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COMMODITY Insights Bulletin

AUGUST 2014

Pt
PLATINUM

Platinum (Q4, 2013 and Q1, 2014)

INSIGHT: A changing mining landscape

The past 6 months have been extremely difficult for the platinum industry. In our last bulletin, we anticipated that the next 6 months would be bumpy but few imagined the severity. A 5-month labor strike, the longest in the history of the South African mining industry, brought the industry to its knees with all parties enduring hardship. An impasse was created with producers not willing to concede to the wage increases being demanded due to a lack of affordability. Besides the obvious financial loss to all stakeholders, there have been other far-reaching implications. As workers returned there were indications of a deterioration in the health of many mineworkers given poor nutrition and reduced medical support. This also suggests a wider impact on their families and dependents. Many businesses, communities and towns supporting mining operations have also suffered and a concerning outcome of the protracted strike was the lowering of investor confidence towards South Africa, clearly evidenced by the recent downgrading of the country by two global rating agencies.

> "As the industry readjusts, there is every likelihood that foreign ownership of South African platinum assets may reduce."
>
> **Wayne Jansen**
> KPMG in South Africa

Global demand-supply dynamics have also been interesting over this period as, despite a significant reduction in production of platinum-group metals (PGM)s, platinum pricing has not moved significantly suggesting that global inventory levels were higher than expected. This trend is expected to change going forward as the fundamentals for platinum are looking more favorable with positive global growth sentiment and lower global inventory levels than a year ago. The recent tensions in the Ukraine and threats of sanctions against Russia may also be beneficial to PGM pricing, particularly palladium.

The recent announcement by Anglo American Platinum (Amplats), the largest global producer of platinum, to dispose of its Rustenburg and Union assets should bring about fundamental changes to the platinum industry. Amplats are deploying a capital allocation strategy to prioritize its focus on assets that deliver the highest return and will see a shift away from conventional to mechanized and opencast mining. This implies a change in the future skills and supply chain profile of the industry on assets where mechanization and automation can be deployed. As the industry readjusts, there is every likelihood that foreign ownership of South African platinum assets may reduce.

Price outlook[1]

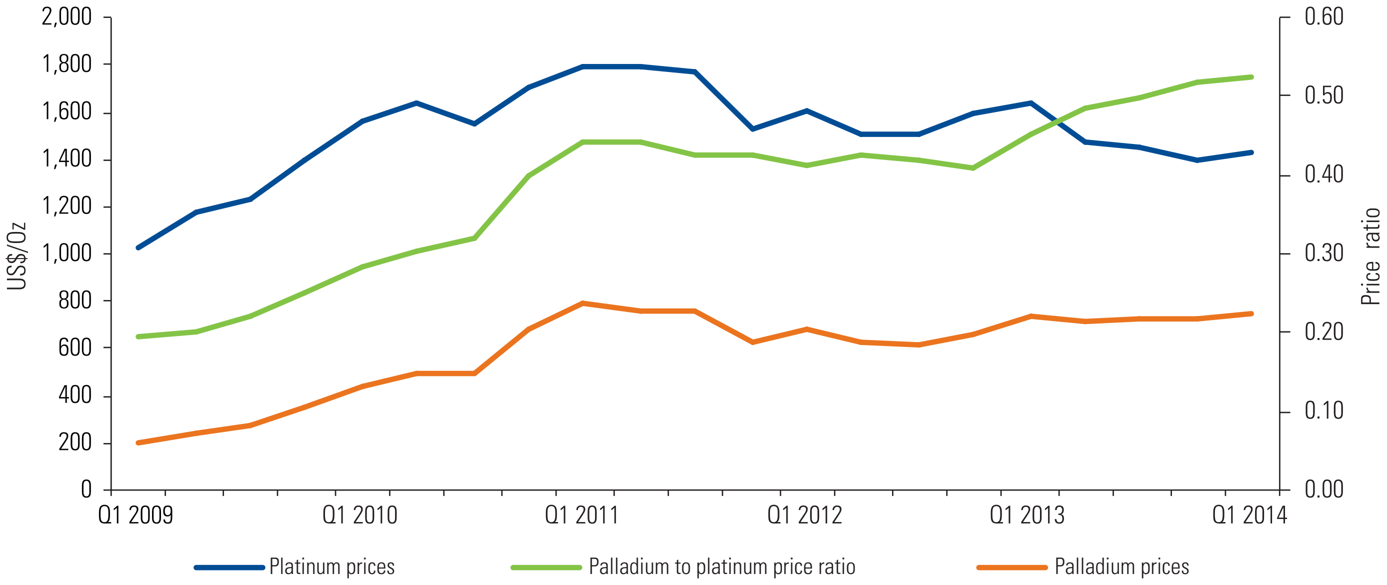
During 1H, 2014, platinum group metal prices witnessed a significant increase on the back of the PGM supply disruption in South Africa, significantly increasing in the case of palladium. However, the price increase for platinum was not as responsive due to high levels of inventories by the major producers; reducing demand; large quantities of global refined stocks; and increasing levels of recycled material entering the market. Platinum prices, which declined 4 percent quarter-over-quarter to US$1400/oz in Q4, 2013, increased 2 percent quarter-over-quarter to US$1433/oz in Q1, 2014 before further increasing 1 percent quarter-over-quarter to US$1452/oz in Q2, 2014. This despite the longest labor strike action in the history of the platinum industry. Palladium prices increased 0.2 percent quarter-over-quarter to US$726/oz in Q4, 2013 before increasing 3 percent quarter-over-quarter to US$750/oz in Q1, 2014. They further increased 10 percent quarter-over-quarter to US$826/oz in Q2, 2014.

Palladium continued to steadily outperform platinum during 1H, 2014 driven by stronger autocatalyst demand. Palladium prices are expected to further increase in 2H, 2014; however, the relative price growth may slow as palladium reaches a level where its demand from uses other than autocatalyst is growing comparatively slowly. An increase in scrap trade

[1] J.P. Morgan – Platinum year 2014: A brave new world for platinum mines – Unproductive labor risks pricing itself out, 31 January 2014; Credit Suisse – Commodity price update: BHP, Rio – Capital management hopes fading, 23 June 2014, via Thomson Research/Investext, accessed 3 July 2014

also poses a downside risk to palladium prices. For 2014 as a whole, mine supply of PGMs is expected to remain tight as the damage caused by the protracted labor strike to the industry's production capacity becomes apparent. Demand growth, which was a bit sluggish in 1H, 2014, is expected to pick up through 2H, 2014.

Figure 1: Platinum and palladium quarterly price trends, Q1, 2009–2014



Source: Price Charts, Platinum Today, http://www.platinum.matthey.com/prices/price-charts, accessed 1 July 2014

PGM prices are expected to firm up in 2014–2015 as growing demand and production constraints due to a lack of investment in capacity and labor issues combine to tighten the demand-supply situation.

As per consensus price estimates, platinum prices are initially expected to decline 0.5 percent year-over-year to US$1,484/oz in 2014 before increasing 10 percent y-o-y to US$1,635/oz in 2015. Palladium prices are expected to increase 12 percent year-over-year to US$815/oz in 2014 before further increasing 9 percent year-over-year to US$886/oz in 2015.

Figure 2: Platinum consensus price forecasts and market balance, 2009–2018E

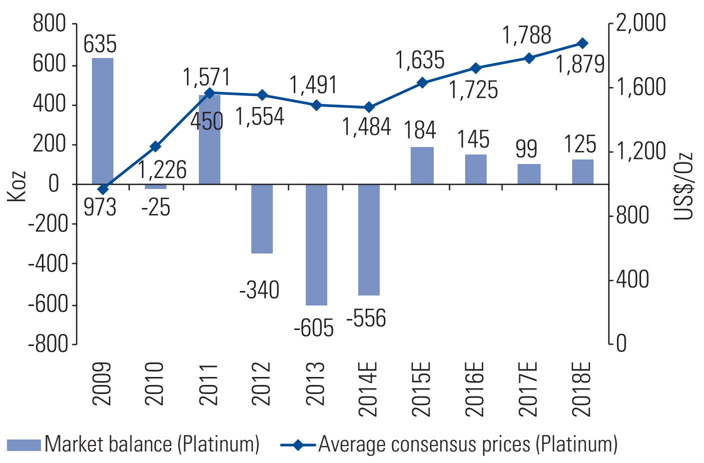
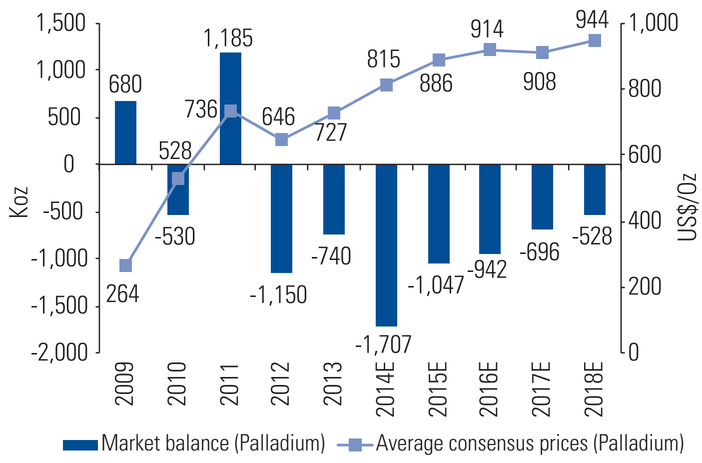


Figure 3: Palladium consensus price forecasts and market balance, 2009–2018E



Source: Platinum Supply and Demand, Market data tables, Platinum Today, http://www.platinum.matthey.com/publications/market-data-tables, accessed 2 July 2014; Liberium – Mining – How freight could sink mining earnings, 24 June 2014; Credit Suisse – Metals & Mining – 3Q14 commodities forecast update, 23 June 2014; BMO Capital Markets – Mining & commodity roundup, 26 May 2014; UBS Research – Commodity drillbit – Mining benchmarker – Morgan, 22 May 2014; Wood & Company – EMEA base metals: Buy Norilsk, sell copper; via Thomson Research/Investext accessed 2 July 2014

Supply and demand[2]

Figure 4: Primary supply of platinum, 2012–2018E

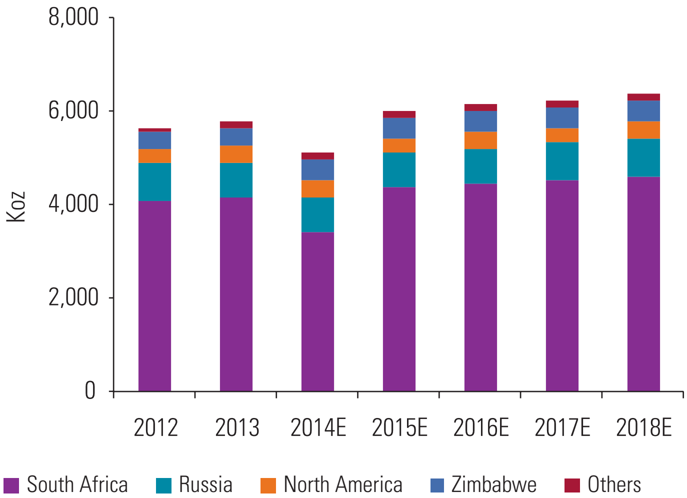
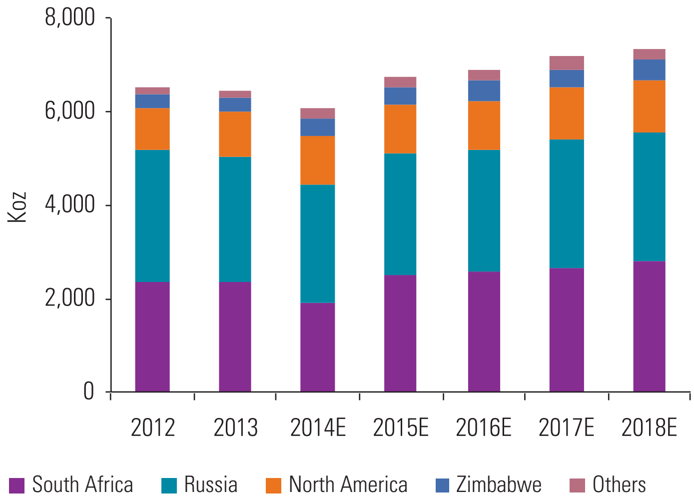


Figure 5: Primary supply of palladium, 2012–2018E



Source: Platinum Supply and Demand, Market data tables, Platinum Today, http://www.platinum.matthey.com/publications/market-data-tables, accessed 2 July 2014; Wood & Company – EMEA base metals: Buy Norilsk, sell copper; via Thomson Research/Investext accessed 2 July 2014

Figure 6: Primary platinum supply breakup, 2013

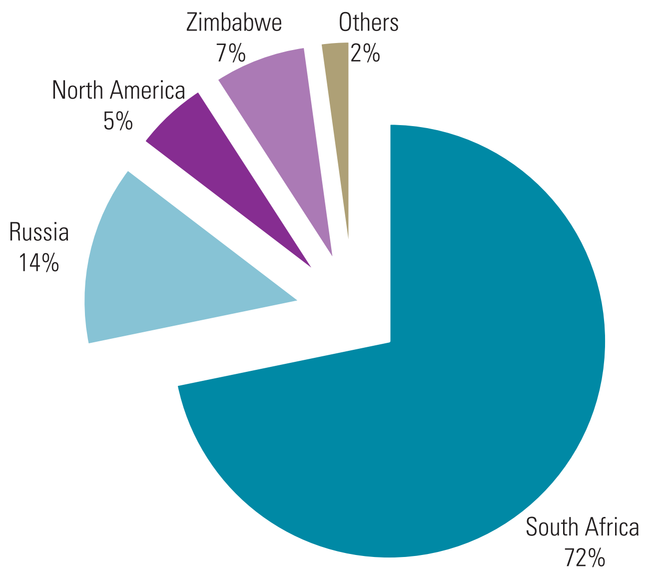
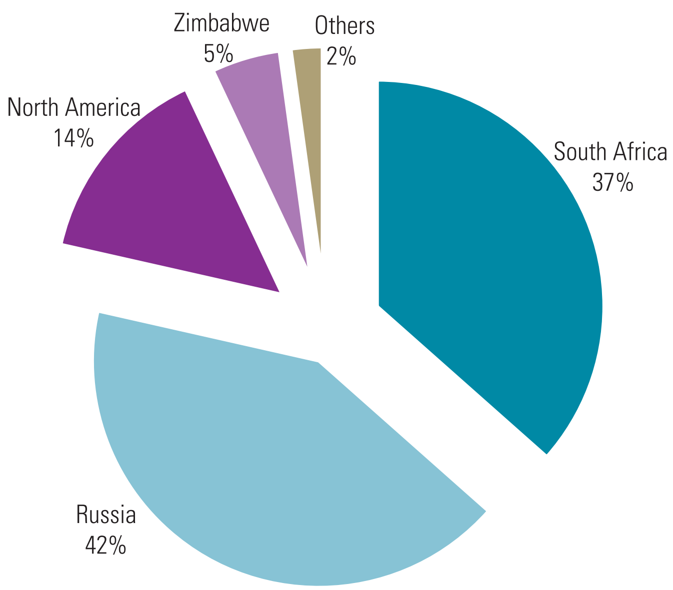


Figure 7: Primary palladium supply breakup, 2013

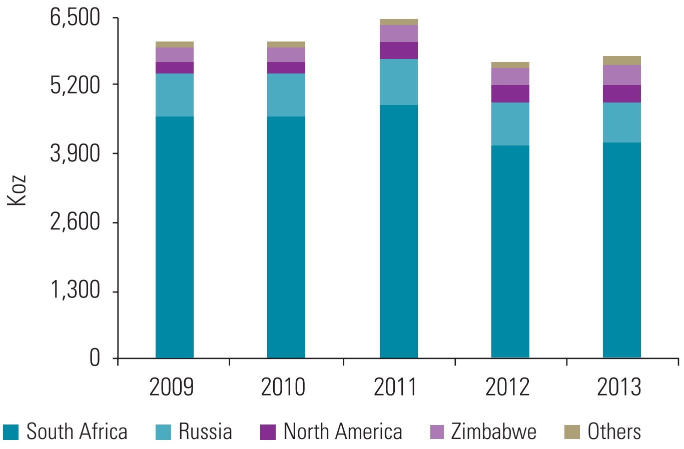


Source: Platinum Supply and Demand, Market data tables, Platinum Today, http://www.platinum.matthey.com/publications/market-data-tables, accessed 2 July 2014

- The operating environment in South Africa and Zimbabwe has been a challenge for the platinum mining industry. Together, these countries accounted for 79 percent of the global primary platinum production in 2013. In addition, they hold a major share of the global PGM reserves. The industry in these regions has been witnessing uncertainties such as security of tenure over mining rights and taxation regimes. This poses a significant challenge to miners, which have also faced major regulatory hurdles and strikes, hampering PGM production.

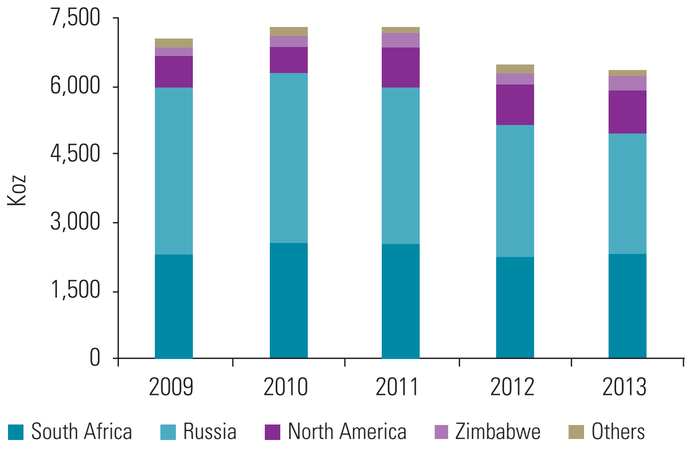
2 J.P. Morgan – Platinum year 2014: A brave new world for platinum mines – Unproductive labour risks pricing itself out, 31 January 2014; UBS – South African Platinum Sector, New offer on the table for AMCU, 23 April 2014, via Thomson Research/Investext, accessed 3 July 2014

Figure 8: Supply trends for platinum, 2009–2013



Country	Production 2009 (Koz)	Production 2013 (Koz)	CAGR 2009–13 (%)
South Africa	4,635	4,120	(2.3)
Russia	785	780	(0.1)
North America	260	315	3.9
Zimbabwe	230	400	11.7
Others	115	125	1.7

Figure 9: Supply trends for palladium, 2009–2013



Country	Production 2009 (Koz)	Production 2013 (Koz)	CAGR 2009–13 (%)
South Africa	2,370	2,350	(0.2)
Russia	3,635	2,700	-5.8
North America	755	930	4.3
Zimbabwe	180	310	11.5
Others	160	140	(2.6)

Source: Platinum Supply and Demand, Market data tables, Platinum Today, http://www.platinum.matthey.com/publications/market-data-tables, accessed 2 July 2014; Wood & Company – EMEA base metals: Buy Norilsk, sell copper; via Thomson Research/Investext accessed 2 July 2014

- The labor situation in South Africa has made it extremely difficult for producers to restructure their operations in response to changing market conditions. Companies also face a major challenge in managing productivity with unions opposing a shift from fixed toward incentive based compensation for mine workers. In addition, there has been a decline in productivity at mines. As per JP Morgan, the production of metals in concentrate at established underground mines has declined at a CAGR of 6 percent from 2006 to 2012. For the same period, reported on-mine cash costs for established underground mines has increased at a CAGR of almost 20 percent. (*Underground mines considered for analysis: Bathopele, Khomanani, Khuseleka, Thembelani, Siphumelele, Tumela, Dishaba, Union, Bokoni, Impala lease area, Marikana (Lonmin), Zondereinde, Kroondal, BRPM, Mototolo and Modikwa*).
- The decline of the National Union of Mineworkers (NUM) in 2012 led to the rapid establishment of the Association of Mineworkers and Construction Union (AMCU). AMCU held strikes at the Western Bushveld mines, the region that accounts for more than 10 Koz of daily platinum production (almost three-quarters of South Africa's total output). AMCU members went on a legal strike which started on 23 January 2014 demanding a minimum wage of R12,500 (circa US$1,150 per month). This was an unaffordable increase for mining producers and the strike eventually ended 5 months later when union leaders signed a wage deal.
- The regulatory environment in Zimbabwe has been developing since 2006, when Zimplats, the country's largest producer, released more than one-third of its minerals concession for the government in return for empowerment credits and/or cash. Since then, there have been a number of regulations, including the raising of royalties from about 3 percent to 10 percent, land rentals for miners and a proposal to indigenize all mining operations (51 percent of mines given to black Zimbabweans at unresolved compensation). The government has now demanded that all PGM minerals must be locally beneficiated. Zimbabwe has the world's second-largest PGM mineral deposits. However, in the current state of affairs it is difficult for the PGM miners to make further investment decisions in the country.

After South Africa, Russia is the second largest producer of platinum and palladium in the world. The shortfall in South African production has increased the significance of the Russian contribution to world supply. The major portion of Russia's production comes as a by-product of nickel production at Norilsk Nickel. Although the PGM grade derived from nickel output is relatively high, it is gradually declining. This, coupled with limitations on the amount of nickel Norilsk will produce, is expected to put a cap on Russian platinum production. Russian platinum production is thus expected to decline by about 2 percent year-over-year to 766Koz in 2014. After many years of heavy stockpile exports, Russian supplies of palladium from this source are expected to be close to exhaustion. Russian production is also affected by declining ore grades and the development of ore zones that have lower PGM content and poor platinum-to-palladium ratios. Thus, palladium production is expected to decline by about 6 percent year-over-year to 2,540Koz in 2014. Production from North America, especially Canada, is expected to grow significantly in 2014. Most of the PGMs produced in Canada are by-products of nickel mining.

The Sudbury Basin in central Ontario is a significant mining region. PGMs are also extracted from the Raglan nickel mine in northern Quebec and from a nickel complex in Manitoba. In all of these orebodies, palladium is the predominant platinum group metal. Going ahead, production from North America is expected to grow 14 percent and 8.5 percent year-over-year to 359Koz and 1,009Koz for platinum and palladium respectively in 2014.[3]

- Overall, the mine supply growth is expected to be constrained due to a lack of capital investment over the past five years and increasing labor disruptions. Thus, the primary supply deficit in both the platinum and palladium markets is expected to continue into 2014. The platinum and palladium markets are expected to witness a shortfall of 556Koz and 1,707Koz in 2014, respectively.
- Demand for rhodium, which is used mostly as an autocatalyst, is expected to exceed output by the most in three decades as carmakers and chemical companies try to capitalize on the lowest rhodium prices in 9 years. Rhodium demand is expected to exceed supply by 78Koz in 2014, the most since 1984. Keeping in line with an increase in demand, the price of rhodium is also expected to rebound starting in 2014. As per consensus price estimates, the price for rhodium is expected to increase 18 percent year-over-year to US$1,259/Oz in 2014. In 2015, prices are expected to increase by an additional 28 percent year-over-year to US$1,616/Oz in 2015.[4]

Demand

Figure 10: Platinum global demand, 2012–2018E

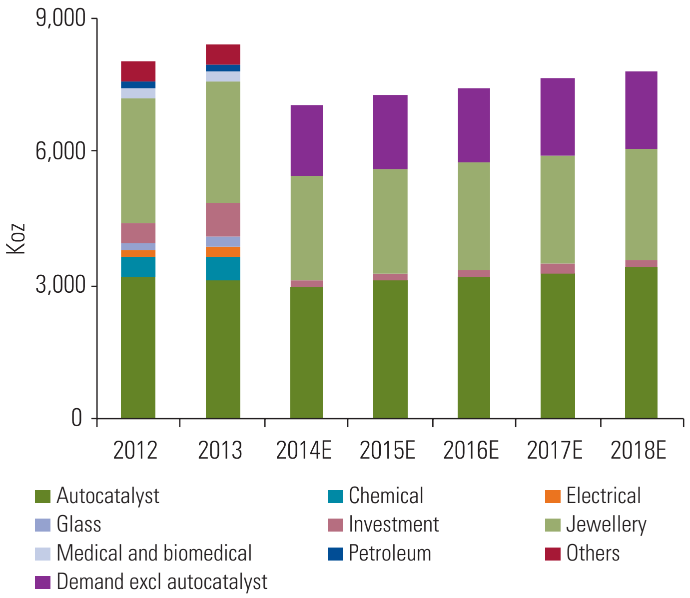
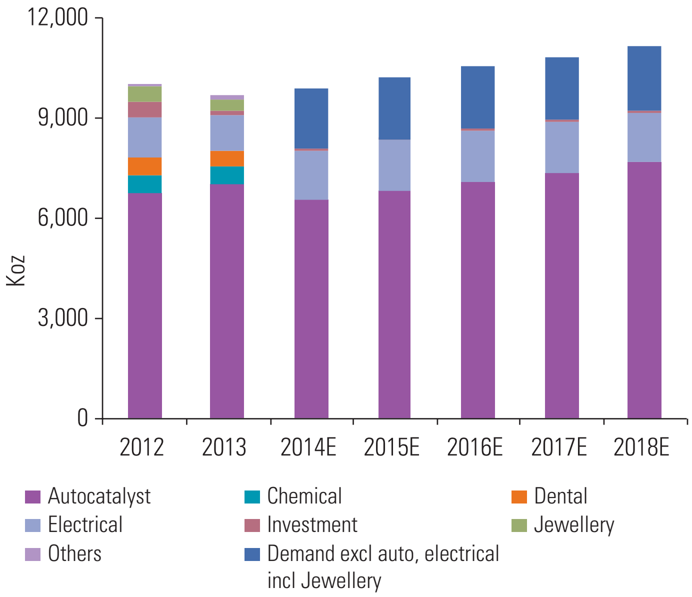


Figure 11: Palladium global demand, 2012–2018E



Source: Platinum Supply and Demand, Market data tables, Platinum Today, http://www.platinum.matthey.com/publications/market-data-tables, accessed 2 July 2014; Wood & Company – EMEA base metals: Buy Norilsk, sell copper; via Thomson Research/Investext accessed 2 July 2014

- Fabrication demand for PGMs is expected to decrease for platinum but increase for palladium in 2014 on the back of rising global economic growth and the ongoing implementation of stricter and more-widespread vehicle exhaust emission standards. In 2013, European vehicle sales hit a multi-year low, approximately 25 percent below the 2007–2008 peaks. However, the EU/UK auto sales in December 2013 showed significant increase driven by higher demand from the Netherlands showing encouraging signs of recovery.
- Palladium steadily outperformed platinum as the metal of choice for fabrication demand in 1H, 2014. After 5 years of relatively weak sales, the pent-up demand is likely to be supplied starting in 2H, 2014 as employment begins to recover alongside an improving economic outlook in the EU. Physical PGM investments, expected to have driven demand in 1H, 2014, are expected to be complemented by rising demand from other sectors during 2H, 2014. Palladium is expected to continue to outperform platinum as a major demand entity during 2H, 2014.
- The US automobile market is of critical importance to global platinum demand. The outlook for US auto demand and production is positive. Auto production in the US is expected to grow at 3.8 percent and 1.8 percent in 2014 and 2015, respectively. This trend is expected to pull demand growth for platinum and palladium. This growth is expected to be

[3] HSBC Global Research – Platinum group metals outlook, Never mined, 14 July 2014, via Thomson Research/Investext accessed July 2014; "North America", Platinum Today, http://www.platinum.matthey.com/about-pgm/production/north-america, accessed July 2014; Platinum Supply and Demand, Market data tables, Platinum Today, http://www.platinum.matthey.com/publications/market-data-tables, accessed 2 July 2014

[4] Nicholas Larkin, "Rhodium Bust Ending as Record Car Sales Fuel Mine Deficit", Bloomberg, 11 February 2014; Credit Suisse – Commodity price update: BHP, Rio – Capital management hopes fading, 23 June 2014; Liberium – Mining – How freight could sink mining earnings, 24 June 2014; Credit Suisse – Metals & Mining – 3Q14 commodities forecast update, 23 June 2014UBS Research – Commodity drillbit – Mining benchmarker – Morgan, 22 May 2014; J.P. Morgan – Platinum year 2014: A brave new world for platinum mines – Unproductive labour risk pricing itself out, 31 January 2014,via Thomson Research/Investext, accessed July 2014

supported in part by the need to replace the aging fleet of automobiles. The US car fleet is the oldest in the western world at an average age of over 11 years. Thus, sales are expected to grow driven by the pent-up consumer demand as many aging US vehicles reach the end of their lifespan.[5]

- Tighter emissions standards will be a key factor in the platinum and palladium prices during the next 5 years or more. In the US, the Union for Concerned Scientists (UCS) stated that transportation produces almost 30 percent of all the US global warming emissions. As per the UCS every gallon of gasoline burned emits about 24lbs of carbon dioxide and other global warming gases into the atmosphere. Cities in China have been ranked among the world's most polluted by the World Health Organization. Concentration of fine atmospheric particles (known as PM2.5) were found averaging at 89.5 micrograms per cubic meter daily in Beijing in 2013, 150 percent higher than national standards. In an effort to tackle the growing problem of poor air quality, China has decided to adopt the national stage four emission standard (equivalent of Euro 4 standards on diesel vehicles) starting 1 July 2015. China aims to reduce average fuel consumption by passenger vehicles to 6.9 litres/100km in 2015, from 7.38 litres/100 Km currently. Other emerging and developed markets such as India are also tightening emissions regulations. Going forward, more stringent emissions regulations are expected to be put in place, requiring greater PGM loadings per vehicle and driving PGM demand.[6]
- Jewelry demand for PGMs is expected to be supplied by a the increased amount of available recycled PGM. As per the Platinum Guild International (PGI), India's platinum jewelry demand is likely to increase 35 percent in 2014, growing as a major market for platinum jewelry following rapidly changing consumer preferences, especially in the bridal segment, which was earlier confined to gold and diamonds.[7] Further, the launch of new Exchange traded fund (ETF) products for both metals is a source of incremental demand for the industry.

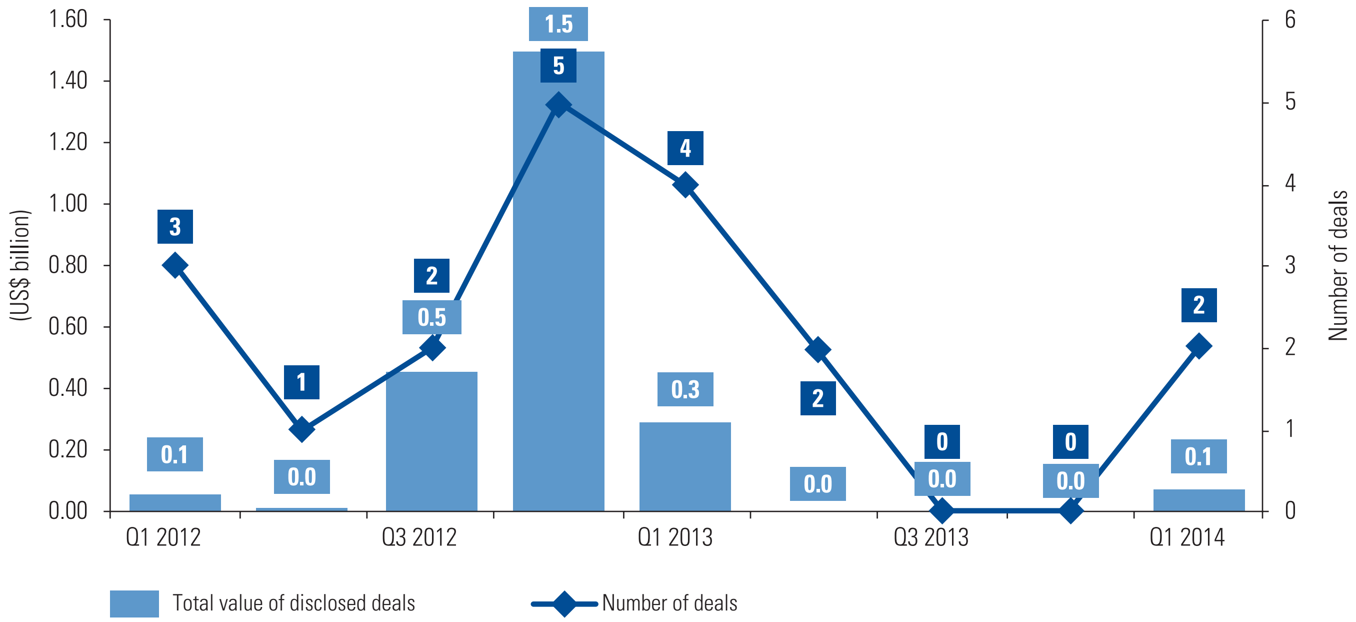
Key developments

Ownership changes[8]

The platinum industry witnessed zero and two deals in Q4, 2013 and Q1, 2014, respectively. The two deals in Q1, 2014 were valued at US$72 million. Of the two, one was completed.

A major recent development was Amplats decision to reposition its portfolio by exiting its Rustenburg and Union mines as well as the Pandora joint venture (with Northam and Lonmin) on 21 July 2014. Amplats is also assessing its Bokoni operations. However, Amplats plans to retain its smelting and refining operations in both Union and Rustenburg mines. It plans to prioritize its capital spend and focus on Mogalakwena, Unki, Twickenham, Amandelbult and the JV assets – Mototolo, Modikwa, Kroondal and BRPM.

Figure 12: M&A deal number and valuations, Q1, 2012–2014



Source: Deals: Search, Mergermarket accessed 2 July 2014; KPMG analysis

5 HSBC Global Research – Platinum group metals outlook, Never mined, 14 July 2014, via Thomson Research/Investext accessed July 2014
6 HSBC Global Research – Platinum group metals outlook, Never mined, 14 July 2014, via Thomson Research/Investext accessed July 2014
7 Dilip Kumar Jha, "Platinum jewellery demand eating into gold market", Business Standard, 13 May 2014
8 "Deals: Search, Mergermarket database, accessed 02 June 2014

Table 1: M&A deal activity, Q4, 2013 and Q1, 2014

Date announced	Target	Target nation	Acquirer	Acquirer nation	Status	Value of transaction (US$ million)	Stake (%)
30-Jan-14	Blue Ridge Platinum (Pty) Ltd.; Sheba's Ridge Platinum (Pty) Ltd	South Africa	Consortium led by China National Arts & Crafts (Group) Corp	China	Announced	37	100
21-Jan-14	Norilsk Nickel Australia Pty Ltd (Thunderbox and Bannockburn gold mines and operations)	Australia	Saracen Metals Pty Ltd	Australia	Completed	35	100

Source: Deals: Search, Mergermarket accessed 2 July 2014; KPMG analysis

Regulatory updates

Table 2: List of recent regulations in the Platinum and Palladium mining industry

Country	Regulation	Description
South Africa	Local use of raw materials[9]	The African National Congress (ANC) has decided to introduce measures including export taxes in the next 5 years. These measures are expected to encourage the local use of raw materials for domestic manufacturing. This was determined at a meeting from 5 June to 7 June 2014 when the ANC decided to implement previously adopted ideas within the current administration's term. At its meeting, the ANC also decided to remove regulatory barriers to investment in energy projects seeking an end to power shortages as the ANC wanted the government to make energy supply its top priority. The Mineral Resources Minister has also asked the President to delay signing the proposed changes to the Mineral and Petroleum Resources Development Act into law. This includes giving the government the right to a free 20 percent stake in all new energy ventures and to change how projects are awarded.

Cross section of global platinum projects[10]

Table 3: Cross section of global platinum Greenfield projects

Project	Country/Region	Operators	Potential start year	Platinum production (Koz per annum)
Twickenham Platinum Mine	South Africa	Anglo American Platinum	2024	3Mtpa*
Bakubung Platinum Mine	South Africa	Wesizwe Platinum	2020	420#
Western Bushveld Project No. 1	South Africa	Platinum Group Metals Ltd.	2015	275 4E***
Garatau PGE Deposit	South Africa	NKWE Platinum	2017	330
Waterberg Discovery	South Africa	Platinum Group Metals Ltd.	2020	655

Table 4: Cross section of global platinum Brownfield projects

Project	Country/Region	Operators	Potential start year	Platinum production (Koz per annum)
BRPM (Phase 2)	South Africa	Anglo American Platinum	Steady-state production expected to be achieved on target in 2014	N/A
BRPM (Phase 3)	South Africa	Anglo American Platinum	2017	70
Styldrift 1 shaft	South Africa	Anglo American Platinum	2015	220
Ngezi mine Phase 2	Zimbabwe	Zimplats	2015	270

Source: Intierra database accessed July 2014; Company data accessed July 2014

* Ore processing capacity
** Most projects mentioned above are under review and expected to be delayed because of the persistent low-price environment
*** Combined content of the four most valuable precious metals: platinum, palladium, rhodium and gold
\# 4E Steady State production of PGM Metals per year

9 Franz Wild, "South Africa to enforce local use of raw materials", Bloomberg, 1 July 2014; Franz Wild "ANC 'pushes to tax exports of raw materials'", Business Report, 2 July 2014
10 The list is not exhaustive and contains only a limited number of projects

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KPMG's Global Head of Mining, Wayne Jansen, has 24 years of advisory and assurance experience across a broad range of Energy and Natural Resources clients.

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