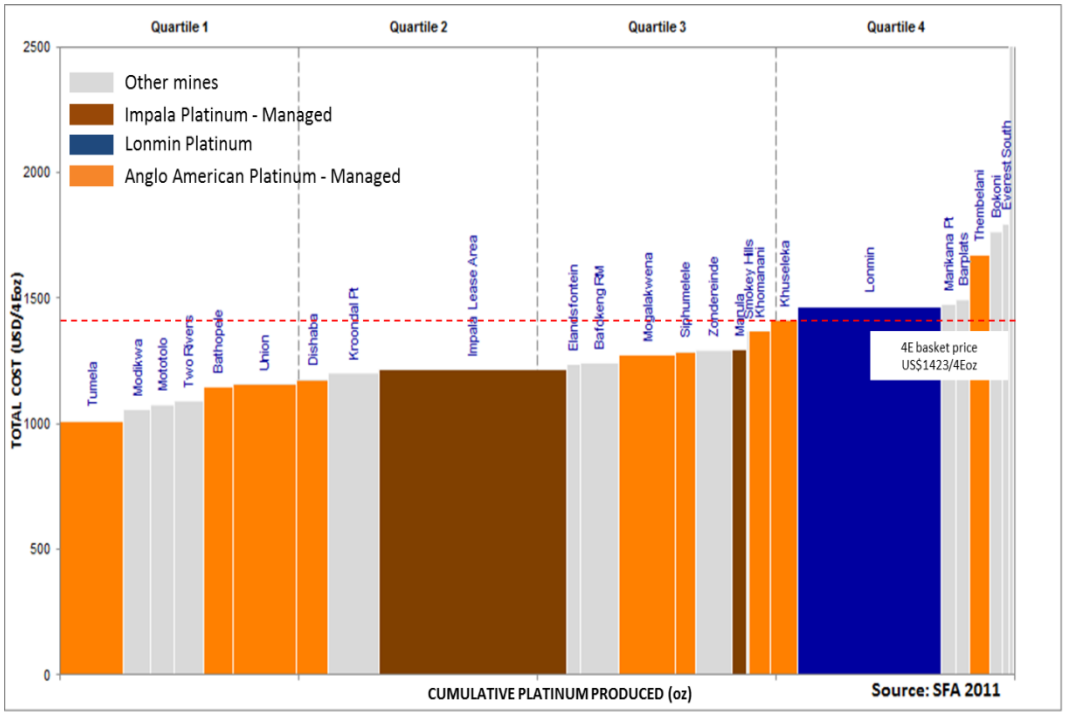
The analysis is drawn from the industry cost curves based on the SFA (Steve Forrest Associates) cost data base and has been normalised for the calendar year for direct comparative reasons since each mining company has different financial reporting periods. The cost curves shown in this section (Figures 19 - 22) are TOTAL costs inclusive of major and Stay in Business capital. The reason for this approach was to determine each company's resilience to price change and impact of capital curtailment. All the producers noted their strategic intent to contain costs and improve efficiencies.

The period analysed from 2010 to 2013 shows that the 4Eoz (Platinum, Palladium, Rhodium, Gold) basket price in US dollars improved by 8% briefly in 2011 while the overall decline for the period up to 2013 was 9%. In 2011, only companies positioned in quartile 4 were marginal, whereas, by 2012, companies positioned in second, third or fourth quartile were already marginal and at risk due to a lower price deck and volume.



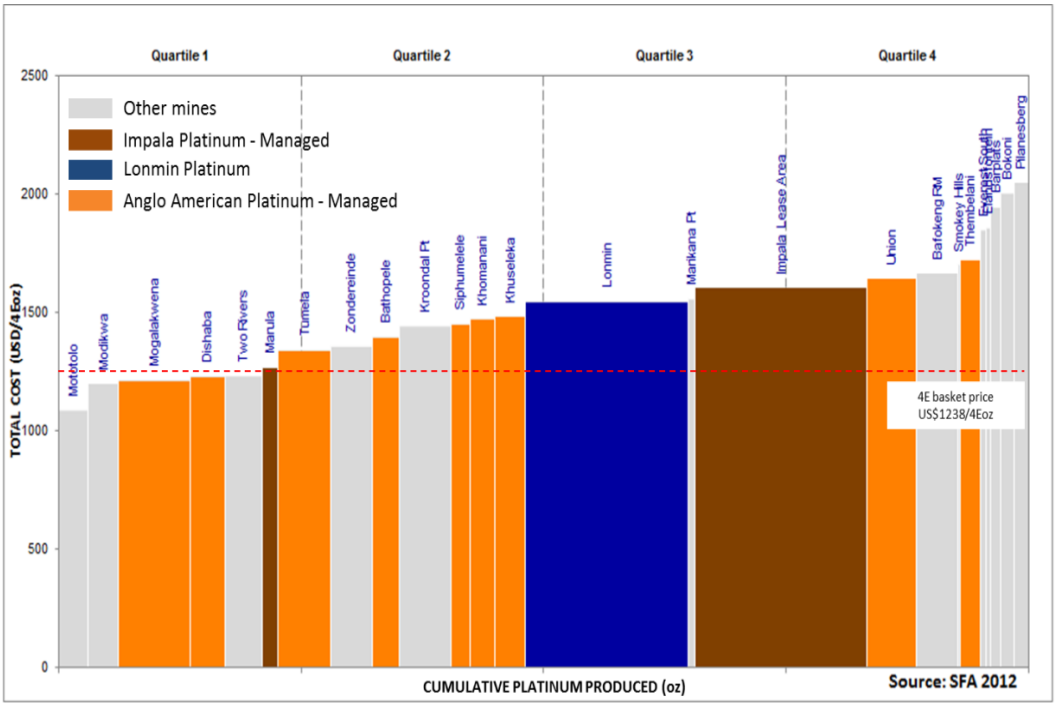
Total platinum produced during 2010 from South Africa was 4 635 000oz.

Figure 19: Cost curve for cumulative Pt produced from South Africa –2010 (Source: SFA)



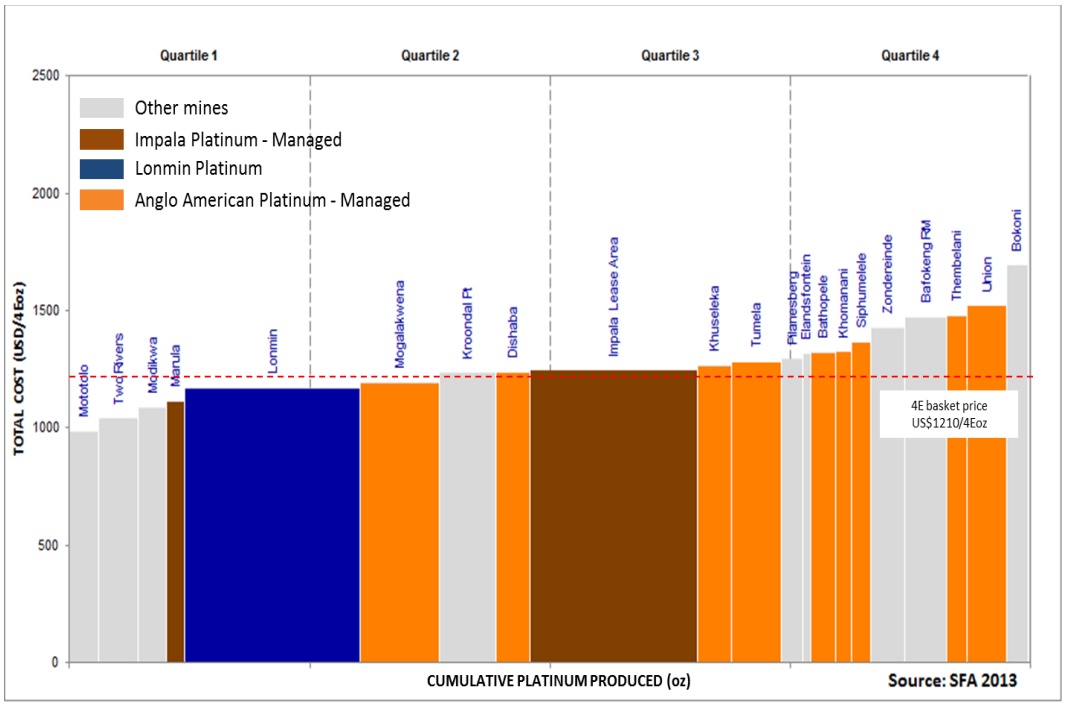
Total platinum produced during 2011 from South Africa was 4 860 000oz.

Figure 20: Cost curve for cumulative Pt produced from South Africa –2011 (Source: SFA)



Total platinum produced during 2012 from South Africa was 4 090 000oz.

Figure 21: Cost curve for cumulative Pt produced from South Africa –2012(Source: SFA)



Total platinum produced during 2013 from South Africa was 4 120 000oz.

Figure 22: Cost curve for cumulative Pt produced from South Africa –2013 (Source: SFA)

In respect of Lonmin, the Rights Issue finalised at the end of 2012 influenced the 2013 financial year. This affected the capital forecasting and it is evident how this capital reduction benefited the unit cost. Lonmin had effectively positioned the Marikana operations in a survival mode which eliminated any growth prospects and sought simply to conserve cash and reduce costs. This strategy would enable Lonmin to survive the short term, however, place risk on the long term growth prospects.

Lonmin improved in 2012 to breach the third quartile in relation to its competitors but did risk sliding in the early part of 2013 due to the disruptions to operations associated with the Marikana incident of 16 August 2012. Lonmin's strict cash conservation strategy adopted in 2012 enabled the company to lower its operating costs while meeting its already deferred capital commitments and this capital reduction resulted in Lonmin migrating further down the cost curve.

During 2013, Lonmin excelled in all business aspects and exceeded the guidance to the market in terms of controlling capital spend, increasing headline earnings per share, containing costs, improving ore reserves and improving the net cash from a deficit in 2012 to a positive $201million in 2013 (Lonmin, 2013).

Lonmin's strategy in review of 2011 financial period realised that the recovery of the global economy was taking longer than expected and therefore to safe guard the sustainability for the business going forward meant that Lonmin's position on the industry cost curve was prominent as the strategy was to 'grow down the cost curve' (Nagel, 2014). The influence on producing additional ounces that would dilute overheads and reduce unit costs directed the organisation to aim for a second quartile position on the cost curve. To that end, Lonmin embarked on counter cyclical spend by ensuring that capital spend would be maintained through the next life of the business planning cycle.

By comparison, Impala slid further up the cost curve from a dominant position in the second quartile during 2012, principally due to this company's capital

commitment to projects in execution. Major capital projects were in a committed phase of project execution and could thus not be curtailed. However, while the No16 shaft was commissioned during this period, some optimisation was engineering into the No17 shaft project by eliminating some high cost development (Implats, 2013). The gains from these rational approaches applied between 2012 and 2013 are reflected in the capital expenditure graph.

AAP's own mines position fluctuated across the four quartiles during the period where large mines like Tumela migrated from the lower end of the first quartile in 2010 further up to the third quartile in 2013.

4.5 Risks to the Platinum Mining Industry

The regulatory and operational risks the mining industry faced, compelled the mining companies to shift focus during the period to inform their strategic plan – like volatility of labour unrest, government policy on resource nationalism, increasing costs associated with labour and utilities, access to capital and capital restructuring.

As an industry guide, the top five PWC rankings were listed as well as the respective risks on the top of the agendas for LON, IMP and AAP (Table 1).

	PWC (Mining Industry)	LON	IMP	AAP
1	Labour unrest	Safety – employee and contractors	PGM price fluctuations	Inability to execute costs and portfolio optimisation
2	Socio economic impact	Employee relations	Volatility of the exchange rate	Power supply constraints
3	Volatile commodity prices and exchange fluctuations	Changes to political, legal, social, economic environment including resource nationalism	Non delivery of production targets	Inability to secure capital and effective use of that capital
4	Energy cost increase	Social license to operate	Labour unrest and employee relations	Bulk infrastructure constraints
5	Safety and employee health	Community relations	Poor safety performance	Unfavourable global economic conditions – currency volatility and slowing demand

Table 1: Top five risks listed by PWC, LON, IMP and AAP for 2013

There is no uniform pattern between these companies of perception of risk as reflected above and this is due to each company assessing its own risk appetite and the controls that company has of mitigating such risks. The trend of social and labour related challenges experienced by the different companies has also been considered to inform their appetite to risk.

These risks are evaluated in accordance to the magnitude of potential impact on the business and represent a snapshot in a particular period (Lonmin, 2013). Lonmin's dominant focus was on factors that emanate from the microenvironment considering that industrial relations had plagued this company during the 2012 year and would become more intense during the next two years. In response, LON appointed a new Chief Executive Officer whose approach to building relationships would entrench Lonmin's strategic objectives going forward.

IMP by comparison in 2013, cited commodity price and foreign exchange volatility as their primary risks as well as labour relations (unrest) in the top five. Pertinent to Impala Platinum was the impact of project delivery in their strategic profile and it is thus relevantly cited in the top risks to manage through effective processes and project management skills.

AAP cited their inability to meet the plan and the objectives thereof while also citing the ineffective utilisation and securing of capital in the top five risks. This company focused on risks related to the macro environment like threat of power supplies from the national utility provider and infrastructure constraints. Where the business was vulnerable to these risks, AAP planned to mitigate these through 'own' initiatives and development of capacity to manage these risks.

Shrinking access to capital and the mining industries poor execution of capital projects catapulted CAPITAL funds to the top of the risk order in 2013 (Ernst & Young, 2014). Investors recognised increasingly that risks in mining ventures far outweighed the rewards. Considerations like the impairments of assets by large mining companies have reduced the confidence in the investor market. The overruns and late delivery or sluggish ramp up of major capital projects did little to improve these levels of confidence.

Generally, all companies listed political and regulatory uncertainty as a risk as these were macro issues, while individually, they would consider issues that they have more control over. In this context, these companies all had approved mining Rights Issued under the new order mining rights as per Item 7 of the Minerals and Petroleum Resources Development Act (MPRDA), No. 28 of 2002. Hence the companies compliance thereto as well as the increasing investment in social and community initiatives reduced the companies risk exposure in this category.

In summation, both IMP and AAP risk strategies were business driven around operational effectiveness and continuity while Lonmin's risk appetite compelled it

to focus on softer, yet pertinent issues like the stakeholder relations. This is apparent considering that LON operates in a localised region in the North West province while the other two company's operational diversification extends into joint ventures in the Eastern Bushveld and other countries such as Zimbabwe.

During the industrial disruptions, the benefit of having diversified mining regions in their strategy was evident as AAP and IMP could continue producing platinum thereby minimising their risk to South African operations.

4.6 Conclusion

Since the global platinum supply had been impacted in 2012, each of these three platinum producers strategically planned to re-assess their operational costs as well as their capital expenditure. Lonmin, being the smallest of the three mining companies, set about drastically curbing costs and capital deferment for the 2013 and 2014 period as indicated when the Lonmin board informed the shareholders of their position on securing the financial future of Lonmin (Regulatory release – LONMIN 13 November 2012).

The Rights Issue had the purpose of reducing the debt burden on Lonmin since this company was at risk of breaching its banking covenants. Indirectly, this debt reduction aimed to improve Lonmin's capital forecast and cost management in the near future, enabling a stronger business platform from which to maintain sustainability and create flexibility.

CHAPTER 5: LONMIN INVESTOR PROFILE AND RIGHTS ISSUE

5.1 Introduction

Key strategic themes generally represent the nature of a business and are typified by the character of the formal leader who plays a significant role in an organisations success (Robbins, 2998), specifically, the Chief Executive (CEO) in office during a cycle of that company.

Lonmin has had three CEO's appointed during the past decade; each with a unique character and theme (Figure 23). Each CEO originated from a different cultural background and this informed the theme adopted in Lonmin during their tenure. These themes have varied based on the influences of the macro and micro economic environments that Lonmin operated under during the period from harder business issues to softer stakeholder related issues.

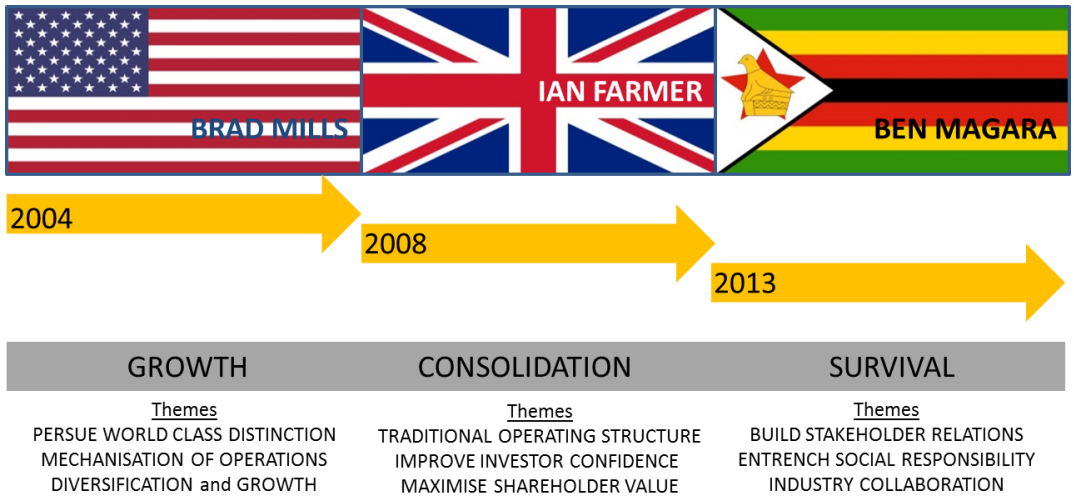


Figure 23: CEO's Key Strategic Themes

A Rights Issue (RI) is defined as an invitation to existing shareholders to acquire additional shares in a company and is typically pursued when companies are cash strapped (McClure). Companies thereby create an opportunity for current shareholders to increase their stock holding but at a discounted price, thereby

diluting the overall shareholding. The funds raised through such RI's would normally be used to reduce a company's debt facilities as the propensity to borrow more money becomes restricted.

In Lonmin's case, money had to be raised through a RI to ward of possible breaches in their loan agreements with banks. Furthermore, Lonmin was under pressure to complete this RI in a short period and during a time when the mining operations were recovering from the 2012 Marikana incident.

Having established the market environment in which Lonmin operates, this section aims to understand the reasons for Lonmin pursuing a Rights Issue in 2012 through understanding what the shareholders position was and how Lonmin had performed operationally.

During 2012, Lonmin's directors considered the outlook for the PGM market in general to be bleak which considered the projected global oversupply of platinum and the fragile state of the global automotive sector (Lonmin Prospectus, 2012). The strategic focus pursued by Lonmin was to implement measures that would enable the company to move further down the industry cost curve, hence, cost cutting as well as cash conservation strategies were adopted.

5.2 Shareholders Expectations

Lonmin's shareholders, specifically Xstrata who was a significant shareholder at that time, expressed concern over Lonmin's destruction of value and its capability to 'turn around' and produce cost effectively and efficiently (Davis, 2012). This approach by Xstrata influenced Lonmin's resolve to achieve a workable outcome of raising the necessary capital to reduce debt and fund projects.

A shift in Lonmin shareholding from global based investors to South African investors is demonstrated for 2008, 2010 and 2013 (Table 2).

Company	2008 (%)	2010 (%)	2013 (%)	%
Xstrata PLC (Glencore 2013)	24.90	24.67	24.50	-2
Prudential PLC (M&G)	12.17	12.07	7.55	-37
Credit Suisse Securities	5.84			
Ameriprise Financial	4.91	3.04		-38
Capital Research	4.72			
Legal & General	4.08	3.99		-2.3
Vanguard Precious Metals	4.01	5.13		
Tradewinds Global	3.58			
Old Mutual Investment (SA)			8.34	
Investec Asset Management			6.06	
Total	64.21	48.90	46.45	

Table 2: Substantial shareholders in Lonmin (Data Source: Lonmin Annual Reports)

Lonmin enjoyed a significant portfolio in 2007/8 when it featured on the FTSE100 and the share price was in the order of £33 sterling (ZAR269.37). This company was recognised as one that 'under promised and over delivered' every time in respect of production and sales and share performance (Figure 24), assuring shareholders consistent performance on their investment (Nagel, 2015). The market expected an appreciation in value and the shareholders enjoyed consistent dividends.

During this time, the risk appetite of shareholders was such that while they were enjoying returns on their investment, they were amenable to the risks associated with the mining industry in South Africa during the period. However, when these returns were not forthcoming, the risks of mining far outweighed the benefits to the investor. The Marikana incident of August 2012 appeared to reinforce the prudence being exercised by investors in the platinum arena.

The non-South African based shareholding on the register would gradually decline as these investors sought to divest of their Lonmin shares. Coinciding with this event, Lonmin sought to restructure and secure its balance sheet through a Rights Issue in 2009. During this cycle, the shares would increasingly be acquired by South African shareholders, through meeting the BEE transactional equity and

other shareholders who understood the climate of the mining industry in South Africa.

The advent of the GFC in 2008 was instrumental in upsetting the return on investment (ROI) investors had become accustomed to expect. Lonmin, being heavily geared toward the commodity, experienced constraints that would inhibit the company from paying dividends henceforth.

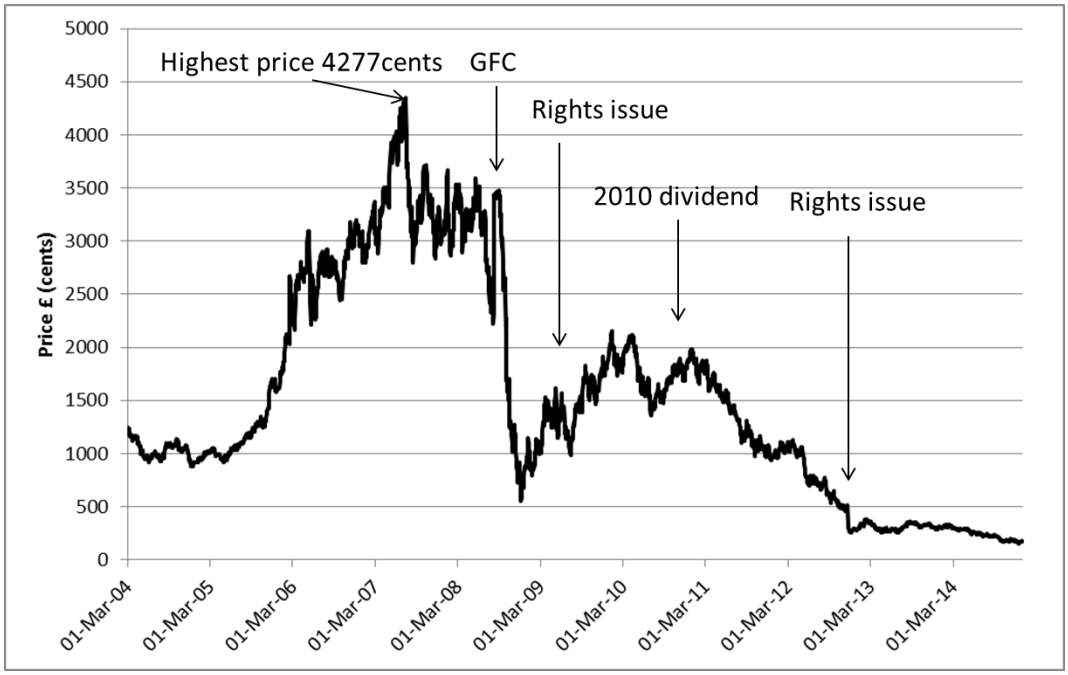


Figure 24: Lonmin share price 10 years_LON:LMI (Data Source: Google Finance)

5.3 Appetite for Investment

Lobbying for funding from the US market during 2012 was met with a less than favourable response, principally substantiated by the lack of confidence of the investor market in South Africa as a whole. Specific factors attributed to this were the poor industrial relations with the workforce, the countries inability to secure infrastructure (electricity) and the general political uncertainty.

Capital projects have historically been motivated on over-optimistic efficiencies, higher expectations on deliverables and escalated economic inputs. During the

past five years in Lonmin, it is evident that the returns expected on several projects have not been realised. Factors like under delivery on the plan, disruptions to the project in execution due to unforeseen events and changing global assumptions on commodity price and foreign exchange have led to project overruns and thus scoring significantly below the original confidence levels.

An example of a project close out assessment (Figure 25) demonstrates how the specific drivers including the global assumptions, revised discount rates, scope creep and constantly revising the schedules has resulted in a value destruction to the order of 70%. It is evident then that a greater degree of emphasis must be given to understanding the full benefits and risks of the project prior to approval (Elliott, 2014).

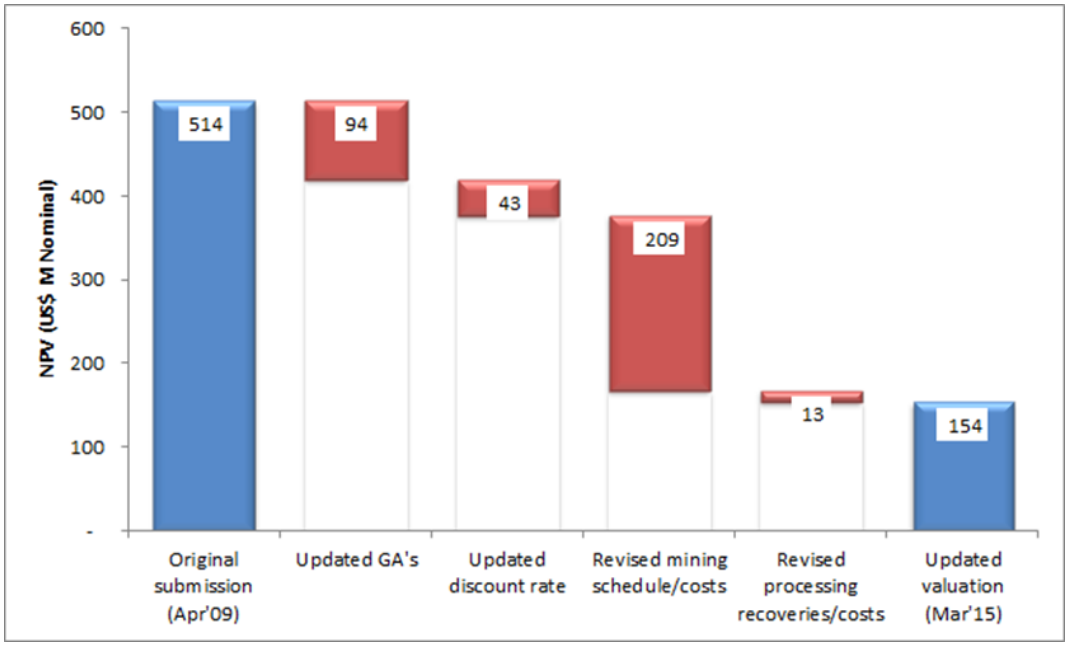


Figure 25: Net Present Value waterfall graph - Project Value reappraisal of shaft 'Y' (Source: Lonmin projects)

In hindsight, being properly informed of the risk to return on investment at the outset would assist the investor in making informed decisions (Nagel, 2014) while Solomon (2014) points out that scarcity of cost effective project finance with which to leverage equity subscription to mining projects one of the generic problems related to developing new mineral resources.

5.4 Historic Performance on Capital Employed

At the financial year end for 2012, Lonmin indicated to the market that it would reduce its output from 950 000oz to 800 000oz by 2016 owing to the revised reduction of capital expenditure (Mining Prospectus, 2012). If Lonmin were to maintain an 800koz profile, a rapid deployment of capital would be required, however, this capital was scarce and near impossible to raise from the market.

Based on the events of 2012, Lonmin reduced the capital forecast by 40% from $450million per year for the next three years. Any projected increase in capital expenditure was contingent on market performance (Lonmin, 2012). At this stage, Lonmin decided not to pursue significant growth but rather focus on cash conservation and improving the ore reserve flexibility.

Between the FY10 and FY15 (compiled in the 2014 year) LOBP plans, a total of R5.506 billion worth of capital was eroded from Lonmin's MINING project pipeline (Figure 26).

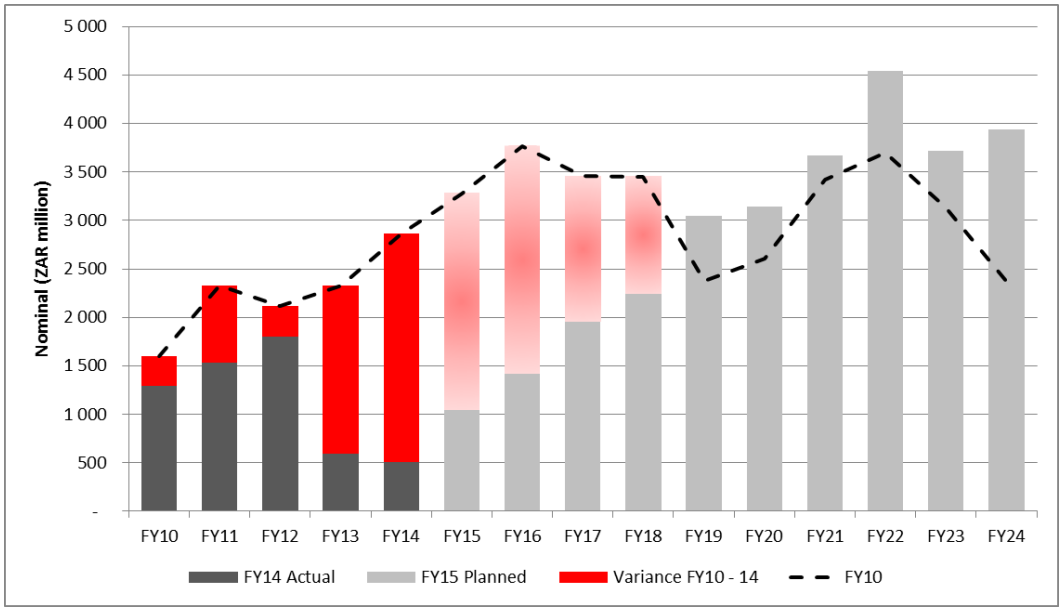


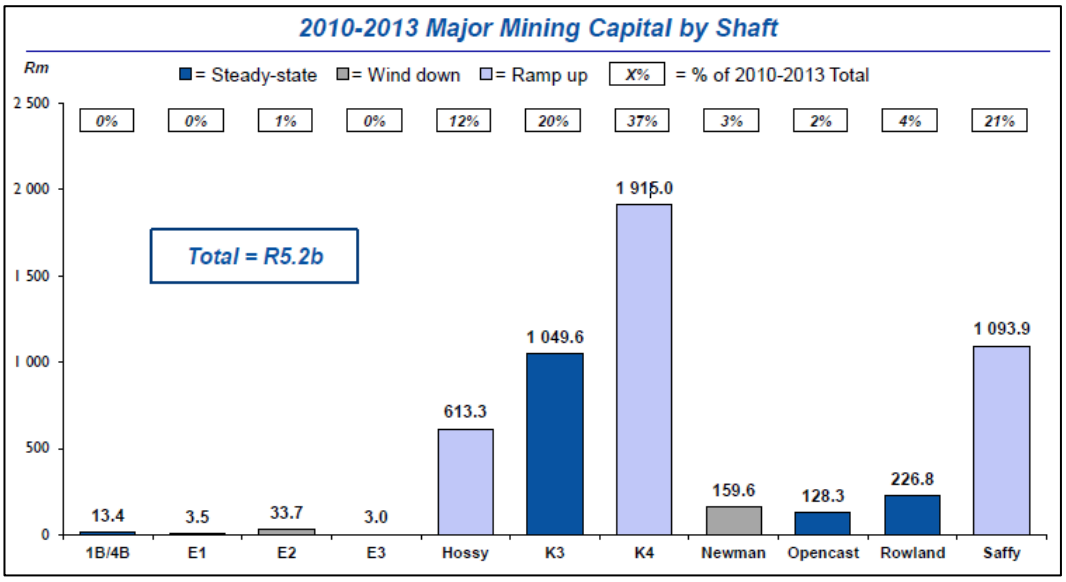
Figure 26: MINING Capital expenditure vs plan 2010 - 2024. (Data Source: Lonmin)

This capital was planned in FY10 to deliver on strategic expectations of growing the output of the business. The dash line (Figure 28) represents the capital planned

during the Life of Business Plan (LOBP) compiled in 2010. The period 2010 to 2014 shows the actual capital spent and the remaining period, the capital planned in the latest FY15 plan. The section shaded in red equates to the capital deferred year on year as well as the curtailment of smaller projects.

The value leakage of this capital reduction would restrict any form of expansion projects from being commissioned. A further R7.307 billion has been removed from the original FY10 capital plan resulting in the business being negatively impacted in the next three years.

This value destruction is realised through several of the current operations 'winding' down (Figure 27) without the capacity to replace the Pt ounce production. The limited available capital will only be employed at RAMP up operations like Saffy and Hossy shafts while the K4 shaft is currently under review.



Source: Lonmin. Notes: E3 JV and W1 shafts excluded from analysis above because they did not receive major mining capital over the displayed period

Figure 27: Major Mining Capital by Shafts 2010 - 2013. (Source: Lonmin CEO, 2013)

The effect of impairments to the order of $1.5 billion between 2012 and 2013 brought about through restructuring and mine closures has inhibited Lonmin's

capacity to replace a diminishing Mineral Reserve, let alone expand output from its existing Marikana operations.

5.5 Delivery on Production Performance – TONNES

Lonmin had, since 2009, proven its capability to deliver the tonnage and had achieved this through sound maintenance of its ore reserve and constantly striving for improved efficiency. This was evident from the successful improvement of the operational health of the business (Lonmin, 2012). The production in 2013 was 12% up on 2012 (Figure 28), notwithstanding the influence of the ramp up after the Marikana incident in the first quarter of 2013.

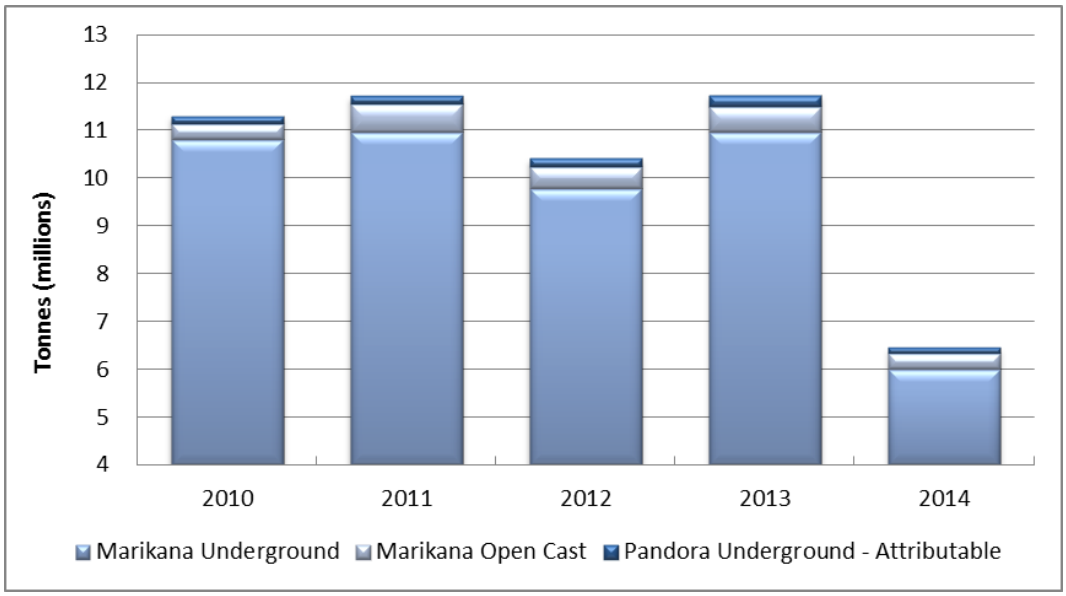


Figure 28: Tonnes hoisted per annum (Data Source: Lonmin)

This performance in 2013 was achieved through minimising the Section 54's and self-induced safety stoppages, indicating an improvement in relations with the DMR and labour. Lonmin accredits this improvement to the implementation of de-bottlenecking projects based on the Theory of Constraints conducted at some of its large shafts where, for example, a 11.4% increase in output at the Rowland shaft was achieved (Lonmin, 2013).

Approximately 60% of Lonmin's production emanated from three primary shafts over the past five years (Figure 29).

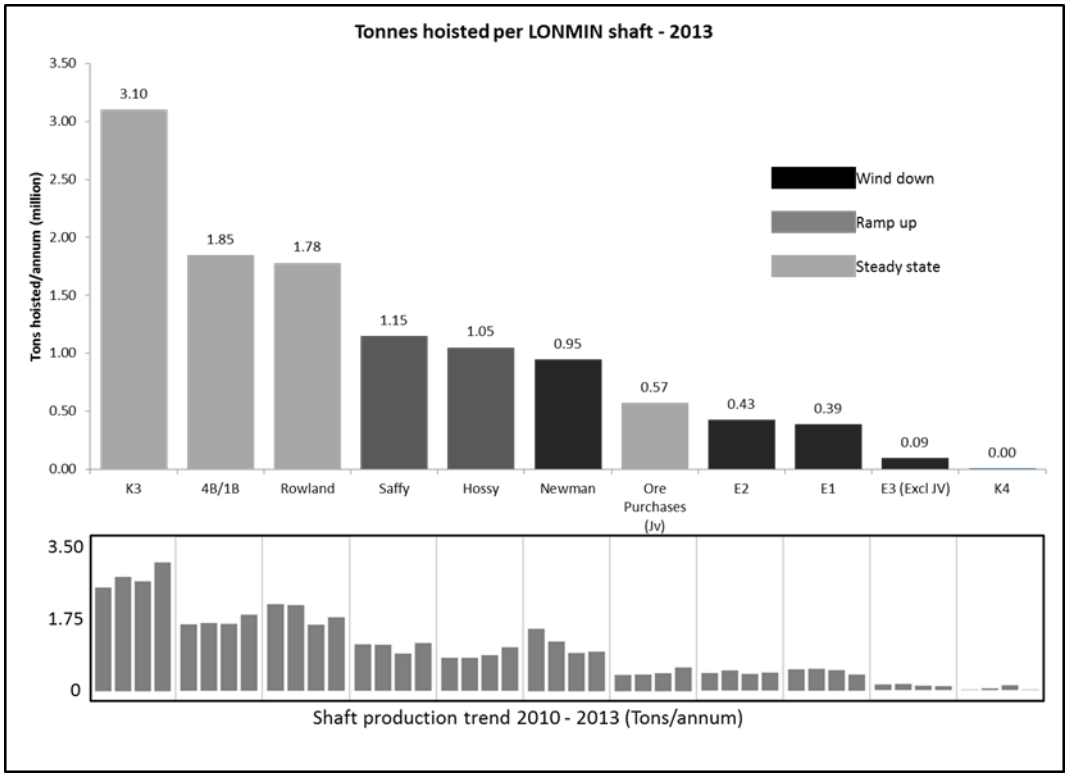


Figure 29: Tonnes hoisted per shaft 2013. (Data Source: Lonmin)

Several of the Lonmin shafts were depleting and nearing the end of life during 2010 to 2013 while no projects existed to replace this depletion. This is demonstrated in the Newman, E3, E2 and E1 shaft profiles while the uptake reflected in the Pandora Joint Venture was not enough to offset the E3 and E1 shafts shortfall.

With the exception of a remarkable first quarter's production in the 2014 financial year, the production for the remainder of the year would prove dismal owing to the severe disruption to operations associated with the extended strike (Lonmin, 2014).

5.6 Delivery on Safety Performance

To operate successfully in South Africa, mining companies must demonstrate and practice safe behaviour in respect of corporate governance and social responsibility and to that end; Lonmin excelled in the safety arena as a result of the interventions implemented. Lonmin cited 'safety of employees and contractors' at the top of the company's risks (Table 1) highlighting the importance this organisation placed on safety.

Lonmin has endured many challenges and disruptions to its operational performance while still demonstrating how this company has become an industry leader in safety performance measured through the Lost Time Injury Frequency Rate (LTIFR) and the Lost Time Incidents (LTI) (Figure 30).

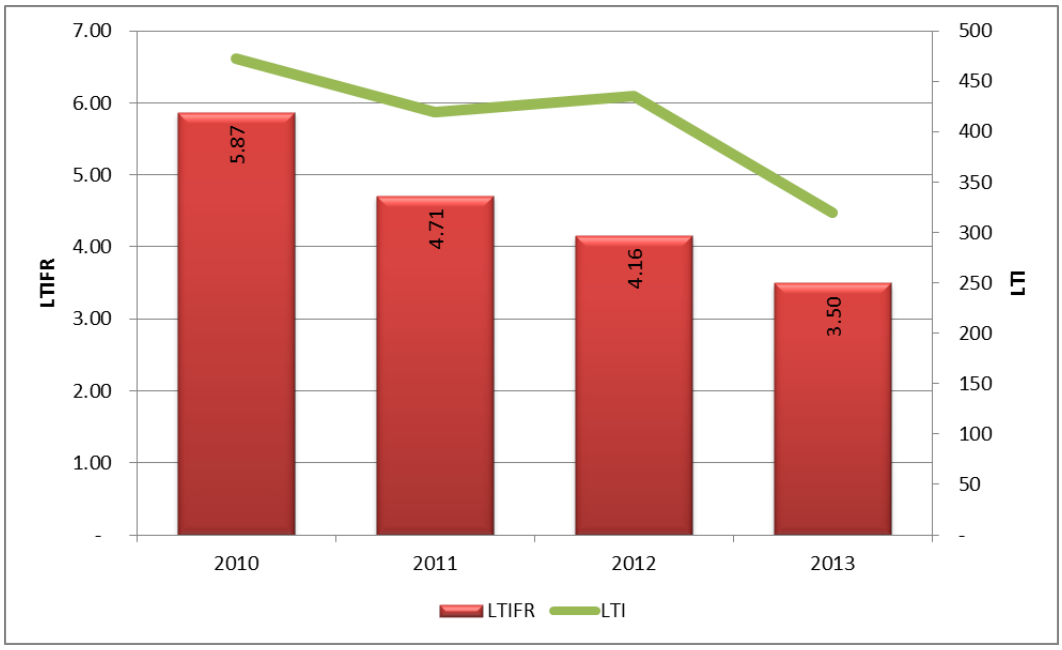


Figure 30: Safety performance LTIFR and LTI (Data Source: Lonmin)

Several milestone achievements were accredited to Lonmin during 2013, the most impressive being the 17 million Fall of Ground Fatal Free shifts awarded on the 11 April 2013 to Marikana Division.

5.7 Rights Issue

With debt facilities in the order of $945million and a strike associated with the Marikana incident in 2012 during which Lonmin lost c.110 000 refined Pt ounces, Lonmin was under significant pressure to recapitalise its operations, address its balance sheet and have adequate funding to sustain production.

> *"As at 31 October 2012, the Group's net debt was approximately US$550 million (unaudited), and this number is forecast to rise further in the coming months as the successful ramp-up to normalised production levels continues" (Lonmin's regulatory release, 2012).*

Lonmin's debt funding was conditional on the profit the business should realise and as such, its position in respect of meeting its covenants with the banks was at risk. Lonmin board set about securing additional funding during the middle of 2012 so as to address the debt with the banks as the general opinion from the financial and commercial sectors was that Lonmin was a sound business with good prospects, considering its high quality asset base and long term mining licenses (Lonmin, November 2012).

5.8 Conclusion

During 2013, the containment of Lonmin's operating cost and improved platinum output compared to the previous three years was able to secure this company's market capitalisation as a result. The final results presented by Lonmin create clear indication thereof where production of 759 000 platinum ounces exceeded guidance and sales achieved was 696 000 platinum ounces (Lonmin, 2013).

It was therefore quite plausible, based on the FY13 performance, to have a confident, yet cautious view on the plan going forward. Lonmin had demonstrated its commitment to resolving labour issues, engaging maturely and actively with all

the stakeholders and being able to deliver on safety, productivity and cost containment.

What transpired in respect of the industrial climate at the beginning of the 2014 calendar year took the platinum mining industry by surprise where the strength of the union – AMCU (Association of Mineworkers and Construction Union) and the longevity of the strike action was underestimated.

The ramifications for Lonmin would be extensive. Operational flexibility was inhibited, capital expenditure was curtailed and ramp-up production planning prolonged. Lonmin's decision to 'protect the business' during the extended strike in 2014 would prove to be the companies advantage in terms of restoring production and achieving the ramp up when the strike ended in June 2014.

In the short term, numerous operational plans and strategies were assessed during the strike period anticipating returning labour at different dates. In addition, the workplaces were assessed for 'production readiness' and where possible, maintained in a state of readiness. Lonmin was suitably positioned to take advantage of these plans when the workforce returned to work. The strategic focus of the business would take on a revised form which would incorporate further cash conservation applications, a stringent capital assessment model, pragmatic design of the life of mine plans and a revision of 'fit for purpose' requirements.

CHAPTER 6: LONMIN STRATEGY DEFINED

6.1 Introduction

Lonmin's priority was to start producing from the smaller shafts when the workforce returned to work in June 2014 as these shafts were able to generate cash rapidly, while systematically sequencing the start up at the larger, higher cost shafts. Typically, these shafts also employed the larger contingent of the workforce and would thus experience longer lead times in terms of certifying their workforce for underground fitness.

These actions enabled Lonmin to exceed their own expectations in terms of the post-strike ramp up to normal production which would be realised before the end of the 2014 financial year (Lonmin, 2014). This decisiveness would only benefit the business in the short term while the real effect of the strike would have to be quantified in the medium to long term in respect of the sustainability of the business. Lonmin's journey would start with ensuring sustainability through the entire value chain, with emphasis on assets with a long 'life of mine' plan. Capital constraints would be dictated by prevailing market conditions and supply and demand cycles.

The strike of 2014 was far reaching. Besides loss in revenues for companies from petroleum and chemical sectors in South Africa to the order of R9.2 billion (Singh, 2014), the impact extended wider than just the mining sector in that GDP for the country would be affected through decelerated spending from consumers.

> "*Market capitalisation of the top 10 declined by R228.9 billion (30%) to R544.6 billion. The bulk of the top-10 companies saw their market capitalisation decline with the exception of Lonmin and Assore, which have grown in value since 2012" (PWC, 2013, p6).*

The long term plan is the most descriptive plan that represents how Lonmin's revised strategy has impacted the business. In this plan, capital deferments, mining schedules, ramp up plans have been tested and reviewed after numerous scenarios. Each scenario, irrespective how one assesses it, has had a negative impact on Lonmin's LOBP outlook.

6.2 Defining the Long-Term Plan

Lonmin planned to expand platinum production to the order of 950 000 ounces beyond 2012 (Johnson Matthey, 2012) following a period of operational consolidation between 2010 and 2012. This planned increase would be facilitated through anticipated ramp up on two of the company's shafts while commissioning of the K4 shaft would be brought on line.

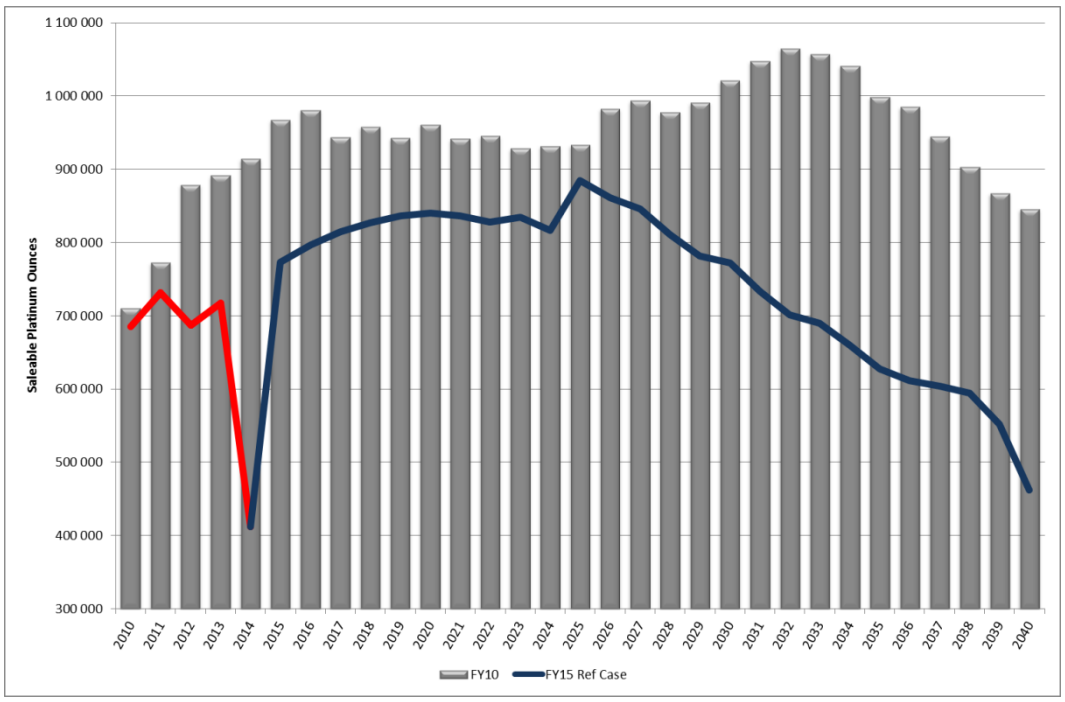


Figure 31: Long Term Plan – Saleable Platinum ounces profile (Data Source: Lonmin)

The FY10 profile (Figure 31) indicates that Lonmin planned to build up to the 950 000 ounces by 2015 and maintain the output over the next decade. However, the period up to 2014 was disrupted by the industrial actions as well as capital

curtailment due to difficult market conditions which resulted in a loss of 935 000oz over the five year period.

The ‘FY15 reference case’ (2014 LTP plan) shows the ounce volume removed from the plan originating in 2010 to be in excess of six million platinum ounces. In real terms as at 2014, the future loss in value would amount to c.US$7.2 billion in lost revenue. The latest plan of 2014 indicates that Lonmin will not exceed the 900 000oz/annum production and maintain around 830 000 ounces.

6.3 Impact of the revised Long-Term Plans

Owing to the constraints associated with the limited funding, capital was focused on the Generation 2 shafts with the objective of ensuring replacement platinum ounces would be planned. Therefore, capital projects that were considered ‘low hanging fruit’ being adjacent to existing shallow workings and accessible from existing infrastructure would be curtailed, and in many respects, cancelled. These projects had a smaller funding requirement than the Generation 2 shaft projects.

In the case of the shallower workings, alternative methods of exploiting these Mineral Resources were engineered into the plan that reduced the viability of the original project scope. In the case of the larger projects, these would be revaluated with the latest global assumptions and with a far more realistic view on the design parameters. A minimum Rate of Return (RoR) of 15% would be defined for these projects and the scenario planning tools would be key drivers for the approval process. By implication, projects that had previously been pursued on lower rates would now undergo a far more rigorous scrutiny before approval.

Lonmin’s enterprise valuation in relation to the FY10 plan (Figure 31) exceeded $3 billion while the latest FY15 Reference case version results in an NPV less than $2 billion.

6.4 Organisational Shift

This organisation adopted a strategy to improve its operational excellence through continuous improvement programs for efficient mining and refining. Right sizing the business with a review of the labour force and the operational complexities associated with that workforce's capability was implemented. Improved efficiencies would lead to reduced labour complements and hence a business that is cost focused and positioned to produce at a relatively low commodity price.

This process was price driven and the capital curtailment was the primary driver followed by a review of current operations triggered if the commodity price declined below the order of US$900 or ZAR10 300/6E ounces which comprises the platinum group elements plus gold (6E = Platinum (Pt), Palladium (Pd), Rhodium (Rh), Ruthenium (Ru), Iridium (Ir) and Gold (Au)). As a consequence of this phase, overheads and associated support services would be reduced in execution of the strategy.

A business assessment was done on current non-contributing assets like the Mineral Resources in Limpopo and Akanani with a view to investigate joint ventures through models like ore purchase agreements so as to share the risk. No final strategic objectives for these Mineral Resources have been formalised as at June 2015.

CHAPTER 7: CONCLUSION

A business growth strategy is generally simpler to develop when prevailing market conditions are positive. By comparison, an efficiency-driven strategy requires a tactical response (Kloppers et al, 2015) to short term plans and objectives with a greater degree of improvisation and modification. Hammer et al (1994) points out that through recognising the limitations of an organisations flexibility and adaptability will enable that organisation to change their business strategy to address the changes in a commodity and market. The execution of this strategy therefore requires constant evaluation of the prevailing market conditions and involves decisive action and implementation.

Lonmin's growth strategy outlined in 2010 planned to build up to 920 000oz/annum by 2016. This was premised on the assumption of a quick recovery in the platinum price post the GFC. This strategy was altered during 2012 to ensure survival of the business through cash conservation, unit cost reduction, capital deferment and restructuring when it became clear that financial markets would take longer to recover to pre-GFC levels.

The sustained weak macroeconomic environment compelled Lonmin to focus on the short to medium term strategy at the expense of the long term objectives. The interventions that were pivotal to this change in strategy were the declining commodity price, escalating costs of labour and utilities, the Marikana incident in August 2012, the departure of the company's CEO (Ian Farmer), the Rights Issue in 2012 and the AMCU labour strike in 2014.

The contributing micro economic elements are summarised as the poor stakeholder relations Lonmin had with the greater community in the Marikana area and the business's diminishing capacity to attract funding which as observed by Cutifani (2014), would inhibit a company from fully exploiting their reserves due to divestment and limited access to capital.

Lonmin was compelled to raise equity capital by means of a Rights Issue at the end of 2012 to strengthen its balance sheet allowing this company to stay within the requirements of their banking covenants in 2013. The production delivered during the 2013 financial year was an improvement on previous years and during this period, operations performed well above expectations in respect of safety and productivity. Based on the results of the performance in 2013, a high level of confidence existed in terms of achieving the objectives of the plan looking forward to 2014 and 2015.

In the absence of triggers from the global market that would signify a recovery in demand for platinum, mining companies in South Africa have found it challenging to define strategic objectives based on assumptions. As a priority, Lonmin was managing their relations with stakeholders of which, most importantly at the time, were the employees and communities. Lonmin and its peers, Anglo American Platinum and Impala Platinum, underestimated the determination of the workforce lead by AMCU and the result was a violent and protracted strike which commenced on the 23 January 2014.

Since the outlook for the metal price remains negative in the short term, the strategy that Lonmin has adopted post 2013 focuses on the short term operational health of the business. Through capital curtailment, the remainder of the long term strategy is at risk. In the medium term, Lonmin will maintain a survival strategy through cash conservation with minimal growth prospects by reducing unit costs and maximising output from the vertical shafts. As a result, the current ore reserve capacity will be exploited and thus reduced over the next two years from the current 20 months to a riskier 12 months.

Lonmin's market capitalisation as at the end of June 2015 was just over $1.03 billion while audited fair value for the company as at September 2014 was $2.882 billion. Lonmin is currently trading 65% below its fixed asset value and this presents firstly a risk to Lonmin in possible synergistic takeovers, but secondly, an

opportunity to another company seeking expansion or diversification into this industry to acquire Lonmin's assets at a relatively undervalued price.

Considering the ever changing and dynamic nature of the platinum market during 2015, it is recommended that Lonmin consider adopting the following:

- The ability to improve the company's strategic planning capacity must be entrenched by increasing the economic and business modelling skills through a dedicated department that encompasses the enterprise wide specialist resources of finance, mining, economic valuation and modelling.

- Scenario planning must be a functional part of the organisations strategic outlook and should be embedded into the company planning cycle to serve as an instrument which guides the formal planning process.

- Lonmin has a high debt gearing due to reliance on interest bearing loan financing. This has placed the company in a predicament in respect of re-funding maturing debt facilities. It is therefore recommended that Lonmin consider shedding or selling off some non-core assets; like Limpopo in order to realise firstly, a financial flexibility and secondly, reduce the company's organisational liability.

- Depleting assets which are in a planned closure phase and which fall under the Marikana Mining Rights must be contractually operated through external organisations so that Lonmin can re-engineer their cost base and management focus on the primary assets like the vertical shafts.

REFERENCES

ANGLO AMERICAN PLATINUM Annual report (2010), pp 21-31, 98-122, 131-161 and 202-269.

ANGLO AMERICAN PLATINUM Annual report (2011), pp 10-14, 32, 54-55, 122-126, 162-188 and 247-291.

ANGLO AMERICAN PLATINUM Annual report (2012), pp 6-9, 109, 112-137 and 190-251.

ANGLO AMERICAN PLATINUM Annual report (2013), pp 32-35, 78-85, 140-144, 164-199 and 224-263.

AAP, Analyst presentation 2013. (2013) Focused on delivery, Restructuring for prosperity [Webpage]. Available online http://www.angloplatinum.com/investors/results/2013.asp [Accessed 25 October 2014].

BATTEN, A., CINER, C. and LUCEY, B. (2009) The macroeconomic determinants of volatility in precious metals markets. *Resources Policy 35 (2010)*, pp 65-71. Elsevier.

BELL, A. (2015) Exploring linkages between risk and strategy. *Insights into Mining, Issue number 3*, pp 2-6. KPMG.

BELL, T. (2012) The 10 biggest platinum producers. *AboutMoney article*. Available online: http://metals.about.com/od/Top-10-Producers/tp/The-10-Biggest-Platinum-Producers.htm [Accessed 29 September 2014].

BOEGMAN, H. (2011) SA Mine, Review of trends in the South African mining industry, November 2010, pp 5-14. Price Waterhouse Coopers.

BOEGMAN, H. and ROSSOUW, A. (2013) SA Mine, Highlighting trends in the South African mining industry, November 2013, pp 6-15, 21. *SA Mine 5th Edition*. Price Waterhouse Coopers.

BOEGMAN, H. and ROSSOUW, A. (2014) SA Mine, Highlighting trends in the South African mining industry, November 2014, pp 7-12, 23-27. *SA Mine 6th Edition*. Price Waterhouse Coopers.

BROWN, A. (2014) To buy, hold or sell AAP shares, taking into consideration historic performances, market outlook and investor sentiments? *Student*

papers - Mine Financial Valuation. Post graduate course. University of the Witwatersrand.

BUSINESS RISKS FACING MINING AND METALS 2013 - 2014. (2014) The business risk report Mining and Metals 2013 – 2014. Ernst and Young.

CAMERON, H. (2010) SA Mine, Review of trends in the South African mining industry, December 2009. Price Waterhouse Coopers.

CALLDO, F. (2008) ESKOMS POWER CRISIS. *Solidarity Research*. Solidarity Institute. Available online: www.solidarityinstitute.co.za/docs/**eskom**_crisis.pdf [Accessed 20 January 2015].

CHEADLE, R. (2015) Does policy affect investment? *Inside Mining 03* – 2015 pp 12, 13.

CHOOLAN, F. (2014) Capital ranking and portfolio optimisation. *Personal interview*. Lonmin Capital Finance.

CUTIFANI, M. (2014) Keynote address: Rebuilding Trust: Evaluating a new and sustainable approach for producers, providers of capital and all stakeholders. (Transcribed version) The Joburg Indaba, 2014.

DAMARUPURSHAD, A. (2014) Pricing and selling mechanisms: Precious Metals and Diamonds. *South African Diamond and Precious Metals Regulator (SADPMR)*. University of Witwatersrand post graduate classes in Minerals Marketing, 2014.

DAVIS, M. (2012) Xstrata call for Lonmin management shake-up. *Mining Prospectus – Triple bottom line*, November 2012. Available online: www.miningprospectus.co.za/articles/xtrata-calls-for-lonmin-management-shake-up-3354.html. [Accessed 20 December 2014].

De LANGE, J. (2014) Platinum inventory declines sharply. *Beeld Business Edition*, 4 December 2014, pp17. (Translated from Afrikaans to English)

ELLIOT, M. (2014) Business risk facing Mining and Metals 2013 - 2014. *The Business risk report Mining and Metals 2013 – 2014*, pp 5-10. Ernst and Young publication.

FRANKEL, J. and STURZENEGGER, F. (2008) Policy brief – South Africa's Macroeconomy. *South Africa: Macroeconomic Challenges after a Decade of Success – May 2008*. CID Harvard University.

GLOBAL ECONOMIC PROSPECTS (GEP). (2010) Fiscal Headwinds and Recovery. *GEP- Volume 1 Summer 2010. The World Bank*. Available online: http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTDECPROSPECTS/0,,contentMDK:23098401~pagePK:64165401~piPK:64165026~theSitePK:476883,00.html [Accessed 29 October 2014].

GWATIDZO, T. and BENHURA, M. (2013) Mining sector wages in South Africa. *Labour Market Intelligence Partnership*. LMIP Working paper 1, 2013, pp 2-8 and 17-20. Available online: www.lmip.org.za [Accessed 5 November 2014].

HAMMER, M. and CHAMPY, J. (1994) Reengineering the Corporation, A Manifesto for Business Revolution. *Nicholas Brealey Publishing*, pp 201.

HOLLAND, D. (2013) To grow or not to grow – Valuation of the LOBP. Results from the Lonmin Driver model and PGM market expectations. *David Holland Consulting.* Lonmin presentation 24 April 2013, pp 7, 14 and 23-25.

IMPLATS Annual report. (2011) pp 12-17, 22-23, 48-59 and 118-203. Available online: http://www.implats.co.za/implats/Annual-reports.asp [Accessed 19 November 2014].

IMPLATS Integrated Annual report. (2012) pp 2-5 and 10-19. Available online: http://www.implats.co.za/implats/Annual-reports.asp [Accessed 19 November 2014].

IMPLATS Annual report. (2013) pp 32-33, 42-49, 56-59, 90-95 and 132-149. Available online: http://www.implats.co.za/implats/Annual-reports.asp [Accessed 19 November 2014].

IMPLATS Annual report. (2014) pp 8-9, 40-47, 49-57, 70-74 and 132-141. Available online: http://www.implats.co.za/implats/Annual-reports.asp [Accessed 20 April 2014].

JOHNSON MATTHEY. (2010). Platinum 2010 Annual report, pp 4, 10 and 14-35.

JOHNSON MATTHEY. (2011). Platinum 2011 Annual report, pp 4-7 and 10-35.

JOHNSON MATTHEY. (2012). Platinum 2012 Annual report, pp 4, 10-23 and 27-35.

JOHNSON MATTHEY. (2013). Platinum 2013 Annual report, pp 5, 10-20 and 26-31.

KLOPPERS, B.J., HORN, C.J. and VISSER J.V.Z. (2014). Strategic and tactical requirements of a mining long term plan. *Proceedings of the Sixth International Platinum Conference, Sun City, South Africa, 20-22 October 2014*. Southern African Institute of Mining and Metallurgy. Johannesburg. pp 121-128.

KEETON, G. (2014) A platinum producers' cartel is not practical. *Rhodes University*. Available online: http://www.ru.ac.za/facultyofcommerce/latestnews [Accessed 11 June 2015].

LONMIN PLC Annual report. (2010) pp 7-10, 18-19, 26-27, 28-33 and 98-148.

LONMIN PLC Annual report. (2011) pp 6-11, 38-40, 102-142 and 149-154.

LONMIN PLC Annual report. (2012) pp 18-25, 39-42, 47-48, 116-150 and 152-159.

LONMIN PLC Annual report. (2013) pp 10-15, 20-23, 110-154 and 170-176.

LONMIN PLC Annual report. (2014) pp 132-155 and 189-197.

LONMIN REGULATORY RELEASE. (2012). Lonmin urges Shareholders to Vote in favour of the Right Issue. Lonmin Plc.

LONMIN RIGHTS ISSUE. (2012). Rights Issues PROSPECTUS – Lonmin. Lonmin Plc, pp 10, 17-18, 22, 38 and 55.

MAGARA, B. (2013) Lonmin Plc CEO Board presentation 7 November 2013. Lonmin Plc.

MAXWELL, P. (2011) Chapter 4 – Trade in Minerals. *Mineral Economics. Post graduate course*. University of the Witwatersrand.

MAZARURA, B. (2015) Rights Issue framework. *Personal interview*. Lonmin Executive Finance.

McCLURE, B. (Date unknown) Understanding Rights Issues. *Investopedia.* Available online: http://www.investopedia.com/articles/stocks/05/062905.asp [Accessed 14 July 2014].

McGILL, J.E. (2010) Leading the next boom? Competitive Eastern Limb platinum supply. *The 4th International Platinum Conference, Platinum in transition 'Boom or Bust'*, The Southern African Institute of Mining and Metallurgy, 2010, pp 339-342.

McKAY, D. (2014) Lonmin may face capital-raising dilemma. *Miningmx.com article.* Available online: http://www.miningmx.com/page/news/platinum_group_metals [Accessed 9 October 2014].

McKAY, D. (2015) Lonmin playing "game of chicken" with market. *Miningmx.com article.* Available online: http://www.miningmx.com/page/news/platinum_group_metals/1652359-Lonmin-playing-game-of-chicken-with-market [Accessed 19 June 2015].

MOHR, P. and FOURIE, L. (1995) ECONOMICS for South African Students. J.L. van Schaik Publishers, pp 18-20 and 231.

MONEYWEB. (2014) Financial item summaries for Anglo American Platinum, Impala Platinum Holdings and Lonmin PLC 2013. Available online: http://www.moneyweb.co.za/moneyweb-click-a-company [Accessed 28 November 2014].

MINING PROSPECTUS. (2012) Lonmin slashes output forecast by 23%. *Mining Prospectus, October 2012.* Available online: www.miningprospectus.co.za/articles/lonmin-slashes-output-forecast-by-23-3077.html [Accessed 28 November 2014].

NAGEL, V.M., KLOPPERS, B.J., CHOOLAN, F., KRUGER, L., FRASER, C. and KEW, R. (2014) Lonmin's capital allocation process – the evolution from individual ranking to portfolio optimisation. *6th International Platinum Conference (Platinum – metal for the future), October 2014*. Southern African Institute of Mining and Metallurgy.

OANDA. (2014) Foreign exchange rates. Available online: www.oanda.com/currency/historical-rates/ [Accessed 9 October 2014].

PLATINUM Exchange Traded Funds (ETF's). (2014) PPLT – Physical platinum shares. *ETF Database*. Available online: http://etfdb.com/etf/PPLT/?page=ccharts&sym=PPLT&overlay=&sp=true&nasdaq=true&dow=true&domain=etfdatabase&display_ice=&enabled_ice_**exchanges**=&studies=Volume;&cancelstudy=&a=M#charts . [Accessed 5 November 2014].

PLATINUM WAGE NEGOTIATIONS (PWN). (2014) Cumulative calculator of revenue loss during the 2014 platinum sector strike. Available online: http://www.platinumwagenegotiations.co.za/ . [Accessed 5 August 2014].

PRINSLOO, L. (2015) 'So you've taken billions, Lonmin? Give us just R1m'. *Business Times* 1st February 2015.

RIO TINTO. (2008) Core objective and strategy. *Markets and Strategy*. Rio Rinto 2008 Annual Report, pp 21-22.

ROSENAU-TORNOW, D., BUCHHOLZ, P., RIEMANN, A. and WAGNER, M. (2009) Assessing the long-term supply risks for mineral raw materials — a combined evaluation of past and future trends. *Resources Policy 34 (2009)* pp 161-175. Elsevier.

ROBBINS, S. (1998) Organisational behaviour, Eighth Edition. *Prentice-Hall, Inc*, pp 251-253.

RUDARAKANCHANA, N. (2013) Platinum 2014 outlook: South Africa Mining, China Demand and Europe Emissions Drive Platinum Deficits. *International Business Times.* Available online: http://www.ibtimes.com/platinum-2014-outlook-south-africa-mining-china-demand-europe-emissions-drive-platinum-deficits [Accessed 26 February 2014].

SFA. (2015) Cost curves. *Steve Forrest and Associates* (SFA)

SINGH, S. (2014) Effects of the mining strikes on the South African Economy. *Mining Review*, posted V. Sidler 18 July 2014.

SINGH, S. (2015) SA Miners must dig deep for profits. *FIN24.com*. Available online: http://www.fin24.com/Companies/Mining/SA-miners-must-dig-deep-for-profit-20150107 [Accessed 9 January 2015].

SOLOMON, M. (2014) Mining and investment risk. *Policy and Investment Risk Program. Post graduate course*. University of the Witwatersrand.

SOUTH AFRICAN MINERAL RESOURCE COMMITTEE (SAMREC). South Africa (2007) The South African Code for the Reporting of Exploration Results, Mineral Resources and Mineral Reserves (The SAMREC Code), 2007 Edition, amended July 2009.

WORLD MOTOR VEHICLE PRODUCTION. (2014) Production statistics. *Organisation Internationale des Constructeurs d'Automobiles*. Available online: http://www.oica.net/category/production-statistics/2004-statistics/ [Accessed 5 November 2014].

ZIMBABWE INDEPENDENT. (2015) US$4bn Zim-Russia 'mega deal' in limbo. *The Independent – Zimbabwe*, January 2015. Available online: http://www.theindependent.co.zw/2015/01/16/us4bn-zim-russia-mega-deal-limbo/ [Accessed 5 February 2015].