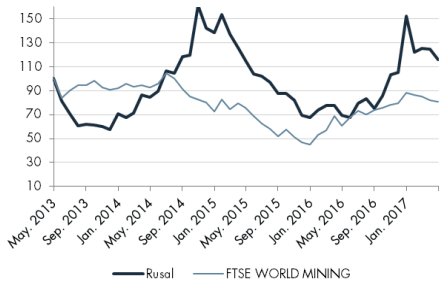
IAM
Independent Asset Management

JUNE 2017

Rusal: a heavyweight of the lightweight metal

Market profile

Country	Russia
Sector	Basic Resources
Industry	Aluminum
Price (CHF)	0.47
52-week high (CHF)	0.68
52-week low (CHF)	0.30
Market Cap (CHFm)	7'206
Avg. daily volume	6'021'300
Beta	1.06
ISIN	JE00B5BCW814



Key metrics (in USD)

	2015	2016e	2017e		2015	2016e	2017e
EPS	0.083	0.079	0.088	PE	7.3x	6.8x	6.1x
YoY Growth	15.3%	-4.8%	11.4%	EV/EBITDA	9.28x	8.45x	8.9x
Dividend yield	0.0%	0.4%	0.7%	EBIT Margin	19.5%	15.9%	16.2%

Executive Summary

Rusal is a leading global aluminum producer. The company was founded in 2007 from the merger of SUAL (Siberian Urals Aluminum) and the alumina assets of Glencore. Rusal was then listed on the Hong Kong stock exchange. The company's main products are primary aluminum, aluminum alloys, foil and alumina. Rusal is completely vertically integrated with assets right through the production process, from bauxite and nepheline ore mines to aluminum smelters and foil mills. This provides Rusal with exceptional operational flexibility and enables it to control every stage of the manufacturing process. This enables the company to keep a low costs' base and ensure the highest quality of products. Rusal is controlled by the Russian billionaire Oleg Deripaska who owns 48% of the company through EN+, an energy-related venture.

Rusal can be considered as a leveraged play on aluminum. Therefore the investment case on the company is twofold. First we are bullish on the metal on a medium to long-term horizon. Second, we think the company fundamentals are likely to improve as its production capacity will increase in the next few years and its balance sheet risk will be drastically reduced. Both of these factors should trigger a significant rerating of Rusal's share.

Some reasons to be bullish on Rusal:

1) A leading position. Rusal is in a global number 2 position with a market share of 6.3. This share is poised to increase further if the Chinese implement their production cuts.

2) A low cost producer. The company enjoys easy access to cheap and abundant supply of electricity and alumina.

Rusal: a heavyweight of the lightweight metal

Olivier Aeschlimann, Senior Financial Analyst, Fund Manager **June 2017**

Fig. 1: Location of assets
Source: Rusal

Company description

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Primary aluminum is used in the transport, construction, electrical and packaging industries. Rusal's facilities produce primary aluminum conforming to the international quality standards and various technical specifications as agreed with customers.

Aluminum alloys: Rusal operates modern casting facilities that produce a wide range of high quality aluminum alloys which are engineered to meet customers' design requirements

Foil and packaging: Rusal facilities produce many different types of aluminum foil (from 5 to 240 micron thick), flexible packaging, alloy traps and foil for domestic and industrial use. The packaging division's consumers are food, pharmaceutical, construction, tobacco, perfume and cosmetic industries.

Fig. 2: Group structure
Source: Rusal

There are seven divisions within RUSAL:
Aluminium Division
New Projects Division
Alumina Division
Packaging Division
Energy Division
Engineering and Construction Division
Technical Directorate

Aluminum powder: Aluminum coarse and fine powders and grains are widely used in metals and mining, chemical, energy and construction industries. They are also applied in the production of military equipment.

Bauxite and alumina: Rusal mines bauxite and produces high quality alumina using the Bayer extraction method, sintering technology and applying both methods simultaneously. Metallurgical alumina and alumina hydrate are widely used in different industries.

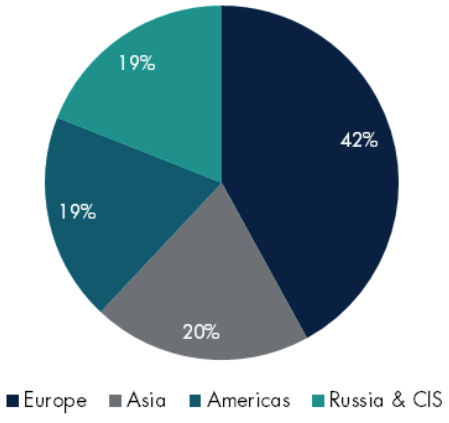
Silicon metal which is used in the metallurgical, chemical and semiconductor industries.

Gallium: Rusal produces very high quality gallium of 99.99% and 99.999% purity. Gallium is a raw material for producing various chemical compounds, including gallium arsenide, gallium nitride, gallium chloride and others, which in turn are used in solar energy and electrical industries.

Corundum: The Company is one of the world's largest producers of white fused alumina. White fused alumina grains are highly durable and have self-sharpening edges. White fused alumina is also used to produce ceramic products and refractory applications. Rusal produces white fused alumina in the form of grifts, abrasive grains and powder, micro abrasive powder and ramming mixtures.

Aluminum protectors: anticorrosion aluminum protectors made from aluminum alloys are used for long-term protection of objects contacted with an aggressive environment (sea water, soil water).

Fig. 3: Sales by regions
Source: Rusal

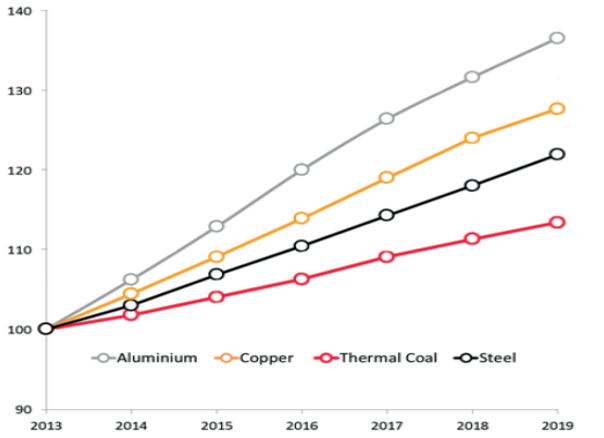


Industry overview

The primary aluminum market amounted to about USD 90 billion for 60 million tons produced in 2016. The total market was in a slight deficit as global demand surpassed supply by approximately 600 thousand tons.

Aluminum is the fastest growing market among industrial metals as its inherent qualities are especially appreciated in the transport, construction, electrical and packaging industries. The growth of demand is unsurprisingly the strongest in emerging economies like China and India where it stands at respectively 6.5 and 7%. According to Wood Mackenzie (a consultancy) this trend should continue until at least 2030.

Fig. 4: Demand growth
Source: Rio Tinto



The aluminum production process

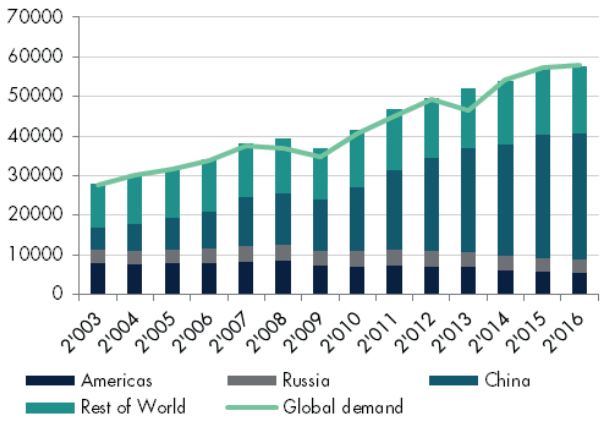
The aluminum industry is very capital intensive and also extremely energy intensive. The pure form of aluminum does not naturally occur in nature and the metal remained largely unknown until as recently as 200 years ago. Creating aluminum using electricity was first developed in 1886. The aluminum production process starts with the mining of bauxites, an aluminum rich mineral in the form of aluminum hydroxide. Then bauxite is crushed, dried and ground in special

mills where it is mixed with a small amount of water. This process produces a thick paste that is collected in special containers and heated with steam to remove most of the silicon present in bauxite. The next phase consists in processing this paste, highly concentrated in alumina, through a smelter. At an aluminum smelter, alumina is poured into special reduction cells with molten cryolite at 950°C. Electric currents are then induced in the mixture at 400 KA or above; this current breaks the bond between the aluminum and oxygen atoms resulting in liquid aluminum settling at the bottom of the reduction cell. Finally primary aluminum is cast into ingots and shipped to customers or used in the production of alloys.

Evolution of an industry

Until the early 2000s, the light metal was mainly produced in the Americas and Europe. The availability of cheap hydroelectricity made countries like Canada, Norway or even Switzerland relatively competitive despite higher labor costs.

Fig. 5: Primary aluminum production (Ktons)
Source: Bloomberg Intelligence

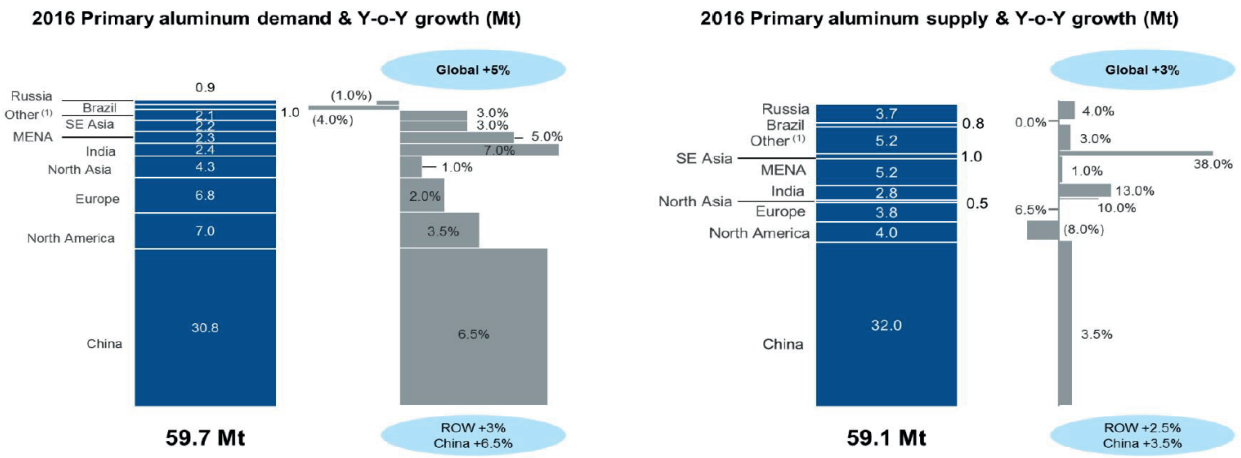


In 2003, the USA and Canada accounted for 28% of the global production whereas China represented only 20%. However, in 2016, the roles have inverted and China produces 55% of the world aluminum output whereas the USA and Canada account only for 9%. This truly is a dramatic shift. During the last 15 years, the North American production has decreased by 30% while the Chinese one increased more than five-fold. The Russian production managed to remain nearly flat during this period, thanks to very competitive producing costs. The fall of the Berlin wall enabled cheap Russian aluminum to gain market shares in Western Europe, triggering the first wave of consolidation. The buying of ailing Pechiney and Algroup (formerly known as Alusuisse) by Alcan was emblematic of this period. But as the Chinese pressure on prices remained unabated, even Alcan became a prey and was acquired by mining giant Rio Tinto. The rationale behind this acquisition was to complete the vertical integration of the company by adding the bauxite mining activity to the supply chain. This was supposed to improve the company's competitive position by driving down its procurement costs.

Enters the dragon

The surge of the Chinese aluminum production reflected the fierce will of the Middle Empire to catch up with developed economies on industrialization, urbanization and infrastructures. To that end, the Chinese government provided substantial subsidies to State-owned companies. Obviously, those companies were not managed for profitability but, perfused with cheap electricity and capital, they just maximized volume growth. They were so successful that it didn't take too long before even the huge Chinese market became saturated with aluminum. Consequently, instead of cutting capacity, which would have resulted in a loss for State-owned banks and may have created social unrest among led-off workers, China started to export its aluminum over-production. This is the root cause of a radical shift in the sector. Unable to compete on prices, most western aluminum producers gradually got rid of their primary aluminum business to concentrate on more value added activities such as engineered and alloy products (Fig. 6).

Fig. 6: Primary aluminum demand and supply by region
Source: Alcoa

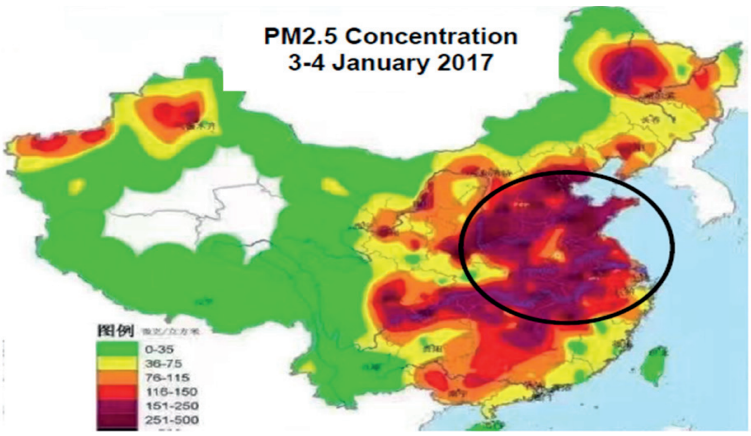


The beginning of a new era?

However, things may be about to change, and this time for the better. Harbinger of this change? Since the beginning of the year, aluminum has clearly outperformed all other industrial metals. Some analysts believe this is a reflection of the Chinese new strategic orientation. The country, which exported its overproduction at terrible prices, will indeed cut its output. This should realign the market until then characterized by overcapacity. Even so this decision has nothing altruistic. The Chinese authorities finally have understood the pointlessness of sustaining unprofitable companies. They now want to concentrate on profitability. Aluminum production is not only very capital intensive and consumes a lot of energy, it is also extremely polluting (Fig. 7).

As the investment driven growth model is now running out of steam, the next leg of growth will be the development of a consumer economy. Consequently, the resources formerly devoted to aluminum will be deployed much more effec-

Fig. 7: Fine particles concentration: unsustainable by any standards
Source: Chinese Ministry of Environmental Protection

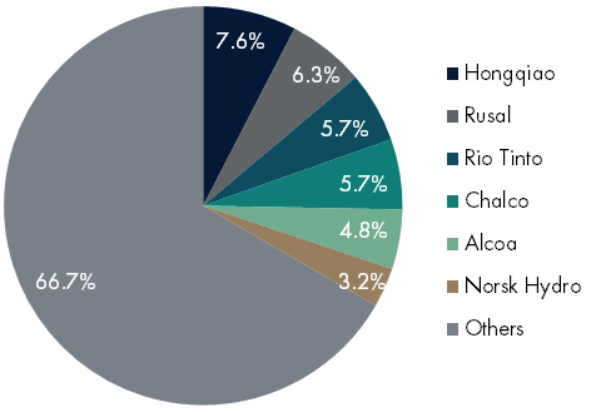


tively for the development of the Chinese economy 2.0, which will be oriented on services, household consumption and new environment technologies. If sustainable, this new environment would greatly favor a company like Rusal, which would now enjoy a low cost producer position in a stabilized market.

Competitive positioning

With a 6.3% share of the primary aluminum market, Rusal is in a global number 2 position, behind China Hongqiao, the global leader with a 7.6% market share.

Fig. 8: Global market shares
Source: Bloomberg Intelligence



Key success factors

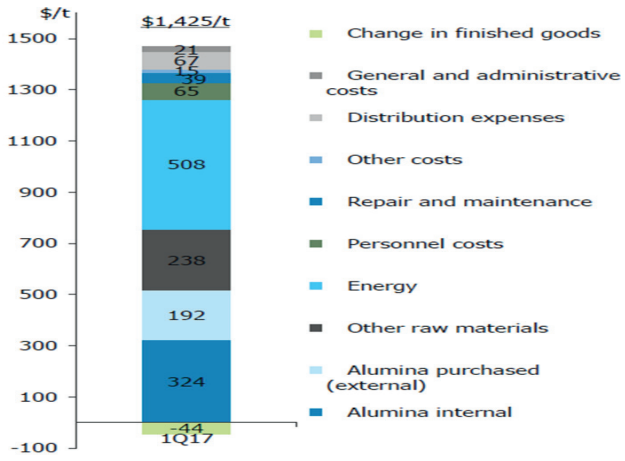
The primary aluminum production business relies on three key success factors:

1) Availability of abundant, reliable and cheap electricity: as said earlier, the aluminum production process (Hall Héroult process) requires a great deal of energy (between 30 to 40% of producing costs). First as electric current is used to separate oxygen atoms from alumina, then to fuel furnaces to melt the metal and cast it into ingots.

2) Availability of abundant and cheap alumina: alumina comes from bauxite which is mined in tropical and subtropical regions. It takes a well-established supply chain to ensure a continuous availability of alumina.

3) Efficient smelters: Rusal introduced in 2009 the so-called "clean Soederberg technology" which enable to significantly cut emissions and increase production efficiency.

Fig. 9: Cash costs break down
Source: Rusal



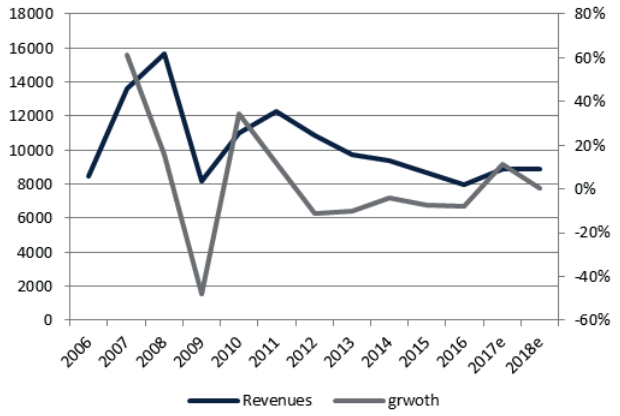
Rusal is well positioned as far as these three success factors are concerned. This should help the company maintain its strong market share and expand its margin, provided the Chinese authorities put an end to their dumping practices.

Financial analysis

Revenues

The graph illustrates the cyclical nature of the metals and mining industry. Revenues surged 60% in 2007 then collapsed over 40% in 2009 as the great financial was taking its toll. The company's sales resumed their growth until 2011, but since then, have continually eroded. This reflects the loss of market shares endured by non-Chinese

Fig. 10: Evolution of revenues
Source: Rusal

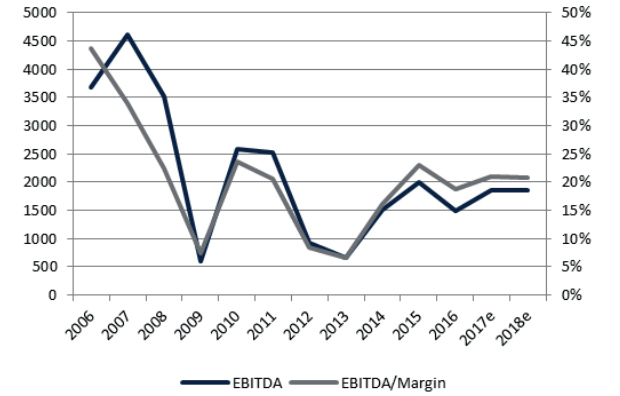


companies, as the Middle Empire exported its overproduction at very low prices. However, this difficult period seems to have come to an end as Rusal is regaining some pricing power (Fig. 10).

EBITDA and EBITDA margin

In line with revenues, the company's EBITDA enjoyed a strong growth in 2007 before collapsing in 2009. However, after a new fall in 2013, Rusal finally got the lesson and implemented an aggressive cost cutting plan in order to cope with the new market conditions. As a result, EBITDA as well as margins recovered from 2013, despite the continued erosion in revenues. In the foreseeable future, the company gives the guidance of 20% as the base case for its EBITDA margin (Fig. 11).

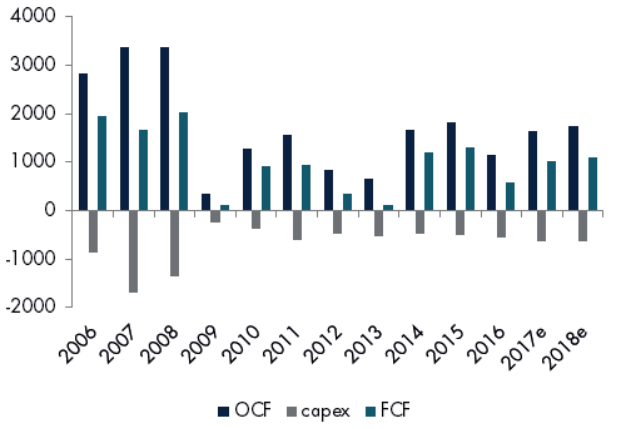
Fig. 11: Evolution of EBITDA
Source: Rusal



Cash flows

The company's operating cash flow shows the familiar cyclical pattern with a peak in 2008 and troughs in 2009 and 2013. On the capex side, Rusal invested massively in 2008 and 2009, to modernize its smelters. However, the company cut abruptly its spending after the crisis as it had to adopt a cash preservation strategy. As a result, Rusal managed to stay free cash flow positive even in 2009 and 2013. This shows how reactive the management is. In the foreseeable future, the guidance for capex is between USD 650 to 700 million, which is enough to finance a responsible growth without jeopardizing the company's financial resources.

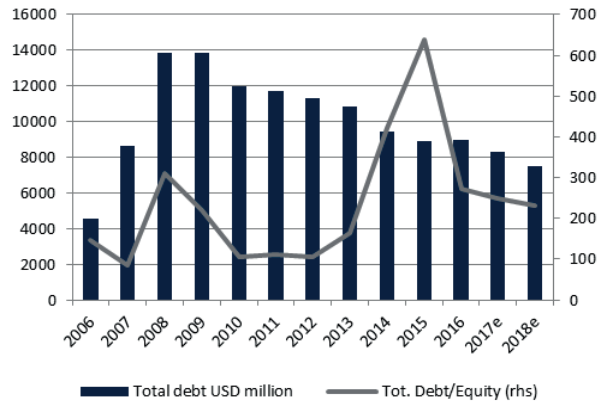
Fig. 12: Evolution of cash-flows
Source: Rusal



Balance Sheet

Rusal is a highly indebted company. However, since the great financial crisis in 2008, the company has regularly managed to reduce its indebtedness which is now manageable, though not yet at a satisfactory level.

Fig. 13: Total debt and debt/equity
Source: Rusal



In addition to its own activities, Rusal can rely on the dividend income from its USD6.5 billion stake in Norilsk Nickel. The Norilsk dividend has been covering all of Rusal interest payments and contributes to accelerate the company's deleveraging. Actually, the market value of this stake would be sufficient to pay down 80% of Rusal's debt.

Shareholders' structure

The main shareholder of Rusal is a company named EN+, which owns 48% of the aluminum producer. EN+ is a Russian energy-related company controlled by Oleg Deripaska, who himself detains 0.23% of Rusal in his own name. As a matter of fact, Mr. Deripaska is the President and Executive Director of Rusal. The second most important shareholder with 15.8% is SUAL Partners. SUAL stands for Siberian Urals Aluminum and is one of the company at the origin of Rusal. The third major shareholder is Onexim, an investment company controlled by Russian oligarch Mikhail Prokhorov. Last but not least Glencore owns a 8.75% stake in Rusal. This participation traces back to the creation of Rusal as Glencore sold its alumina assets to the new company. This shareholder structure may be problematic in some respects. First there may be diverging interests among the few major shareholders and this could have an adverse effect on the strategy. Then, the free float, which is relatively limited could have a negative effect on volatility. However, on a positive side, a company backed by so many powerful institutions is less at risk of facing a shortage of capital (Fig. 15).

Fig. 14: Value of Norilsk Nikel stake VS Rusal net debt
Source: Rusal

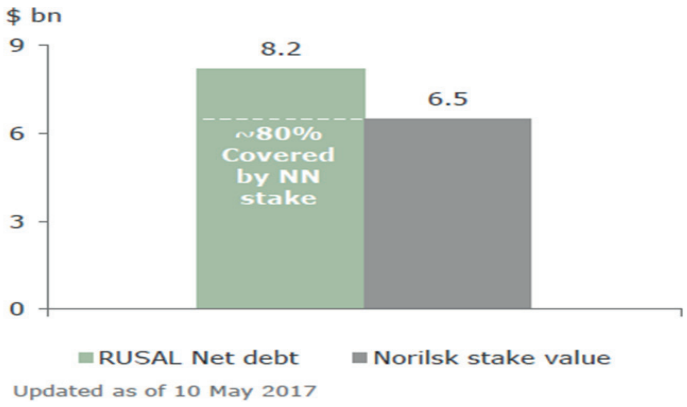
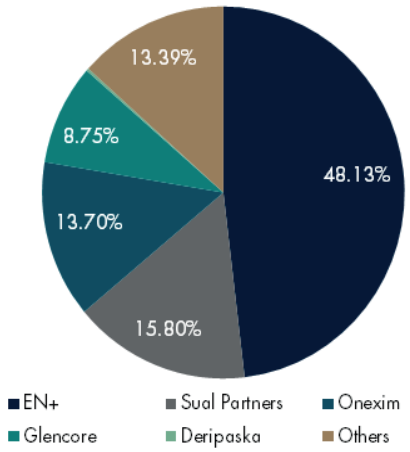


Fig. 15: Shareholders' structure
Source: Rusal



Investment case

Rusal can be considered as a levered play on aluminum. Therefore the investment case on the company is twofold. First we are bullish on the metal on a medium to long-term horizon. Second, we think the company fundamentals are likely to improve as its production capacity will increase in the next few years and its balance sheet risk will be drastically reduced. Both these factors should trigger a significant rerating of the Rusal's shares.

Some reasons to be bullish on aluminum

1) Aluminum is the metal with the fastest growing demand. Its uses are widespread among a large variety of sectors. It is not dependent on infrastructure and the rebalancing of the Chinese economy towards consumption is good news for the lightweight metal.

2) On the supply side, the market is now close to equilibrium. Most western producers have drastically reduced their capacity, or as Alcoa, split the company and concentrate now on engineered products or high value added alloys. However, the real game changer is the Chinese reversal of policy. At last, Chinese authorities realized that subsidizing inefficient company in a market characterized by overcapacity was a huge loss of resources. What is more, aluminum smelting is extremely polluting and at a time when environmental concerns are growing among the Chinese people, it is a wise move to cut drastically "illegal" production. In the end, the aluminum market will no longer be flooded by sold off metal and this should help maintain an appropriate pricing power for companies like Rusal.

Some reason to be bullish on Rusal

1) A leading position
Rusal is in a global number 2 position and can boast a 6.3% market share. This share is poised to increase further if the Chinese implement their production cuts.

2) A low cost producer
The company enjoys easy access to cheap and abundant electricity. Its vertical integration strategy ensures a steady supply of alumina. Finally, Rusal has invested in efficient smelters. Altogether, these factors make of Rusal a relatively low cost producer.

3) Successful turnaround and focus on cash generation
At the end of 2013, Rusal was considered by many analysts as an obvious candidate for short sellers. The company was over indebted and free cash flow generation was barely positive. To make matters worse, Rusal was continuing to spend capex on new projects at a time when the price of aluminum was stubbornly heading south. However, since 2016, tangible signs of a successful turnaround have gained visibility. This success was not only due to the price recovery of most metals but also to cost cutting and rationalization initiatives of Rusal's management. It is said that one should not trust a captain who never has sailed in heavy weather. So Rusal's management certainly has proven its ability to get the company out of the rut and will never let Rusal experience again such

hard time. The management is now clearly focussed on cash generation in order to deleverage the company and then give money back to investors through value creation.

Risks

Most of Rusal productive assets are located in Russia and Rusal is a Russian company. Following the annexation of Crimea and the civil war in Ukraine, Russia faces international sanctions affecting its trading activities. Although aluminum exports have not been included in the sanctions, we cannot exclude this possibility in the future. In addition, the links between Mr Deripaska and the Kremlin may deteriorate and this could penalize the company's operations. All these factors accentuate the perception of an important political risk. Rusal is highly indebted. Failure to meet covenants or to satisfy any debt-related obligations could expose the company to a severe financial risk. The company may also have to raise fresh equity, which would translate into dilution for existing shareholders. Some of the company's projects are early stage or of huge size and present many technical and engineering challenges. Rusal is thus exposed to an important operational risk. Finally, as a metal producer, the company has no control over the price of its output and is consequently exposed to market risk. If the price of aluminum were to fall and stay below Rusals' production costs, the going concern assumption of the company would become questionable.