

Metals & Mining in Russia

Industry overview and investment opportunities

September 2016





The Russian metals and mining industry consists of various metals and minerals including base metals, coal, iron ore, steel, precious metals, as well as diamonds.

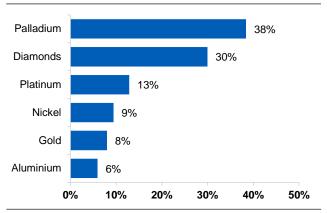
Russia has huge reserves of major minerals, as the country is the largest in the world in terms of geographical area. Russia is ranked among the world's leading producers of a great number of mineral commodities, and is one of the Top-3 countries with the largest reserves of diamonds, gold, platinum and palladium, coal, and iron ore.

The country is the world's largest producer of palladium and diamonds and is the second-largest producer of aluminum, platinum, and nickel.

The system of reporting reserves in the Soviet Union did not include the use of market-based economic criteria to establish the feasibility of developing these reserves using current technology at prevailing market conditions, and was based on drilling results only. Moreover, Soviet data on reserves for some metals was kept in secret.

However, after the collapse of the Soviet Union Russian companies began seeking exposure to foreign investors in order to raise financing.

Russia's share in world production by commodities, 2015



Source: USGS, BP Statistical Review of World Energy, World Steel Association, EIU, Companies data, KPMG analysis

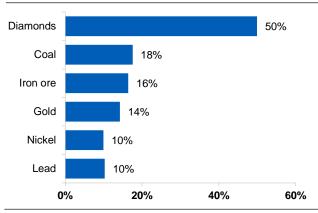
A number of state secrecy laws were repealed, which has led some Russian companies to start reporting their reserves and resources according to JORC standards.

Russia's metals and mining industry represents around 3%-5% of Russia's 2015 GDP and also accounted for 16% of total Russian exports in 2015 (or USD53 billion), the second-largest sector after oil and gas. Most Russian metals production is exported.

Russia is one of the world's largest exporters of raw materials. Its market share of total global exports in nickel is estimated at around 49% – palladium: 42%, diamonds: 33%, aluminum: 26%, platinum: 13%, steel: 7% and copper: 4%.

Despite its significance for the economy, metals and mining is a largely privately owned sector, as opposed to oil and gas where the share of state ownership is significant. The only state-owned company in the sector among major players is Alrosa, which is the world's largest diamond producer.

Russia's share in world reserves by commodities, 2015



Source: USGS, BP Statistical Review of World Energy, World Steel Association, EIU, Companies data, KPMG analysis









Aluminium production in Russia

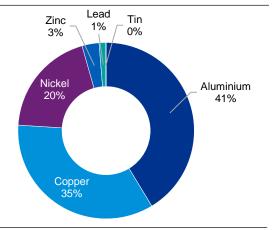


For the purpose of our analysis the Russian base metals market is represented by aluminium, lead, zinc, copper, nickel and tin. Based on total primary metal production at annual average LME prices, the market could be valued at USD14 billion in 2015.

The market is primarily represented by aluminium, nickel, and copper, which in total account for a 96% market share. Despite Russia having the third-largest lead reserves in the world and being in the sixth place in terms of tin reserves, the mining and production of these metals are not particularly well developed.

In 2015 exports of aluminium, nickel, and copper, and their products (of which Russia is a net exporter) amounted to USD14.1 billion, 7% lower than in 2014. The decrease was mainly conditioned by nickel exports (a 32% year-on-year fall in value), whose price fell by almost 50% in 2015.

Structure of Russian base metals market in 2015



Note: Tin based on 2014 year

Source: EIU, GKS, Bloomberg, Metaltorg, Companies data,

KPMG analysis

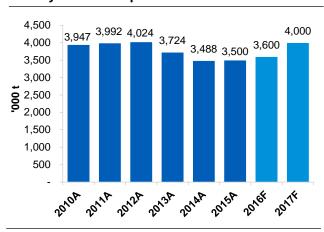
All Russian production of primary aluminium is controlled by United Company RUSAL (UC RUSAL), one of the world's largest aluminium producers, with a 7% share of global aluminium production.

The Company's core asset base is located in Siberia, Russia, which accounted for 95% of the Company's aluminium output in 2015. The nameplate capacity of the Russian assets as at the end of 2015 was 3.76 million tonnes/year.

Despite the declining aluminium price in 2015, the production of aluminium in Russia was maintained at a level similar to 2014. According to the Company's data 80% of its 2015 aluminium sales volumes were exported outside Russia and the CIS.

In 2015 UC RUSAL continued to devote much effort to cost-cutting initiatives which, together with the rouble devaluation, strengthened its position in the left side of the 1st quartile on the global cost curve.

Primary aluminium production in Russia



Source: EIU







Nickel mining and production in Russia



Copper mining and production in Russia



In 2015 Russia was the world's second-largest country both in terms of nickel mining (after the Philippines) and refined nickel production (after China). It produced 13.8% of the world's mined nickel and 12.1% of global refined nickel production.

Mining and Metallurgical Company "Norilsk Nickel" (Norilsk Nickel) is the country's leading metals and mining company and the world's leading nickel producer. It accounted for around 92% of 2015 Russian refined nickel production. Another Russian nickel producer, Ufaleynickel, accounted for the remaining 8%.

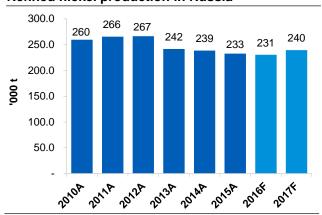
According to the EIU, Norilsk Nickel's production was hampered in 2015 by the planned closure of old units in its Polar division, and by falling ore grades at ageing mines. Further restructuring and the decommissioning of old units will reduce refined output in 2016. Improvements are likely to be seen in 2017 when some recovery in demand is expected, and after the closure programme has been completed.

Current Russian copper mining and production is split among three leading vertically integrated copper producing companies: Ural Mining and Metallurgical Company (UMMC), Mining and Metallurgical Company "Norilsk Nickel" (Norilsk Nickel) and Russian Copper Company (RCC).

In 2015 the shares of the above companies in total Russian refined copper production were 44%, 40%, and 17%, respectively.

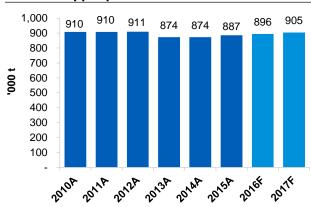
Almost half of Russian copper reserves – around 15 million t – are concentrated in the Udokan copper deposit located in Eastern Siberia, which is the largest in Russia and one of the largest copper deposits in the world. The Udokan copper deposit is owned by Baikal Mining Company, which is under the control of USM Holding (owned by the Russian oligarch Alisher Usmanov). The start of commercial mining at Udokan is scheduled to commence in 2021 and Baikal Mining Company is currently considering financing options.

Refined nickel production in Russia



Source: EIU

Refined copper production in Russia

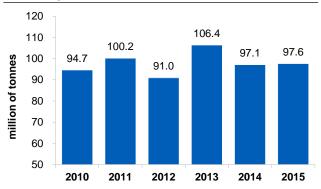


Source: EIU





Iron ore production in Russia

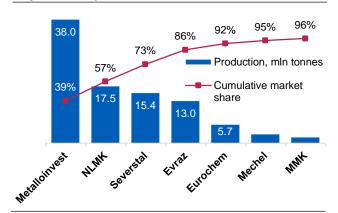


Source: Metal Expert

Iron ore production in Russia in 2015 was flat in comparison with 2014 volumes, at 97.6 million tonnes. Capacity utilisation for iron ore in the Russia industry is close to 90-95%, due to stable demand from Russian steel producers and export sales.

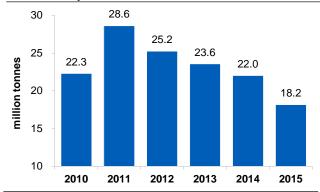
Metalloinvest is the largest iron ore producer in Russia, and controls around 40% of the total market. Most Russian steel producers are vertically integrated in iron ore. The iron ore market in Russia is well consolidated: the top-5 major producers control around 90% of the market.

Key iron ore producers in Russia, 2015



Source: Metal Expert

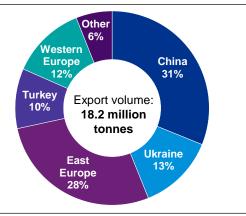
Russian exports of iron ore



Source: Metal Expert

Russia has historically been a net exporter of iron ore. Export volumes declined in 2011-2015 due to negative price dynamics in global iron ore prices and lower demand from Chinese and European steel producers. China remains the largest consumer of iron ore from Russia, although export volumes to China are very volatile and depend on spot domestic prices in China. In general, the profitability of export sales of iron ore for Russian companies is lower than for domestic shipments and according to Metal Expert export volumes are expected to decrease going forward.

Main export destinations of Russian iron ore, 2015

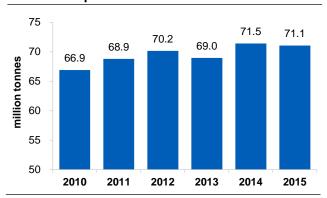


Source: Metal Expert





Crude steel production in Russia

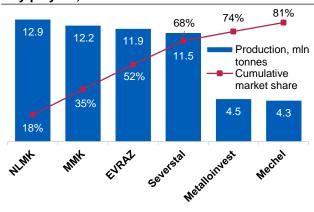


Source: Metal Expert

Russia is the fifth-largest producer of steel in the world, with total steel volumes of 71 million tonnes in 2015 (4% of global output). Despite the ongoing crisis in the global steel industry and a weak pricing environment, steel production volumes in Russia were relatively stable due to export sales.

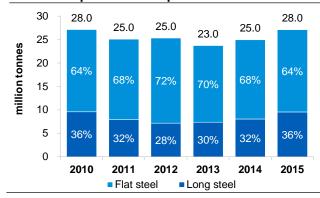
The Russian steel industry is well consolidated: the six-largest steelmakers control around 80% of the market. The largest producers are NLMK, MMK, Evraz and Severstal.

Key players, 2015



Source: Metal Expert

Russian exports of steel products

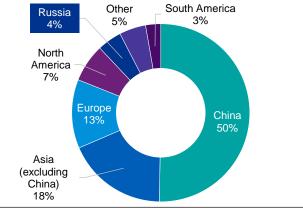


Source: Metal Expert

Russia is one of the key exporters of steel products in the global market. Despite negative steel price dynamics over the past three years, Russia remains very competitive on global export markets due to relatively low cash production costs, as a result of the vertical integration of steelmakers in iron ore and coking coal and a weakening rouble.

Domestic demand for steel in Russia is expected to fall by 10% in 2016. The decline in domestic sales should be compensated by higher export sales volumes.

Russia's market share in world steel production, 2015

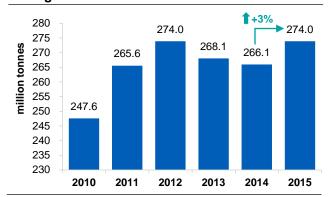


Source: World Steel Association, 2016





Mining of thermal coal in Russia

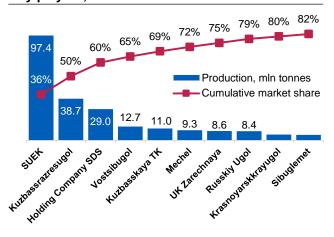


Source: Metal Expert, March 2016

In 2015 thermal coal production in Russia reached 274 million tonnes, which exceeded the 2014 level by 3%. The rise in production was chiefly supported by producers from the Far Eastern Federal district. The key drivers of thermal coal mining growth in Russia were Mechel and UK Zarechnaya, which showed growth of 10% and 23% respectively.

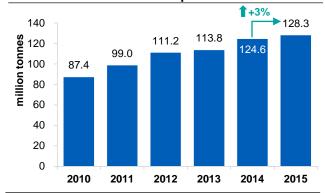
It is expected that in 2016 key coal mining companies will increase coal production or keep it stable due to new capacity expansion.

Key players, 2015



Source: Metal Expert, March 2016

Volumes of thermal coal exports

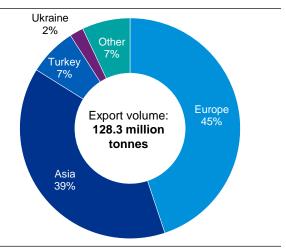


Source: Metal Expert, March 2016

The Russian thermal coal sector has historically been dominated by SUEK, which remained the production leader in 2015.

The Asian Region demonstrated strong demand for Russian thermal coal in 2015, which resulted in an export increase of 3%. In 2015 a new promising export destination emerged – Malaysia, which demonstrated a respective increase of 70% vs. 2014.

Russian thermal coal – main export destinations, 2015

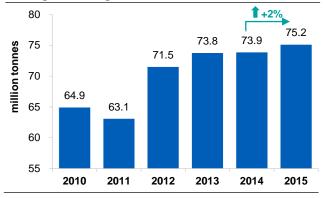


Source: Metal Expert, March 2016





Mining of coking coal in Russia



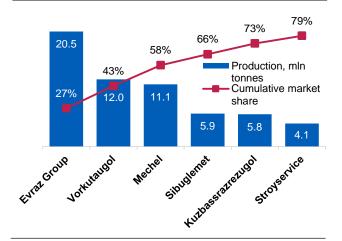
Source: Metal Expert, March 2016

Coking coal production reached 75 million tonnes in 2015, which exceeded the 2014 production level by 2%.

In 2015 Evraz remained the biggest coking coal producer in Russia, producing 20.5 million tonnes. Vorkutaugol became the second-largest producer, followed by Mechel.

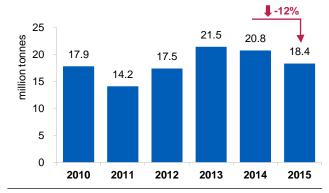
In 2016 it is expected that Russia will witness a decrease in coking coal production, due to negative dynamics in the metallurgic industry.

Key players, 2015



Source: Metal Expert, March 2016

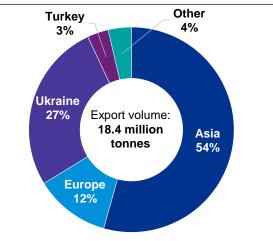
Coking coal export volumes



Source: Metal Expert, March 2016

Despite the recent fall in export volumes, to 18 million tonnes in 2015, Europe remained a large consumer of coking coal (3 million tonnes in total). In 2015 demand from the Asian Region remained stable (Japan, South Korea, India). In 2015 the main consumer of Russian coal was South Korea, which increased its purchase of Russian coal to 3.3 million tonnes.

Russian coking coal – main export destinations, 2015



Source: Metal Expert, March 2016







Gold reserves in Russia



Gold mining and production



Russia has the second-largest reserves in the world, with a total amount of gold reserves of 8,053 tonnes.

Russia has gold deposits in 32 regions. Deposits in Siberia and the Far East hold up to 84% of the country's measured gold reserves, the majority of which are located in Irkutsk Region, Magadan Region, Krasnoyarsk Territory, the Sakha Republic, and Chita Region.

The company Polyus Gold enjoys the biggest reserve base among the top gold producers operating in Russia.

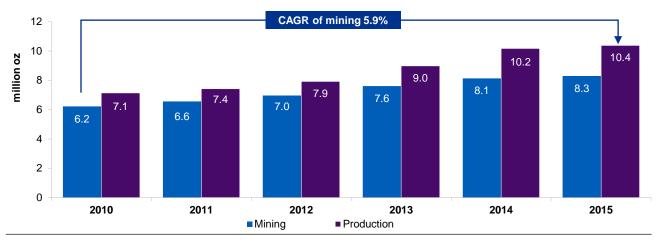
Sukhoi log is one of the world's largest undeveloped gold deposits, and has forecast B+C1+C2 category reserves of 1,953 tonnes of gold. A tender for it could be held in 2016, however this has been postponed many times in the past.



The volume of gold mined by Russian companies has been on the rise for a number of years. In 2015 gold production in Russia rose by 2% to a record 10.4 million oz (including by-product / secondary gold production). The production from primary gold deposits increased by 2% to 8.3 million oz.

Exports on average amount to 2.57 million oz of gold annually.

Mining and production of gold in Russia



Source: Union of Gold Producers of Russia







Key players



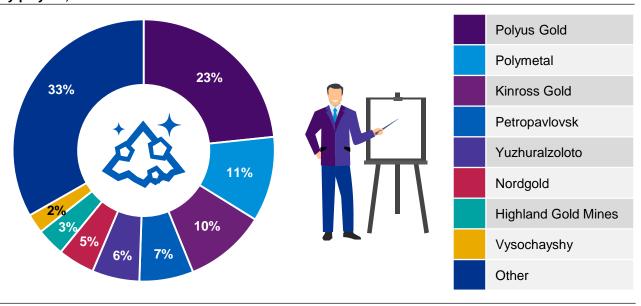
The top-10 gold mining companies in Russia comprise 70% of the Russian market. The leading gold producer in Russia, Polyus Gold, produced 1.75 million oz in 2015, which was an increase of 4% on its output in comparison with 2014. Polyus Gold owns 13 gold deposits, five of which are among the largest deposits in Russia. In 2016 Polyus Gold expects to produce 1.76-1.8 million oz of gold.

In 2015 gold was mined in 26 regions of the country, and six of these produced more than 75% of the total gold mined.

The leading producing regions were Krasnoyarsk Region (1.6 million oz), Amur Region (0.9 million oz), and Chukotka (0.88 million oz).



Key players, 2015



Note: Total amount calculated based on volumes without by products / secondary gold

Source: Union of Gold Producers of Russia



Metals & Mining in Russia

Platinum Group Metals and Diamonds





Platinum and palladium







Russia has the second-largest platinum and palladium reserves in the world, with total reserves amounting to 35 million oz.

Russia was also ranked second in the world in platinum and palladium production in 2015. In 2015 Russia produced 2.4 million oz of palladium and 0.67 million oz of platinum. Compared with 2014 platinum fell by 4% and palladium output subsequently fell by 6%.

The leading platinum-group metal producer in Russia is Norilsk Nickel. It owned a number of the largest deposits, which in total produced practically all palladium and three-quarters of platinum output in Russia. At Norilsk Nickel the production of platinum from the company's Russian operations was up 2% to 656 oz in 2015, while the output of palladium amounted to 2.58 million oz in 2015, remaining almost unchanged on the previous year.

The second-biggest Russian producer of platinum is Russian Platinum.

Norilsk Nickel forecasts that its Russian palladium production will be in the range of 2.29-2.39 million oz in 2016. a decline of 7-11% in 2015.

Russia is the largest diamond producer in the world, with a total amount of reserves exceeding 1 billion cts (according to the Russian reserves classification code).

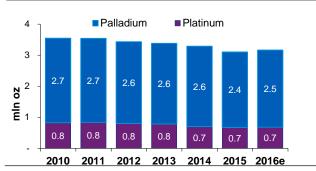
Alrosa is the leading diamond mining company in Russia, and accounts for 95% of extraction. It develops 16 placer deposits and 11 kimberlite pipes.

Alrosa's diamond production stood at 38.3 million cts in 2015, representing 29% of global diamond output. Compared to 2014 output rose by 6%.

Alrosa plans to increase mining to 41 million carats in 2019, with average annual rough diamond supply rates going up by from 3.5% to 4% per year. Severalmaz and Udachny are the key production growth drivers.

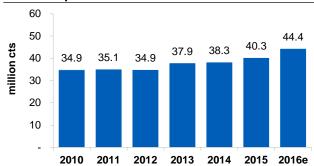
Alsrosa is controlled by the government (43,9% - Russian Government, 25% - Government of the Republic of Sakha) and is included in a privatisation plan. It is anticipated that 10,9% stake will be placed in 2016.

Platinum and palladium production in Russia



Source: Johnson Matthey

Diamond production in Russia



Source: Kimberley Process





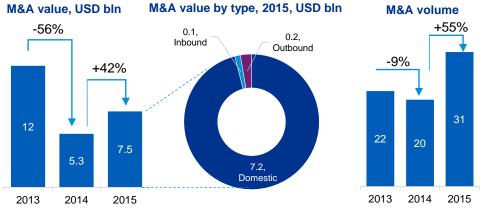
In 2015 there were 31 M&A deals in the metals & mining sector, with a total value of USD7.5 billion, or 13.5% of the Russian M&A market value (the third-largest sector in terms of M&A market value). To compare, in 2014 the metals & mining industry witnessed 20 transactions with a total value of RUB5.3 billion (6.7% of the Russian M&A market). In 2015 M&A activity in the metals & mining sector was on the rise, despite a 29% fall in the domestic M&A market value in general.

In 2015 market indicators demonstrated a partial rebound following a fall of 56% in the sector's M&A market value in 2014, which was largely caused by low commodity prices and restricted access to capital, forcing Russian major players to focus on the disposal of overseas assets to reduce debt burdens

Such a surge in value was conditioned by an increased number of transactions and a significant Polyus Gold International deal, ranked the second largest among Russian M&A deals in 2015. The gold producer, whose shares ceased trading on the LSE in December 2015, went private, with the acquirer Wandle Holdings Limited (Suleyman Kerimov), buying out 59.8% of Polyus Gold International's stock from the company's minority shareholders.

Largest metals and mining sector deals, 2015-2016

Target	Acquirer	Vendor	% acquired	Value, USD mln
Polyus Gold International	Wandle Holdings Limited	n/a	59.8%	5,694
EVRAZ PIC	EVRAZ Plc	Existing shareholders	7.2%	336
Polymetal International	Otkritie Holding	Sumeru Gold BV	7.4%	232
Alcoa Metallurg Rus	Lainen	Alcoa, Inc	100.0%	160
United Spiral Pipe	EVRAZ Plc	POSCO	35.0%	150
Bystrinsky project	Highland Fund (China)	Norilsk Nickel	13.3%	100



Source: KPMG analysis



Metals & Mining in Russia



Base metal producers



UC Rusal	
Geography	 Headquarters: British Isles (Jersey), Cyprus Production facilities: 40 plants in 13 countries
Production, 2015	 Aluminium: 3,645 million tonnes (2015) The world's largest producer, with a 7% share in 2015
Key financial indicators, 2015, USD million	 Revenue: 8,117 EBITDA: 1,609 Net debt: 8,189 Market capitalisation: 4,616

Norilsk Nickel

Geography

Production, 2015

Headquarters: Moscow

266,406 tonnes of nickel (96% of Russian and 13% of world

production) 369,426 tonnes of copper (55% of Russian and 2% of world

production)

Also engaged in the production of precious metals (44% of world palladium production and 14% of world platinum production)

Key financial indicators, 2015, USD million

Revenue: 8,542 EBITDA: 4,296 Net debt: 4,212

Market capitalisation: 21,775

Coal producers

Mechel

Geography

Headquarters: Moscow

Production, 2015

23.2 million tonnes of coal 4.1 million tonnes of pig iron 4.3 million tonnes of steel

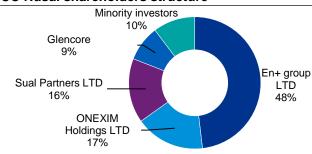
Key financial indicators, 2015, USD

Revenue: 3,521 EBITDA: 558

Net debt: 7,049

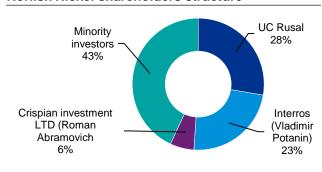
Market capitalisation: 377

UC Rusal shareholders structure



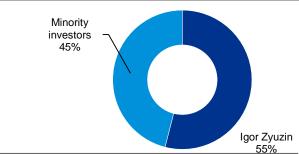
Source: Bloomberg

Norilsk Nickel shareholders structure



Source: Bloomberg

Mechel shareholders structure



Source: Bloomberg



million





Steel and iron ore producers



		tal

Headquarters: Cherepovets, Russia Production facilities in seven Geography

countries

Production, 2015

11.5 million tonnes of steel (16.7% of Russian production)

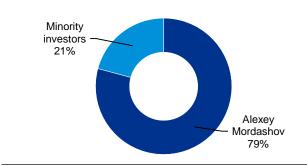
9.2 million tonnes of pig iron (17% of Russian production)

Key financial indicators, 2015, USD

Revenue: 5,962 EBITDA: 1,761 Net debt: 837

million Market capitalisation: 8,560

Severstal shareholders structure



Source: Bloomberg

NLMK

Geography Headquarters: Moscow

Production facilities based in Russia, Europe, and the US

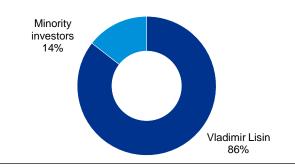
Production, 2015 15.9 million tonnes of steel (the largest Russian steel production, with a 22% share)

Key financial indicators, 2015, USD million

Revenue: 7,370 EBITDA: 1,598 Net debt: 967

Market capitalisation: 7,551

NLMK shareholders structure



Source: Bloomberg

Evraz

Geography

Headquarters: London Production facilities in 10 countries

Production, 2015

Steel: 14.3 million tonnes (20.7% of Russian production)

Pig iron: 11.9 million tonnes (22% of

Russian production)

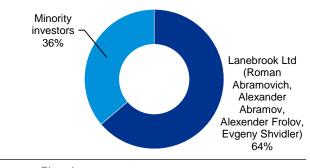
Key financial indicators, 2015, USD million

Revenue: 8,767

EBITDA: 1,388 Net debt: 4,940

Market capitalisation: 2,535

Evraz shareholders structure



Source: Bloomberg







Steel and iron ore producers



MMK

Geography

Headquarters: Magnitogorsk,

Russia

Production, 2015

- Crude steel: 12.2 million tonnes

Pig iron: 10.1 million tonnes
HVA products: 5.2 million tonnes

Key financial indicators, 2015, USD million

Revenue: 5,378EBITDA: 1,404Net debt: 714

Market capitalisation: 4,305

Metalloinvest

Geography

Headquarters: Moscow

Production, 2015

Iron ore: 39.5 million tonnes
Pellets: 23.8 million tonnes
Crude steel: 4.5 million tonnes

Key financial indicators, 2015, USD

Revenue: 4,393EBITDA: 1,288Net debt: 3,564

million — Market capitalisation: not listed

(2)

Coal producers



SUEK

Geography

Headquarters: MoscowProduction facilities: 26 plants in

seven Russian regions

Production, 2015

97.8 million tonnes of coal (26% of Russian production), of which 46.9 million tonnes are exported (34% of Russian and 5% of global exports)

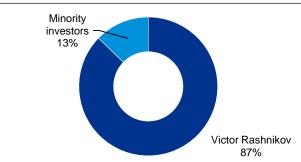
Key financial indicators, 2015, USD million

Revenue: 3,378

EBITDA: 1,512Net debt: 3,123

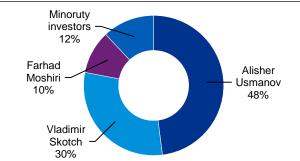
Market capitalisation: not listed

MMK shareholders structure



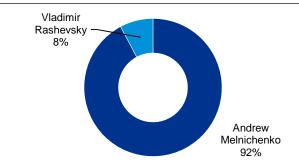
Source: Bloomberg

Metalloinvest shareholders structure



Source: Company website

SUEK shareholders structure



Source: Company website







indicators, 2015, USD

million

Gold, platinum group metals, and diamond producers



Polyus Gold				
Geography	Pro ass	dquarters: Moscow duction facilities: Six operating ets in Eastern Siberia and the East		
Production, 2015	tota	5: 1.75 mln oz (23% of Russia's I production) 6 (estimates): 1.76-1.8 mln oz		
Key financial	— Rev	renue: 2,189		

EBITDA: 1,247

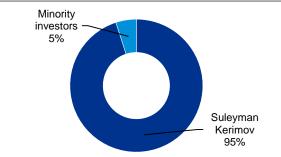
Market capitalisation: 7,518

Net debt: 655

Polymetal Geography Headquarters: British Isles (Jersey) and Saint-Petersburg Production, Gold equivalent production for the 2015 year (based on a 1:60 Ag/Au conversion ratio) was 1.40 Moz Gold production was 861 Koz,, while silver production was 32.1 Moz Key financial indicators, Revenue: 8,542 EBITDA: 4.296 2015, USD Net debt: 4,212 million Market capitalisation: 3,657

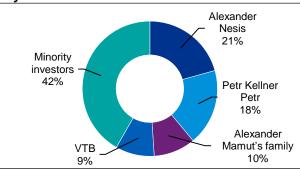


Polyus Gold shareholders structure



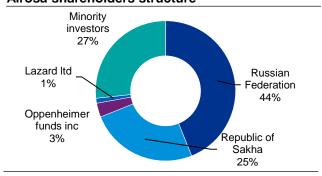
Source: Open Sources

Polymetal shareholders structure



Source: Bloomberg

Alrosa shareholders structure



Source: Company website





Russia & CIS Metals & Mining Sector could be in the spotlight

Key trends in 2016

- The outlook for Russian metals companies is mixed, as a further contraction in the Russian economy in 2016, together with lower metal prices, will be offset by a weakening rouble.
- The rouble currency collapse at the end of 2014 (an approximate 100% devaluation) was the main positive driver for majority of Russian metals producers in 2015 and resulted in rising profitability and competitiveness of Russian companies in the global market.
- At the same time, the weakening rouble could be an issue for some metals companies due to their stretched financial situation, with the majority of loan portfolios denominated in USD.
- We could expect a further deleveraging process in the sector as well as a potential divestment of remaining foreign assets.



Opportunities

Potential deals to watch in 2016

- State tender of Sukhoy Log gold deposit. Sukhoy Log is one of the world's largest untapped gold deposits, and is situated in Siberia's Irkutsk Region. The deposit has reserves of 130 million oz of gold and is among the world's 10-largest deposits. It has remained untapped for half a century, and in 2016 Russia has finally considered selling its development rights via a tender.
- Further Polyus Gold transactions. After the delisting of its shares from the LSE in December 2015, Polyus Gold International could become very active in terms of potential M&A deals with other gold producers in Russia and abroad. The company also requires a strategic partner to develop its large Natalka gold deposit in the Far East of Russia.
- Potential consolidation in Russian steel industry. Media reported about M&A talks between Severstal and MMK earlier this year.
- Potential sale of Amurmetal by Russian state-owned VEB Bank. Amurmetal is a 2 mln tons steel plant (mini-mill), producing semi-finished long products and rebars in the Far East of Russia.



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