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REAL ECONOMY INSIGHT: PLATINUM

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Picture by Duane Daws

Real Economy Insight: **Platinum**

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The South African platinum mining industry, which produces most of the world's primary platinum supply, is under pressure, with an estimated 40% to 50% of the country's platinum mines losing money. Having emerged from the bruising five-month Association of Mineworkers and Construction Union-championed strike in 2014, which wiped about 1.3-million ounces from the market, producers are now battling rising costs and weak metal prices.

The platinum price averaged $1 388/oz in 2014, which, according to GFMS analysts at Thomson Reuters, is the lowest yearly average in seven years. Prices remained weak in the first half of 2015, as above-ground stocks cushioned the supply chain and recycled metals restrained prices.

Platinum producers are facing significant cost pressures, mainly owing to the above-headline-inflation wage settlements and electricity price increases of recent years. The most significant producer, Anglo American Platinum (Amplats), reports that mining costs have risen at almost double the rate of inflation since 2008, reporting mining inflation of about 8.3% in 2014. GFMS estimates that South African producers have experienced a 5% increase in their total cash costs to $1 272 a platinum-equivalent ounce in 2014, which compares with $1 008/oz in Zimbabwe and $939/oz in North America.

Risings costs, labour unrest and persistent weakness in the market have pushed the industry into radical restructuring, with companies selling off underperforming assets, closing old shafts and reviving arguments for mechanisation, automation and modernisation of the country's deep-level, labour-intensive underground mines.

The restructuring efforts, which started in 2013, have already had a severe impact on employment in the industry. The National Union of Mineworkers estimates that the platinum sector has shed about 35 000 jobs since 2012. Mineral Resources Minister Ngoako Ramatlhodi has expressed concern about the rate at which retrenchments have been taking place and said after a meeting of the Mining Industry Growth, Development and Employment Task Team in May this year that a subcommittee had been tasked to investigate the matter of retrenchments.

Number-three platinum producer Lonmin recently announced it will potentially lay off 3 500 workers. The company is targeting a 10% reduction in its labour costs, which represent about 60% of its total costs. Unions have vowed to approach the courts and the Department of Mineral Resources to fight the planned retrenchments, which Lonmin intends to manage through a voluntary process, rather than forced retrenchments.

When Amplats unveiled its major restructuring plans in 2013, the company was lambasted by government and unions over the number of jobs it had planned to cut. Amplats initially estimated as many as 14 000 job cuts, but later scaled back retrenchments to 6 000.

The company is still reducing its employee numbers as part of the 2013 restructuring programme and in April this year, announced it would lay off 474 out of a group of 1 248 employees at its Khomanani mine, in Rustenburg, in the North West. The remaining employees from this group were offered other positions.

Impala Platinum (Implats), which is the second-largest platinum producer, has so far stayed clear of retrenchments.

Industry restructuring

The South African platinum sector is in the middle of a major shake-up, with participants selling off underperforming assets. Many of the major producers have been using profitable assets in recent years to subsidise marginal shafts and analysts say that selling these mines will force new owners to either make them more efficient or to close the shafts.

Amplats is contemplating exiting two mines and its shareholding in two joint ventures (JVs), while Implats is overhauling Impala Rustenburg to boost productivity.

Amplats' restructuring centres on the strategic decisions it announced in January 2013, following a comprehensive review of its operations. The review's immediate focus was to reduce costs, prioritise capital, improve efficiencies and tailor platinum group metal (PGM) supply to the market. The long-term focus is on reconfiguring operations to concentrate on higher margins and more mechanised operations.

The two Amplats mines marked for divestment are Rustenburg, in the North West, and Union, in Limpopo, which is the group's worst-performing operation. Parent company Anglo American is reportedly favouring an option of listing these assets on a stock exchange rather than the potential sale of the mines as potential buyers are struggling to meet the company's price expectations. Amplats will also exit the Pandora JV with Lonmin, in the North West, and the Bokoni JV with Atlatsa Resources, in Limpopo. Lonmin has right of first refusal over Amplats' stake in Pandora and the right to match any existing bid for the asset. Sibanye Gold, Northam Platinum and community-owned Baroka Platinum are among the parties that have shown an interest in acquiring the assets that Amplats plans to sell.

Implats also announced a major revamp and in February 2015 outlined its strategic priorities. The company initially resolved to sell its Marula mine, in Limpopo, and to reposition Impala Rustenburg, in the North West, into a smaller, more concentrated mining operation with access to new, modern shaft complexes. However, it has since decided to keep the Marula mine and to improve the performance of the operation instead. Implats has also scaled back on capital expansions and delayed several growth projects.

Lonmin outlined its strategy in November 2014, which involves reducing the group's costs by R2-billion over three years through freezing general recruitment, natural attrition and the reduction of contractors. Of the targeted savings, R600-million will come from operational efficiencies, including 15%-better crew efficiencies and 5%-better process recoveries. However, in April this year, Lonmin announced further cost savings, which may result in 3 500 job cuts.

Several smaller operations have also closed down in recent years in response to weak prices and soft demand, including the Crocodile River mine, in the North West, which Eastern Platinum (Eastplats) placed on care and maintenance in 2013. Eastplats has since agreed to a buyout from China's Hebei Zhongbo Platinum. Eastplats shareholders approved the deal in February 2015.

The Chromite Tailings Retreatment Plant (CTRP), adjacent to the Kroondal mine in the North West, ceased to operate in 2012. CTRP is a JV between Aquarius, Sylvania South Africa and GB Mining. Aquarius also placed its Everest mine on care and maintenance in mid-2014.

The Everest mine has since been given a new lease of life, when Northam Platinum announced in February

Picture by Duane Daws

2015 that it was buying the operation for R450-million. Now renamed Booysendal South, the mine forms an important part of Northam's growth aspirations.

Mechanisation and automation

Increasing costs and declining productivity have revived arguments in favour of mechanising and automating South Africa's platinum mines. University of the Witwatersrand Centre for Mechanised Mining Systems director Declan Vogt believes mines have to be run like factories to become more profitable. Mechanisation could also improve safety in deep-level mines.

One of the champions of the industry's modernisation is Amplats CEO Chris Griffith, who believes that the current technology on the market has made mechanisation a more viable option. Amplats is working on extending mechanisation and says it could mechanise 71% of its operations, from 31% currently. The company has already fully mechanised its Bathopele shaft, in the North West. Bathopele is a bord-and-pillar operation using low-profile equipment and is three times more productive than Amplats' conventional mines. The company also plans to introduce mechanisation at the Twickenham mine, in Limpopo. Twickenham will be the first hard-rock mechanised mine to operate with extra-low and ultralow profile mining technology.

Other industry participants considering mechanisation include Royal Bafokeng Platinum (RBPlat), which is planning to use mechanised mining methods at its Styldrift mine, in the North West; Ivanhoe Mines, which is developing the Platreef mine, in Limpopo; and Northam, which owns mines in Limpopo and Mpumalanga. Nkwe Platinum is also planning a mechanised mine at Garatau, in Limpopo, and Wesizwe Platinum has indicated that its Waterberg deposit, if developed into a mine, will be a semimechanised operation.

Supply and demand

South Africa and Russia are the two leading platinum and palladium ore producers. South Africa is the largest producer of platinum and the second-largest producer of palladium. The world's largest known PGM resource is found in South Africa's Bushveld Igneous Complex, which Hans Merensky discovered in 1924.

Platinum supply and demand balance

('000 oz)	2013	2014	2015f	2015f vs 2014
Supply				
Refined production	6 070	4 880	5 765	18%
South Africa	4 355	3 115	4 060	30%
Zimbabwe	405	405	405	0%
North America	355	400	385	–4%
Russia	740	740	705	–5%
Other	215	220	210	–5%
Producer inventory increase (–)/decrease (+)	**–215**	**+385**	**+90**	**–74%**
Total mining supply	**5 855**	**5 230**	**5 855**	**12%**
Recycling	**1 985**	**2 040**	**2 110**	**3%**
Total supply	**7 840**	**7 270**	**7 965**	**10%**
Demand				
Automotive	3 125	3 250	3 375	4%
Jewellery	2 945	2 990	3 085	3%
Industrial	1 510	1 565	1 645	5%
Investment	930	135	50	-63%
Total demand	**8 510**	**7 940**	**8 155**	**3%**
Balance	**–670**	**–670**	**–190**	**–72%**
Above-ground stocks	**3 470**	**2 800**	**2 610**	**–7%**

Source: World Platinum Investment Council – Platinum Quarterly, Q1 2015
f – forecast

In 2004, South Africa's mines provided more than two-thirds of the world's total primary and secondary supply. In 2013, the country's share was fractionally more than half of the total, with secondary or recycled metal providing more than a quarter. After the strike in 2014, the country's share of gross platinum supply dropped significantly.

The World Platinum Investment Council (WPIC), which the top six platinum producers established in 2014 to promote platinum as an investment vehicle, estimates the platinum market ended 2014 in a deficit of 670 000 oz, which lowered above-ground stocks to 2.80-million ounces by year-end. WPIC's definition of above-ground stocks exclude exchange-traded funds, metal held by exchanges and industry working inventories of mining producers, refiners, fabricators and end-users. They are typically holdings from which a supply/demand shortfall can be readily supplied or to which a supply/demand surplus can readily flow.

In its 'Platinum Quarterly Q1 2015' report, the WPIC states that total platinum mining supply in 2014 was 5.23-million ounces, compared with 5.86-million ounces in 2013. South Africa produced 3.12-million ounces, compared with 4.36-million ounces in 2013. Recycled platinum, which comes from automotive catalytic converters, jewellery and recycled electrical equipment added 2.04-million ounces to the total platinum supply in 2014, buoyed by an increase in autocatalysts recycling, taking total supply to 7.27-million ounces.

During the first three months of 2015, analysis from WPIC's research partner SFA (Oxford) shows that demand exceeded supply, resulting in a market deficit of 160 000 oz. First-quarter refined production was estimated at 1.42-million ounces, with total mining supply at 1.39-million ounces. The WPIC reports that South African production had increased by about 15 000 oz to 995 000 oz relative to the fourth quarter of 2014. Supply from the recycling industry reduced to about 450 000 oz, from 480 000 oz in the final quarter of 2014. Total first-quarter platinum supply declined to 1.84-million ounces, from 1.86-million ounces in the fourth quarter of last year.

The main demand for platinum stems from automotive catalytic converters and jewellery. Demand growth has been relatively weak over the past decade. In 2014, total global platinum demand decreased by 7% year-on-year to 7.94-million ounces. However, platinum demand increased in the first quarter of 2015, when compared with the previous quarter owing to growth in automotive and jewellery demand.

However, as platinum is used but never consumed, it has great potential to reappear as recycled metal, which makes it imperative for ongoing marketing to create demand for newly mined metal.

Platinum mining companies believe the answer could be in fuel-cell technology. Platinum has a unique ability to react with hydrogen, making it an efficient catalyst for fuel cells. Fuel cells contributed significantly to the 4% growth in platinum demand from end-users other than the traditional markets in 2014.

The mainstream adoption of fuel-cell vehicles – electric cars powered by hydrogen fuel cells instead of batteries – is expected to provide a significant boost to platinum demand. Amplats has said that platinum demand in Europe will increase to 6.6-million ounces in 2050, if fuel-cell cars succeed in dominating the electric vehicle segment.

Conversely, if battery cars dominate, demand for platinum in Europe will decline to 2.5-million ounces in the same period. Toyota, Honda and Hyundai are all expected to release fuel-cell cars in 2016, with Daimler likely to follow suit in 2017.

In South Africa, electricity supply problems are offering a major opportunity for producers to stimulate the offtake of platinum. A call has been made for the country to commit to 1 000 MW of fuel-cell generated electricity by 2020. While it will only represent about 2% of South Africa's power supply, it will create demand for 5% more platinum metal.

The Chamber of Mines has gone off-grid and is using a 100 kW fuel cell to power its head office building in Johannesburg's inner city. The $1-million fuel-cell installation will provide the building with all the electricity it needs at a 20% discount over 15 years.

Implats is also studying the feasibility of taking its entire platinum refinery, in Springs, east of Johannesburg, in Gauteng, off the national grid. The company is planning an initial 1.8 MW of stationary fuel power capacity, which it will increase to about 22 MW of fuel-cell power to get off the Eskom grid. Implats is aiming to start producing the initial stationary power from fuel cells in early 2016.

The group will in future consider opportunities to deploy stationary power plants with the ultimate aim of using fuel cells as the core energy source for its underground mining equipment, which could enhance mine ventilation, reduce heat and eliminate noxious and sulphurous emissions.

South Africa-based PGMs exchange

Investment company Pan-African Investments & Research Services CE Dr Iraj Abedian has been backing the establishment of a South Africa-based platinum group metals (PGMs) exchange for many years, advocating that such an exchange will ensure the country receives maximum benefit from its mineral wealth.

Abedian has engaged government and platinum producers about the benefits of such a system, but he tells Mining Weekly that vested interests in the existing market structures and the lack of understanding within the industry and government's policy creation circles are some of the reason for the delay in the establishment of a PGMs exchange.

Currently, commodity-trading companies, such as JPMorgan, Goldman Sachs and Citibank, draft and transact PGMs contracts in London and in the US. Abedian states that PGMs markets are uncoordinated, which results in significant fluctuations in PGMs prices as they are subject to market cyclicality, speculation and other political economy factors. A commodity exchange will allow for structured and systematic price discovery.

Abedian believes a PGMs exchange could be established in 6 to 12 months at the JSE premises, in Johannesburg, as the JSE already has active wheat and maize exchanges that cater for spot and future markets. He has emphasised that a commodity exchange is not a market board and that it has to be a private-sector-managed initiative in which government is a stakeholder.

The World Platinum Investment Council has indicated that it will welcome the opportunity to participate in the development of a platinum exchange in South Africa, while the Minerals Processing and Beneficiation Industries Association of Southern Africa (MPBIASA) has described the proposal to establish a PGMs exchange as a noble proposition. However, MPBIASA has questioned whether an exchange, which will be driven by global supply and demand forces, will provide discounts for local companies to buy PGMs at lower prices to enable them to produce goods at competitive prices.

Source: *Mining Weekly*

Amplats has been using fuel-cell powered mine locomotives at one of its operations for some time. The company also has a fully off-grid power system sufficient for lighting, cooking, refrigeration, radio and television on field trial in Kroonstad, in the Free State.

Outlook

Platinum producers are cautioning that weak market conditions are expected to persist. Lonmin expects platinum prices to remain weak for another two years, while Implats has said that prices are likely to stay "lower for longer". Smaller producers, such as Northam and RBPlat, are also not betting on market conditions improving in the near term.

Above-ground stocks and recycled metal are still restraining prices, although forecast deficit markets are expected to erode the level of inventory and should bode well for prices in the medium to long term. The WPIC is forecasting a platinum market deficit of 190 000 oz in 2015. Above-ground stocks are expected to reduce to 2.61-million ounces by the end of 2015, which will be 7% lower than the level at the end of 2014.

In the 'Platinum and Palladium Survey 2015', GFMS analysts forecast an average price of $1 170/oz in 2015, which will be 16% lower than the average for 2014. However, analysts warn that platinum may test $1 000/oz this year, especially if platinum supply increases substantially on higher mine production from South Africa and a rise in autocatalyst scrap. GFMS and WPIC are forecasting higher mine production from South Africa as output recovers from the strike-hit 2014 level. Robust autocatalyst recycling growth of about 10% is also expected to offset a decline in jewellery recycling.

Conversely, demand is expected to increase in 2015, supported by gains from the automotive market and a projected increase in demand from the jewellery sector. The WPIC forecasts a 3% increase in total demand to 8.16-million ounces in 2015. GFMS forecasts demand to increase by 6% to 7.72-million ounces this year.

GFMS states that autocatalysts are expected to comprise 41% of demand and that demand from this segment of the market is expected to reach a seven-year high. However, demand will still be below prerecession levels.

French bank Natixis expects new European vehicle sales and higher jewellery demand in China to lift platinum prices in 2015 and 2016. In its base case scenario, Natixis analysts forecast platinum prices to average $1 285/oz in 2015 and $1 500/oz in 2016.

GFMS, meanwhile, estimates that about 500 000 oz of South African production has to be cut to substantially increase prices. However, closing and reopening shafts are expensive and producers that have shuttered output will be worst positioned to benefit from an upturn in prices.

Medium- to long-term demand and supply fundamentals could be impacted on by more secondary supply entering the PGM market. RBPlat CEO Steve Phiri describes recycling as the biggest threat to South African platinum supply, saying autocatalyst manufacturers are less keen to rely on primary supply from South Africa as a result of labour and other issues. The recycling industry could account for about one-third of the total market by 2020, compared with about one-quarter currently.

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