

Advisory

The Finnish Mining Industry

An Overview - 2012

12 October 2012



pwc

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Section 1

Introduction

Introduction

Introduction

The extractive industry is experiencing a rebirth in Finland. During the last years several new mines have commenced operations and approx. 40-50 exploration companies are operating in Finland.

Finland is a typical young mining country where several mining projects are still in the development phase and mining investors are facing financing related challenges. However, the number of mining and exploration companies has increased and the size and importance of the Finnish mining industry is expected to increase. According to a survey conducted by the Fraser Institute, Finland is the second most attractive mining country mainly due to the availability of geological data, strong infrastructure and political stability and transparency.

We expect Finland's mining potential to stimulate investments from both domestic and foreign investors. Furthermore, the Finnish government's objective to make Finland a pioneer in sustainable mining with up-to-date environmental requirements that contribute to the implementation of projects and development of the mining industry will also

contribute to the growth in investments in Finnish mining assets.

PwC Finland has for the first time conducted an overview of the Finnish mining industry. Our objective is to provide an overview of key mining assets in Finland and planned mining projects. We have also summarised the new Mining Act and findings from a mining survey conducted by the Fraser Institute.

We hope that this overview provides insights into the potential opportunities the extractive industry can provide to your business. We will update our overview on a yearly basis due to the fast development of the mining industry and the constant flow of new information.

For report related questions please feel free to contact us.

Mauri Hätönen
Finnish Mining Leader

Section 2

At a glance – our views

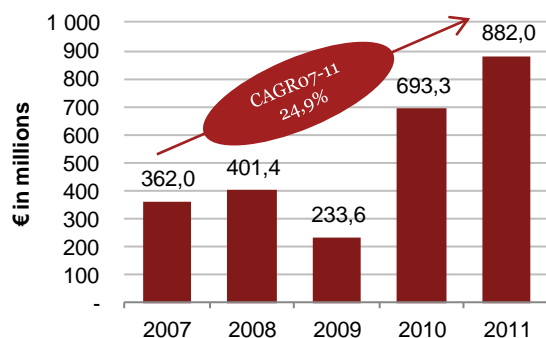
At a glance – our views

PwC view - We expect that investments in Finnish mining assets will increase. The shortage of early stage finance is, however, slowing the pace of investments and there remains room for improvement in initiatives to encourage domestic participation.

1 There has been a substantial increase in the number of operating mines in 2011-2012

Three new mines reached a commercial production stage in 2011 and are expected to reach full production in 2012. The Laivakangas gold mine is expected to produce 118,000 ounces of gold (3700kg). The Kevitsa mine is expected to contribute 10,000 tons of nickel and 20,000 tons of copper per annum. The Kylylahti mine is expected to yield 8,000 tons of copper, 8,400 ounces of gold and 1600 tons of zinc per annum.

Mining industry revenue - 2007-2011



2 Investments in Finnish mining assets are expected to increase

The increased global demand for minerals is forcing miners to extract minerals from more remote locations and lower grade mines. The above factor is expected to increase investments in Finnish mining assets. This is supported by a survey conducted by the Fraser institute, ranking Finland as the second most attractive mining country in the world. The increase in investments is also supported by the following factors:

- Availability of geological data
- A high quality infrastructure
- Political stability and transparency
- The newly adopted Finnish Mining Act, providing a stable political environment for mining investments
- Higher commodity prices, allowing the reopening of closed mines.

3 There is a challenge to obtain early stage financing and a lack of domestic investments

Currently, there are 12 operating mines in Finland of which only Kemi and Talvivaara mines are under Finnish ownership. The lack of domestic investment is mainly driven by the absence of available financing. Securing early stage financing is challenging as it may take over 10 years for a mine to reach commercial production and positive cash flows.

Section 3

Industry overview

Majority of exploration and mining companies are owned by foreign companies. Only Kemi and Talvivaara are under Finnish ownership

Overview of mining industry

- The mining industry, covered in this Report, relates to the mining and enrichment of metals in Finland.
- The life-cycle of a mine consists of three stages, exploration of ore and project development, production and completion and closure of the mine. There are currently 40-50 exploration companies operating in Finland, which are mostly owned by publicly listed foreign companies. Mineral deposits and new exploration projects are mainly situated in Eastern and Northern Finland. Currently, there are 12 mining operations that have reached the production stage. Only Kemi and Talvivaara mines are under Finnish ownership.
- Iron, chrome, zinc, copper, nickel, cobalt and precious metals are among the most common minerals extracted in Finland. In terms of revenue the largest mines are located in Talvivaara (Ni, Zn, Co, U), Kittilä (Au), Kemi (Cr) and Pyhäsalmi (Cu, Zn). In 2010 mineral exploration companies generated a revenue of approx. €700m.
- New mining projects are expected to require significant investments in Finland in the coming years. For example, Sokli and Hannukainen mining projects are estimated to require investments of €700m and €300. In addition to investments in new mining projects, existing mining operations require further investments in capacity expansions. The contemplated expansion of nickel production in Talvivaara alone would require an investment of €1,0bn.

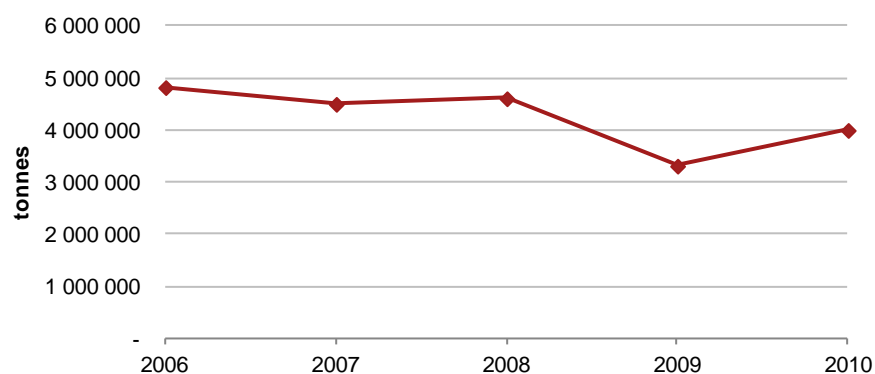


The net import of minerals increased to 4,0 million tons of mineral concentrate, consisting mainly of iron ore imports

Export and import of minerals

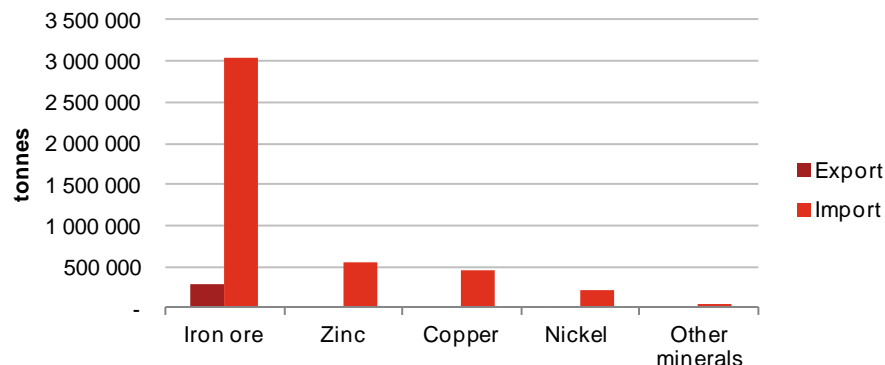
- The opposite graph illustrates Finland's heavy reliance on import of minerals. In 2010 Finland imported approx. 4,338 million tons of mineral concentrate with a market value of €1,6bn. The increase of 30,8% in imports in 2010 was driven by the rebound of the Finnish economy.
- The export of ore concentrate has traditionally been relatively marginal in Finland, amounting to approx. 3,5 thousand tonnes in 2009. In 2010, however, the export of ore concentrate increased to 339 thousand tonnes, generating a revenue of €65,7m. This significant increase in ore exports was mainly driven by Talvivaara's supplier agreements of nickel with Norilsk Nickel in 2009 and zinc with Nystar NV and recommencement of operations at the Hitura nickel mine.

Net import of minerals



Source: The Ministry of Employment and the Economy

Export and import of minerals in 2010

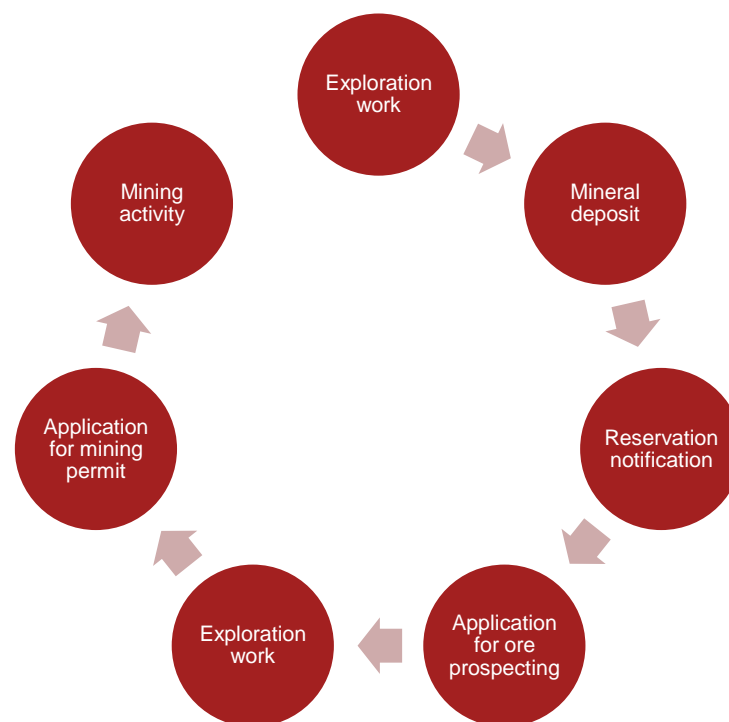


Source: The Ministry of Employment and the Economy

A new mining Act was enacted on 1 July 2011, outlining the exploration periods and compensation levels for landowners (1 of 2)

Legal environment

- A new mining Act was enacted in Finland on 1 July 2011, replacing the previous Act from 1965.
- As a result of the new mining Act the processing of mining licenses was transferred from the Ministry of Employment and the Economy to Finnish Safety and Chemicals Agency (Tukes). Redemption permits and permits for uranium and thorium extraction are granted by the Finnish government.
- A permit is required for mining exploration if exploration work results in material damage, harm or intrusion or cannot be carried out with the landowner's consent. The exploration permit is granted for a period of four years, which can be extended by three years at a time. The exploration period cannot exceed fifteen years.
- Compensations to landowners for mining exploration increases on a step by step basis as follows:
 - Years 1-4; €20/hectare per year
 - Years 5-7; €30/hectare per year
 - Years 8-10; €40/hectare per year
 - Years 11-15; €50/hectare per year

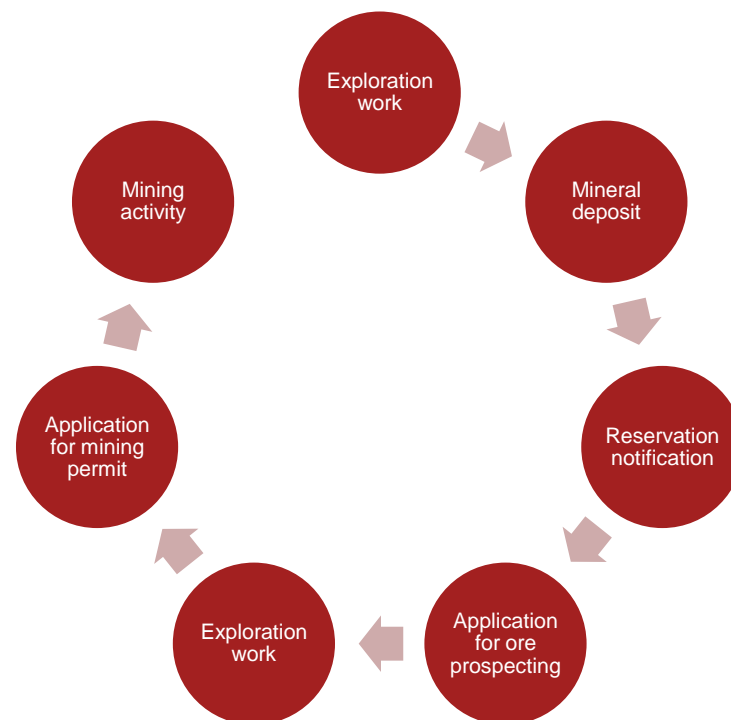


Source: The Ministry of Employment and the Economy

A new mining Act was enacted on 1 July 2011, outlining the exploration periods and compensation levels for landowners (2 of 2)

Legal environment (cont'd)

- A permit for mining activity entitles the landowner to an annual compensation of €50 per hectare and additional compensation of 0,15% of the value of explored and utilised minerals.
- A gold panning permit can be granted for a maximum area of 5 hectares and is valid for four years. The permit can be extended by three years at a time. The permit fee for gold panning amounts to €50/hectare per year.
- In addition to the mining Act, the applicant is also required to demonstrate that it meets the environmental, mining safety and building permit requirements. The mining area also needs to be approved by the town or municipality planning department before any construction of the mine can commence.



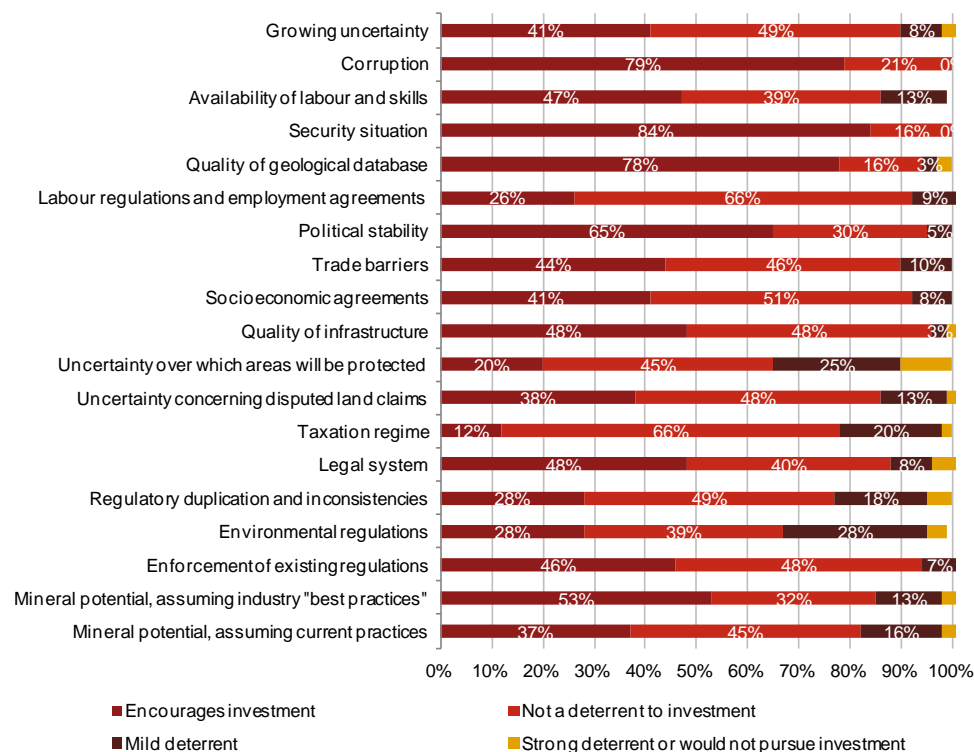
Source: The Ministry of Employment and the Economy

The 2011/2012 mining industry survey ranked Finland the second highest on the impact of government policies on exploration

The Fraser Institute – The 2011/2012 mining industry survey

- The Fraser Institute conducts annual surveys on metal mining and exploration companies to evaluate how mineral endowments and public policy factors impact exploration investment. These survey results represent the opinions of executives and exploration managers in the mining industry. The 2011/2012 survey includes data on 93 jurisdictions.
- The Policy Potential Index (PPI), shown on the opposite graph, reflects the impact of government policies on exploration. A jurisdiction is ranked first in a policy area if it receives the highest percentage of ‘encourages investments’ replies. Rankings of each jurisdiction across all policy areas are averaged and normalised to 100. The 2011/2012 survey results ranked Finland the second highest, receiving a score of 92,4. Finland has been ranked in the TOP10 jurisdictions for three consecutive years.
- Finland’s high standing in the 2011/2012 survey results was mainly driven by Finland’s high mining potential, political stability and transparency, high quality of available geological data and current infrastructure. However, the uncertainty over environmental regulations was classified as a mild deterrent by 28% of all respondents. This is likely to increase due to the recent environmental setbacks at the Talvivaara and Laivakangas mines.

A summary of the survey results for the Finnish mining industry



Source: Fraser Institute - Survey of Mining Companies 2011/2012

Section 4

Mining assets

Operating mines (1/2)

Mine, municipality	Company	Parent company	Mineral	Production capacity	Reserve size	Life of mine
Suurikuusikko, Kittilä	Agnico-Eagle Finland Oy	Agnico-Eagle Mines Ltd. (CA)	Au	Au; 160,000 ounces	5,2 million ounces	Until 2044
Hitura, Nivala	Belvedere Mining Oy	Belvedere Resources Ltd (CA)	Ni, Cu, Co, Pt, Pd	Ni; 2,500 tons	1,3m tons of ore	Until 2018
Pahtavaara, Sodankylä	Lapland Goldminers Oy	Lapland Goldminers AB (SE)	Au	Au; 25,720 ounces	55,000 ounces	At least two years
Kemi, Keminmaa	Outokumpu Chrome Oy	Outokumpu Oyj (FI)	Cr	1,3m tons	140m tons of ore	Pending
Jokisivu, Huittinen	Polar Mining Oy	Dragon Mining Ltd (AU)	Au	Au; 25,720 ounces (Incl. Orivesi)	150,000 ounces	Until 2016
Orivesi	Polar Mining Oy	Dragon Mining Ltd (AU)	Au	See above	338,500 ounces	Until 2015
Pyhäsalmi, Pyhäjärvi	Pyhäsalmi Mine Oy	Inmet Mining Corporation (CA)	Cu, Zn, S, Ag, Au	Cu; 14,000 tons Zn; 32,300 tons	17,1m tons of ore	Until 2018
Pampalo, Ilomantsi	Endomines Oy	Endomines AB (SE)	Au	Au; 25,700-28,900 ounces	1,288m tons of ore	n.a.

Operating mines (2/2)

Mine, municipality	Company	Parent company	Mineral	Production capacity	Reserve size	Life of mine
Talvivaara, Sotkamo	Talvivaara Sotkamo Oy	Talvivaara Kaivososakeyhtiö Oyj (FI)	Ni, Zn, U	Ni 50,000 tons Zn 100,000 tons Cu 15,000 tons Co 1,800 tons	1,1m tons of ore	2069
Laivakangas, Raahе	Nordic Mines Oy	Nordic Mines AB (SE)	Au	Au; 118,000 ounces	12,9m tons of ore	2017
Kevitsa, Sodankylä	Kevitsa Mining Oy	First Quantum Minerals Ltd (CA, UK)	Cu, Ni, PGM, Au	Ni; 10,000 tons Cu; 20,000 tons	240m tons of ore	32 years
Kylylahti, Polvijärvi	Kylylahti Copper Oy	Altona Mining Ltd (AU)	Cu, Ni, Zn, Au	Cu; 8,000 tons Au; 8,400 ounces Zn; 1,600 tons	17,8m tons of ore	8-9 years

Agnico-Eagle Finland Oy

Company introduction:

- Agnico-Eagle Finland Oy is a wholly owned subsidiary of Agnico-Eagle Mines Ltd, a Canadian gold producer with operations in Finland, Canada, the United States and Mexico. Agnico-Eagle Mines Ltd is listed on the New York and Toronto stock exchanges.

Suurkuusikko, Kittilä:

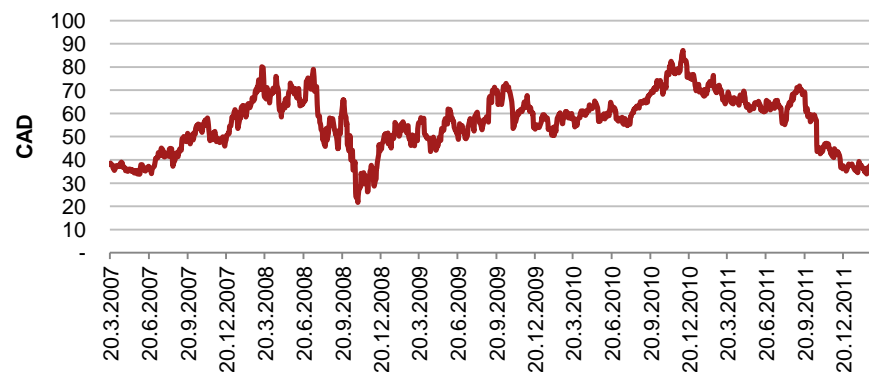
- Agnico-Eagle’s Finnish mining project is located in Kittilä where it has a gold mine with proven and probable gold reserves of approx. 34,6 million tons (5,2 million ounces) of ore with an average grade of 4,7g/ton of gold.
- Commercial production was commenced in 2009 and the estimated mine life with the current production rate is until 2044.
- Gold production is estimated to amount to 155,000 ounces per year in 2012. The total cash cost is estimated to amount to \$650 per ounce while gold recovery rate is estimated at 84%. In 2011 143,560 ounces of gold were processed with a total cash cost of \$739 per ounce.
- Agnico-Eagle Finland Oy has submitted its EIA plan to the Centre for Economic Development, Transport and the Environment to increase its production capacity from 3,000 tons per day to 6,000 tons per day. The planned production expansion will be finalised in 2014.

Source: Company website

Agnico-Eagle Finland Oy	FY09	FY10	FY11
Net sales	n.a.	€68,8m	€163,2m
EBITDA	n.a.	€29,6m	€73,1m
EBIT	n.a.	€19,6m	€57,2m
Total assets	n.a.	€362,9m	€437,8m

Source: Financial statements

Agnico-Eagle Mines Ltd. - Share price



Source: Bloomberg

Belvedere Mining Oy

Company introduction:

- Belvedere Mining Oy is a wholly owned subsidiary of a Canadian mining company, Belvedere Resources Ltd. Belvedere Resources Ltd has concentrated its exploration activities in gold, cobalt, copper and nickel deposits in Finland. Belvedere Resources Ltd is listed on the Toronto Stock Exchange.

Hitura, Nivala Mine:

- 858 tons of nickel were produced in 2010 and 2,156 tons of nickel in 2011. The mine is estimated to have a remaining life of 5-6 years with the current production output.
- The Hitura mining project has known and probable resource reserves of approx. 0,8 million tons of ore. The nickel, copper and sulphur contents are 0,60%, 0,23% and 2,21% respectively. Additionally, the Hitura mine produces small amounts of cobalt, platinum and palladium.

Other exploration projects:

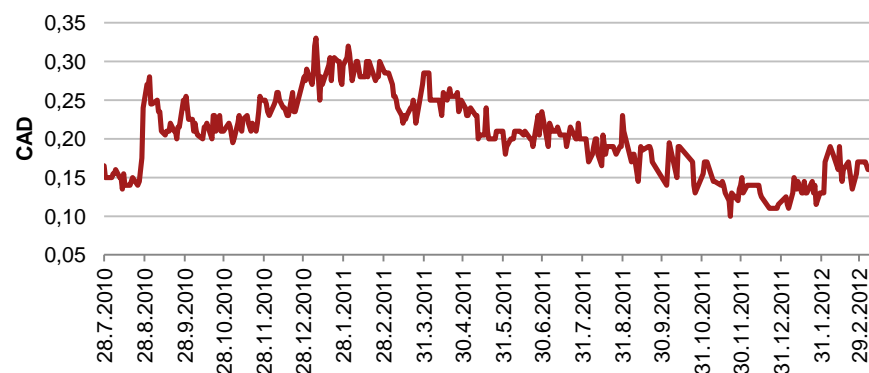
- In addition to Hitura mining project, the Company is targeting several gold mining projects in Kopsa, Kiimala, Kuusamo, Rantasalmi and Hirsikangas. These projects have revealed indicated and inferred resources of 334,000 and 353,000 ounces of gold. Also, the Company is developing cobalt and gold deposits in Kourvervaa, Haarakumpu and Säynävaara.

Source: Company website & Financial statements

Belvedere Mining Oy	FY09	FY10	FY11
Net sales	-	€7,7m	€22,6m
EBITDA	€(2,9)m	€(2,3)m	€1,7m
EBIT	€(2,9)m	€(2,5)m	€1,0m
Total assets	€5,7m	€6,7m	€10,6m

Source: 2009 Annual Report & Financial statements

Belvedere Resources Ltd. - Share price



Source: Bloomberg

Lapland Goldminers Oy (1/2)

Company Introduction:

- Lapland Goldminers is a wholly owned subsidiary of Lapland Goldminers AB. The Company is based in Lycksele, Sweden and carries out mining exploration work in Sweden and Finland. The Company currently has one operating gold mine in Pahtavaara, Finland and a large portfolio of gold exploration permits in Fäboliden, Stortjärnhobben, Ersmarksberget and Svärträsk, Sweden.

Pahtavaara, Sodankylä Mine:

- The Company acquired Pahtavaara gold mine from Scan Mining Oy's bankruptcy estate in 2008, taking over the gold mine, mill, existing mining claims and permits. Production in the mill and mine started in 2008.
- On 1 January 2012 the Company's gold deposit in Pahtavaara had a proven and probable gold reserve size of 55,466 ounces of gold (1725kgs) with an average gold content of 1,60g/ton. The average produced gold contents were 1,64 g/ton in 2009 and 1,81g/ton in 2010. The average recovery rate at the mill was approximately 87% during 2009 and 2010.
- Gold production amounted to approx. 21,900 ounces (680 kgs) in 2009 and approx. 23 800 ounces (740 kgs) in 2010. In 2011 the production of gold decreased by 3,826 ounces (119kg) from 2010 to 19,952 ounces (621kg) of gold.

Source: Company website & Annual reports

Lapland Goldminers Oy	FY09	FY10	FY11
Net sales	€10,7m	€20,1m	€27,0m
EBITDA	€(1,3)m	€6,3m	€9,3m
EBIT	€(3,3)m	€1,7m	€(4,4)m
Total assets	€20,4m	€21,6m	€19,5m

Source: Financial statements

Lapland Goldminers AB - Share price



Source: Bloomberg

Lapland Goldminers Oy (2/2)

Other exploration projects:

- In 2007 Lapland Goldminers acquired the exploration permits for **Haveri gold project** from Northern Lion Gold Corporation, which had carried out exploration work in the area. The mineral reserve size for Haveri gold deposit is estimated at 24,7 million tons with average content of 0,89g/ton of gold.
- The company lacks the resources to further develop the Haveri gold deposit and is looking into alternative solutions for the reserve.

Lapland Goldminers Oy	FY09	FY10	FY11
Net sales	€10,7m	€20,1m	€27,0m
EBITDA	€(1,3)m	€6,3m	€9,3m
EBIT	€(3,3)m	€1,7m	€(4,4)m
Total assets	€20,4m	€21,6m	€19,5m

Source: Financial statements

Lapland Goldminers AB - Share price



Source: Bloomberg

Source: Company website & Annual report

Outokumpu Chrome Oy

Company introduction:

- Outokumpu Chrome Oy is a ferrochrome producer with an own chromite mine located in Kemi, Finland. The Kemi Chrome mine is the only chromite mine in the European Union area. Chromite ore is converted into ferrochrome in the Tornio Works ferrochrome smelters. The Company is a wholly owned subsidiary of Outokumpu Oyj, a stainless steel manufacturer, which is listed on the NASDAQ OMX Helsinki Stock exchange.

Kemi, Keminmaa Mine:

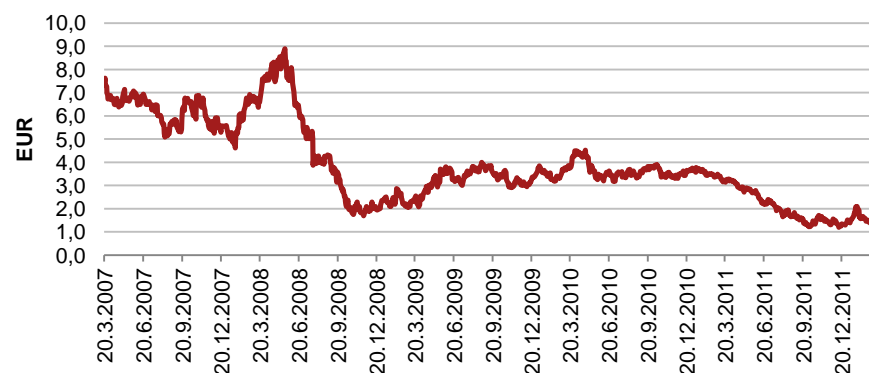
- Outokumpu Chrome Oy is the sole producers of ferrochrome in the European Union.
- The Kemi chrome mine has a proven and probable reserves of 140 million tons of ore and extracts an approx. 1,3 million tons of ore per year. In 2011 the mine produced 231,405 tonnes of chrome.
- Outokumpu Chrome Oy is currently undertaking a production expansion program, aiming to double production capacity by 2013. The investment costs are estimated to amount to €420m of which €127,1m was incurred in 2011. The production of ore and ferrochrome is expected to increase to 2,7 million tons and 530 thousand tons per year.

Source: Lapin liitto industry reviews & Financial statements

Outokumpu Chrome Oy	FY09	FY10	FY11
Net sales	€103,7m	€265,2m	€227,9m
EBITDA	n.a.	€92,6m	€50,5m
EBIT	€0,3m	€83,8m	€41,5m
Total assets	€161,3m	€223,3m	€336,5m

Source: Financial statements

Outokumpu Oyj - Share price development



Source: Bloomberg

Polar Mining Oy (1/3)

Company Introduction:

- Polar Mining Oy is a wholly owned subsidiary of an Australian based mining company, Dragon Mining Ltd. Dragon Mining Ltd is listed on the Australian Stock Exchange (ASX). The company has several gold mining projects both in Sweden and Finland.

Jokisivu, Huittinen Mine:

- The Jokisivu gold mine has measured, indicated and inferred gold resources of 338,500 ounces with an average mine grade of 5,7g/ton of gold. Ore from Jokisivu gold mine is sourced from the Kujankallio underground and Arpola open pits.
- Since commencement in 2009, 188,390 tons of ore have been mined and transported from Jokisivu to Vammala production centre, representing an annual production of 65,725 tons of ore with an average content of 3.80 g/ton of gold.

Orivesi, Pirkanmaa Mine:

- Since recommencing mining at Orivesi, 713,654 tons of ore have been mined from Kutema and Sarvisuo pits.
- The Orivesi gold mine has proven, probable and inferred gold reserves of 220,700 ounces of gold of which 159,200 ounces are located in Kutema deeps and 61,500 in Sarvisuo deeps with average grades of 5,7g/ton and 7,3g/ton of gold.

Source: Company website & financial statements

Polar Mining Oy	FY09	FY10	FY11
Net sales	€17,8m	€26,2m	€21,8m
EBITDA	€5,2m	€11,7m	€0,2m
EBIT	€1,9m	€7,9m	€(2,9)m
Total assets	€17,8m	€24,4m	€25,3m

Source: Financial statements

Dragon Mining Ltd. - Share price



Source: Bloomberg

Polar Mining Oy (2/3)

Vammala Production Centre, Sastamalo:

- The Vammala Production Centre is located in the Sastamala region in southern Finland within the close proximity of the operating Orivesi and Jokisivu gold mines.
- The Vammala production plant is a crushing, milling and flotation facility with a production capacity of 300,000 tons per annum. Since 2007, 899,669 tons of ore have been milled in the Vammala production centre, producing 125,365 ounces of gold. The gold produced is later refined and smelted at the Harjavalta smelter located 60 kilometres west of the plant.
- The average recovery rate of the plant was 83,4% between 2007-2011 and the cash cost, including smelter costs, has varied between 673US\$/oz in 2008 and 1042US\$/oz in 2011.

Other exploration projects:

- **Kuusamo gold project** comprises of five known gold deposits with combined indicated and inferred mineral resources of 383,500 ounces with an average grade of 5,4 g/ton of gold.
- **The Hanhima Gold Project** consists of three gold prospects, Kiimalaki, Kellolaki and Kiimakuusikko. **The Hanhima project** remains at an early stage of systematic evaluation and planned field activities may recommence in 2012.

Source: Company website & Annual reports

Polar Mining Oy	FY09	FY10	FY11
Net sales	€17,8m	€26,2m	€21,8m
EBITDA	€5,2m	€11,7m	€0,2m
EBIT	€1,9m	€7,9m	€(2,9)m
Total assets	€17,8m	€24,4m	€25,3m

Source: Financial statements

Dragon Mining Ltd. - Share price



Source: Bloomberg

Polar Mining Oy (3/3)

- **Sukseton Copper-Gold Project** consists of a series of contiguous Claims in the Sukseton area and remains at an early stage of exploration.
- **Kaapelinkulma Gold Project** is an advanced exploration project with two identified zones of gold mineralisation. The mine has indicated and inferred resources of approx. 183,000 tons of ore with average content of 4,1g/ton of gold. An Environmental Permit has been granted but the Mining Licence application remains pending.
- **The Ritakallio Gold Project** is located 5 kilometres east of the Jokisivu Gold Mine. A diamond core drilling program was completed in 2010. Field activities will not be undertaken at Ritakallio in 2012 as exploration activities are directed to areas proximal to the operating mines and key projects.
- Sampling surveys have been conducted for **the Kutuvuoma Gold project**, highlighting several gold anomalies. Dragon Mining is evaluating other options for this project as exploration activities will focus on areas close to its operating mines and key projects in Finland and Sweden.
- **Silasselkä Vanadium-Iron-Titanium Project** has shown to contain elevated levels of iron and titanium, ranging up to 40% and 10% respectively. Dragon Mining has commenced compiling historic data prior to evaluating the options available for this project.

Source: Company website & Annual reports

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Polar Mining Oy	FY09	FY10	FY11
Net sales	€17,8m	€26,2m	€21,8m
EBITDA	€5,2m	€11,7m	€0,2m
EBIT	€1,9m	€7,9m	€(2,9)m
Total assets	€17,8m	€24,4m	€25,3m

Source: Financial statements

Dragon Mining Ltd. - Share price



Source: Bloomberg

Pyhäsalmi Mine Oy

Company Introduction:

- Pyhäsalmi Mine Oy is a wholly owned subsidiary of Inmet Mining Corporation, a Canadian-based mining company that produces copper and zinc. The Company currently has three operating mines located in Turkey, Spain and Finland and one development project in Panama.

Pyhäsalmi, Pyhäjärvi Mine:

- Pyhäsalmi mining project is an underground mine located in central Finland, producing copper and zinc concentrate and some pyrite. Copper and zinc concentrate are sold under long term contracts to smelters in Finland while pyrite is sold both under contracts to customers in Europe and Asia and on the spot market.
- The mine was opened in 1962 and its expected mine life is estimated to last until 2018.
- During 2011 1,386 thousand tons of ore were milled, producing 14,000 tons of copper, 32,300 tons of zinc and 804,900 tons of pyrite. Recovery rates were 96% and 91% for copper and zinc. Cost per ton of ore milled amounted to US\$42.
- The most recent study shows that the Pyhäsalmi mine has proven and probable mineral reserves of approx. 17,1 million tons of concentrate with average content of 1,1% and 2,8% of copper and zinc.

Source: Company website & Annual Report

Pyhäsalmi Mine Oy	FY09	FY10	FY11
Net sales	€93,5m	€152,5m	€169,9m
EBITDA	€41,7m	€92,0m	€103,1m
EBIT	€36,5m	€86,4m	€97,1m
Total assets	€126,8m	€159,2m	€137,5m

Source: Financial statements

Inmet Mining Co. - Share price



Endomines Oy

Company Introduction:

- Endomines AB, a publicly listed Swedish mining company, comprises two subsidiaries; Endomines Oy and Kalvinit Oy. Endomines Oy concentrates on the exploration and development of gold deposits while Kalvinit Oy focuses on the development of industrial mineral ilmenite deposits.

Pampalo, Ilomantsi Mine:

- The Pampalo mine commenced operations in 2011 and reached full operational capacity of 230,00 tons per annum in Q3/2011.
- A total of 210,547 tons of ore with average content of 3,4g/ton of gold were processed during FY11, yielding 19,801 ounces (615,9kgs) of gold. The recovery rate amounted to 87% during FY11. The cash cost amounted to \$864/oz.
- The Pampalo mining project has proven and probable reserves of approx. 1,1 million tons of gold with average content of 3,1g/ton of gold. Additionally, the deposit has additional inferred mineral resources of 130,000 tons with average content of 3,5g/ton of gold.

Other exploration projects:

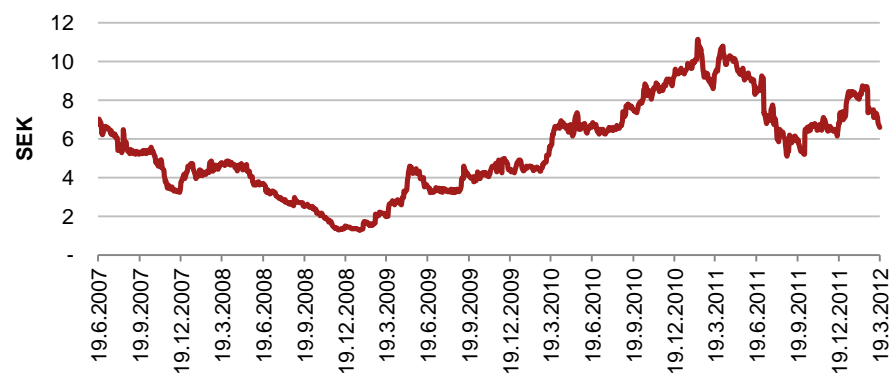
- Endomines Oy has several other gold exploration projects in Hosko, Rämepuro, Muurinsuo, Kuivisto and Kuittila.

Source: Company website

Endomines Oy	FY09	FY10	FY11
Net sales	-	-	€16,7m
EBITDA	€(0,9)m	€(2,3)m	€3,8m
EBIT	€(1,0)m	€(2,4)m	€1,2m
Total assets	€17,4m	€36,0m	€40,1m

Source: Financial statements

Endomines AB - Share price



Source: Bloomberg

Talvivaara Mining Company Plc (1/2)

Company Introduction:

- Talvivaara Mining Company Plc is a Finnish mining company with a primary focus on nickel and zinc production. The Company's main asset is the Talvivaara nickel mine located in Sotkamo. Its nickel and cobalt production is sold to Norilsk Nickel Harjavalta Oy under a 10 year off-take agreement at market prices. On 25 January 2010 Talvivaara Mining Company Plc entered into a long-term zinc Concentrate Streaming agreement with Nystar NV.
- The Company is listed on the London Stock Exchange and NASDAQ OMX Helsinki Stock exchange.

Talvivaara Sotkamo Mine:

- Talvivaara mine consists of two open-pit mining deposits, Kuusilampi and Kolmisoppi. Both mines have been subjected to prior exploration work undertaken by GSF and Outokumpu and further exploration work under Talvivaara's ownership.
- Talvivaara mine has measured and indicated resources of 1,121 million tons of ore with average nickel, zinc, cobalt, copper and uranium contents of 0,23%, 0,50%, 0,02%, 0,13% and 0,0018% respectively. The mine has additional inferred mineral resources of 429 million tons of ore.
- During FY11 11,1 million tons of ore and 17,0 million tons of waste were extracted, producing approx. 16,1 million tons of nickel and 31,8 million tons of zinc.

Source: Website & Annual reports

The Finnish Mining Industry • An Overview - 2012

PwC

Talvivaara Mining Company Plc	FY09	FY10	FY11
Net sales	€7,6m	€152,2m	€231,2m
EBITDA	€(17,7)m	€77,4m	€77,5m
EBIT	€(54,8)m	€25,5m	€30,9m
Total assets	€879,0m	€1214,5m	€1156,7m

Source: Annual report

Talvivaara Mining Company Plc - Share price



Source: Bloomberg

Talvivaara Mining Company Plc (2/2)

- The Company expects to increase its annual production of nickel and zinc in 2012 to a level between 25,0-30,0 million tons and 50-60 million tons respectively. The annual production capacity stands at 50,000 tons of nickel and 100,000 tons of zinc.
- On 1 March 2012 Talvivaara Mining Company was granted a license to extract uranium as a by-product from its existing operations. The permit is valid until the end of 2054. The start of uranium production is subject to Environmental Permit approval, which was submitted in Q1/2011.

Other exploration projects:

- Further exploration potential remains in the Talvivaara area as there are strong geophysical anomalies between known deposits. Furthermore, two and a half kilometres North from the current Kolmisoppi resource boundary there are two old diamond drill holes, which may represent an extension of the Kolmisoppi deposit.

Source: Website & Annual reports

Talvivaara Mining Company Plc	FY09	FY10	FY11
Net sales	€7,6m	€152,2m	€231,2m
EBITDA	€(17,7)m	€77,4m	€77,5m
EBIT	€(54,8)m	€25,5m	€30,9m
Total assets	€879,0m	€1214,5m	€1156,7m

Source: Annual report

Talvivaara Mining Company Plc - Share price



Source: Bloomberg

Nordic Mines Oy

Company Introduction:

- Nordic Mines Oy is a wholly owned subsidiary of Nordic Mines AB, a publicly listed mining company based in Uppsala, Sweden. The Company is listed on the OMX Nordic Exchange Small Cap list. The Company currently has three mining projects in Finland and two in Sweden.

Laivakangas, Raahe Mine:

- Laivakangas gold mine is located in Laivakangas with proven and probable ore reserves of 12,9 million tons of ore with an average gold content of 1,9g/ton.
- The mine is one of the largest gold deposits in the Nordic region, which is expected to yield 118,000 ounces (3700kgs) of gold per year. The mine shipped its first gold dore bars in December 2011 and is expected to reach full production in 2012.

Other exploration projects:

- Tormua** is a gold deposit located close to the Russian border. Based on GTK's exploration work, the deposit has an inferred mineral resource grade of 3,5g/ton of gold. The Company also holds a mining exploration license for 500 hectares located in **Kumiseva and Nuottijärvi** in which gold, platinum and palladium have been found.

Nordic Mines Oy	FY09	FY10	FY11
Net sales	-	€17k	-
EBITDA	-	€(3)k	€(436)k
EBIT	-	€(3)k	€(436)k
Total assets	-	€38,1m	€102,8m

Source: Financial statements

Nordic Mines AB - Share price



Source: Bloomberg

Source: Company website & Annual Report

Kevitsa Mining Oy (1/2)

Company Introduction:

- Kevitsa Mining Oy is a wholly owned subsidiary of First Quantum Minerals Ltd with a focus on copper, gold, nickel and sulphur production. Currently, First Quantum Minerals has two operating copper-gold mines in Zambia and Mauritania. Additionally, the Company has two development projects in Zambia, one in Australia, Peru and Finland. First Quantum Minerals is listed on the Toronto, London and Lusaka stock exchanges.

Kevitsa, Sodankylä Mine:

- First Quantum Minerals acquired the rights to Kevitsa mine through the acquisition of Scandinavian Gold Limited in 2008. The development of the mine commenced in 2009 and the mine is expected to start commercial operations in mid-2012.
- The Kevitsa mine is an open pit mine with measured and indicated resources of 240 million tons. The average nickel, nickel sulphide and copper contents are 0,30%, 0,28% and 0,41% respectively.
- The estimated nickel and copper productions amount to 10,000 tons and 20,000 tons per annum, resulting in a estimated mine life of 32 years. The Company is currently seeking approvals to increase its production to 7,5 million tons per year, potentially lifting the annual production of nickel and copper to 15,000 tonnes and 28,000 tons. Consequently, the estimated mine life would decrease by 12 years as a result of the planned production increase.

Source: Website & Annual reports

The Finnish Mining Industry • An Overview - 2012

PwC

Kevitsa Mining Oy	FY09	FY10	FY11
Net sales	-	€0,5m	€1,7m
EBITDA	€(2,1)m	€0,6m	€2,0m
EBIT	€(2,2)m	€0,5m	€2,0m
Total assets	€14,8m	€27,6m	€33,2m

Source: Financial statements

First Quantum Minerals - Share price



Source: Bloomberg

Kevitsa Mining Oy (2/2)

- The Kevitsa mining project has required capital investments of approx. US\$400 million during the course of the three-year development program.
- The estimated cash cost is US\$2,5 per pound of nickel, net of by-product credits.

Kevitsa Mining Oy	FY09	FY10	FY11
Net sales	-	€0,5m	€1,7m
EBITDA	€(2,1)m	€0,6m	€2,0m
EBIT	€(2,2)m	€0,5m	€2,0m
Total assets	€14,8m	€27,6m	€33,2m

Source: Financial statements

First Quantum Minerals - Share price



Source: Bloomberg

Kylylahti Copper Oy (1/2)

Company Introduction:

- Kylylahti Copper Oy is a wholly owned subsidiary of Altona Mining Ltd, an Australian mining company located in Perth, Western Australia. The Company currently holds two mining assets, the Outokumpu project in Finland and Roseby project in Australia. Kylylahti Copper Oy was formed in 2010 as a result of the merger between Vulcan Resources and Universal Resources. The Company is listed on the Australian Securities Exchange and the Frankfurt Stock Exchange.

Outokumpu Copper Project:

- The Outokumpu Copper project comprises of the Luikonlahti mill, two mines, and numerous deposits in the surrounding area.
- The Outokumpu Copper project has measured, indicated and inferred resources of 17,8 million tons of ore. These resources are estimated to contain 156,200 tonnes of copper, 28,800 tons of cobalt, 32,300 tons of nickel, 79,100 tonnes of zinc and a minimum 183,600 ounces of gold.
- **The Kylylahti mine** commenced the development of ore in February 2012 and made first shipments in March 2012. The milled ore is transported to Luikonlahti mill for further processing.

Source: Website & Annual reports

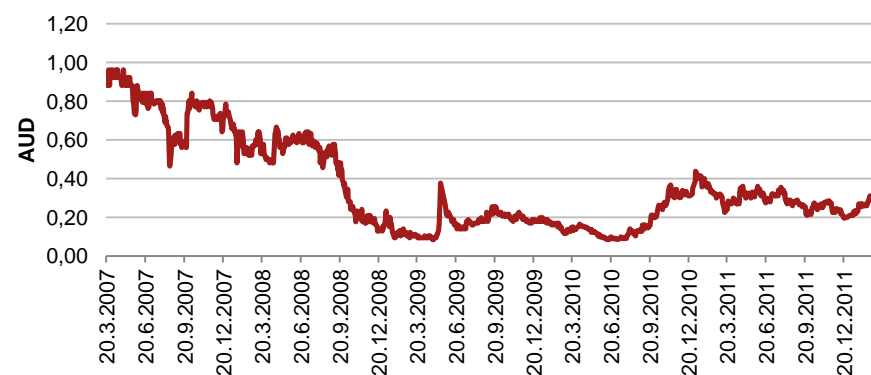
The Finnish Mining Industry • An Overview - 2012

PwC

Kylylahti Copper Oy	FY09	FY10	FY11
Net sales	€264k	€28k	€46k
EBITDA	€(0,9)m	€(0,8)m	€(1,6)m
EBIT	€(5,7)m	€(2,5)m	€(2,0)m
Total assets	€3,8m	€11,8m	€22,7m

Source: Financial statements

Altona Mining Ltd. - Share price



Source: Bloomberg

Kylylahti Copper Oy (2/2)

- Annual copper, gold and zinc production amounts are estimated at 8,000 tons, 8,400 ounces and 1,600 tons per annum. With the estimated production rates the mine will enjoy 8-9 years of mining activity.
- Mining cost at **the Kylylahti mine** is estimated to amount to €30 per ton, including trucking costs to Luikonlahti mill.
- **The Luikonlahti mill** is located 43 kilometres from the Kylylahti mine from where ore is transported to the processing plant. The plant is currently under commission and in ramp-up phase.
- **The Luikonlahti plant** has a processing capacity of 550,000 tons per annum. The capacity can be upgraded to 750,000 tons per year with a capital investment of AU\$7,5m. The Company expects to finalise the planned production expansion during Q2/2013.
- The milling costs at **the Luikonlahti mill** are estimated to amount to €11/ton.

Kuhmo Nickel Project:

- The Kuhmo Nickel project is a joint-venture between Kylylahti Copper Oy (Altona Mining Ltd.) and Polar Mining Oy (Dragon Mining Oy). The project is 95% owned by Altona Mining Ltd. The Kuhmo mining project consists of five separate deposits with combined indicated and inferred resources of 6,0 million tons grading 0,55% of nickel. Additionally, copper, cobalt, platinum and palladium are to be extracted from the Kuhmo nickel mine.

Source: Website & Company presentations

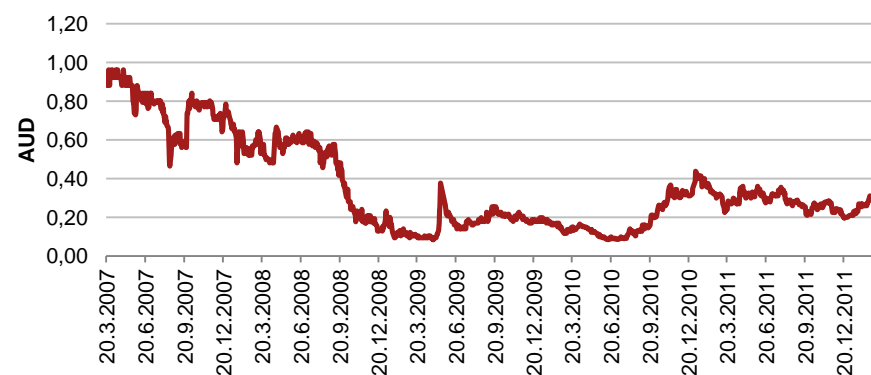
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PwC

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EBITDA	€(0,9)m	€(0,8)m	€(1,6)m
EBIT	€(5,7)m	€(2,5)m	€(2,0)m
Total assets	€3,8m	€11,8m	€22,7m

Source: Financial statements

Altona Mining Ltd. - Share price



Source: Bloomberg

Section 5

Other planned mining projects

Other planned mining projects (1/2)

Mine	Company	Parent company	Mineral	Production capacity	Reserve size	Start	Life of mine
Taivaljärvi	Sotkamo Silver Oy	Sotkamo Silver AB (SE)	Ag, Au	Ag; 1,4m ounces Au; 3,200 ounces	5m tons of ore	2013-2014	9-10 years
Hannukainen (Kolari-Pajala)	Northland Mines Oy	Northland Resources Inc (CA)	Fe, Cu/Au	Fe concentrate; 2m tons Cu/Au concentrate; 35,000 tons	166m tons	2015	14 years
Suhanko	Gold Fields Artic Platinum Oy	Gold Fields Ltd (SA)	Pd, Pt, Au, Cu, Ni	140m tons of concentrate	230m tons	Pending	10-12 years
Sokli	Yara Finland Oy	Yara International ASA (NO)	P, Nb, Ta, U	1,5m tons of concentrate	120m tons	2014-2015	2015-2035
Mustavaara	Vanadis Mines Oy	Akkerman Exploration B.V. (NL)	Fe, Ti, V	450,000 tons of concentrate	30m tons	2016	15 years
Kaustinen	Keliber Oy	Nordic Mining AS (NO)	Li	n.a.	1,3m tons	Pending	Pending
Sakatti	AA Sakatti Mining Oy	Anglo American Plc. (UK)	Cu, Ni, PGM, Au	n.a.	Pending	Pending	Pending
Rompas	Mawson Oy	Mawson Resources Ltd. (CA)	Au, U	n.a.	Pending	Pending	Pending

Source: Lapin Liitto industry reviews, company websites & annual reports

Other planned mining projects (2/2)

Mine	Company	Parent company	Mineral	Production output (p.a.)	Reserve size	Start	Life of mine
Kaavi, Lahtojoki	Mantle Diamonds Finland Oy	Mantle Diamonds Ltd. (UK)	Diamonds	600 tons of concentrate	11,65m tons	Pending	Pending
Juomasuo, Kuusamo	Polar Mining Oy	Dragon Mining Ltd. (AU)	Au, Co	Pending	Pending	Pending	Pending

Source: Lapin Liitto industry reviews, company websites & annual reports

Appendix 1

Other financial information

Revenue of mining industry companies

Mining industry (metals) - Sales 2002-2011

€ in millions	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Additional information
Agnico-Eagle Finland Oy	-	-	-	-	-	-	-	-	68,8	163,2	Commercial production commenced at the end of 2009
Belvedere Mining Oy	-	-	-	-	-	-	-	-	7,7	22,6	Belvedere acquired Hitura mine from Finn Nickel 13.3.2010
Lapland Goldminers Oy	-	-	-	-	0,0	-	0,7	10,7	20,1	27,0	Pahtavaara mine acquired during 2007 from ScanMining Oy
ScanMining Oy	-	0,6	9,2	14,1	14,9	n.a.	-	-	-	-	Pahtavaara mine acquired during 2003 from Terra Mining Oy
Outokumpu Chrome Oy	103,3	121,2	158,3	164,8	172,2	186,3	245,1	103,7	265,2	227,9	Operations have commenced in 1967
Outokumpu Mining Oy	n.a.	23,7	17,2	17,3	14,8	10,5	-	-	-	-	Operations have commenced in 1994
Hitura Mining Oy	-	-	-	-	-	10,4	-	-	-	-	Hitura mine demerged from Outokumpu Mining 25.6.2007
Finn Nickel Oy	-	-	-	-	0,0	5,0	19,0	n.a.	-	-	Hitura mine acquired 1.1.2008 from Hitura Mining
Polar Mining Oy	-	-	3,0	0,4	0,9	5,7	15,1	17,8	26,2	21,8	Orivesi mine acquired in 2007 from Outokumpu Mining; Jokisivu mine commenced operations in 2009
Pyhäsalmi Mine Oy	51,8	54,7	72,1	87,9	146,6	143,7	121,1	93,5	152,5	169,9	Pyhäsalmi mine acquired during 2001 from Outokumpu
Endomines Oy	0,1	0,0	0,0	0,1	-	0,0	0,0	-	-	16,7	Operations have commenced in 2011
Talvivaara Oyj	-	-	-	-	-	-	-	7,6	152,2	231,2	Operations have commenced in Feb 2009
Nordic Mines Oy	-	-	-	-	-	-	-	-	0,2	-	Operations will commence in 2012
Kevitsa Mining Oy	-	-	-	-	-	0,3	0,1	-	0,5	1,7	Operations have commenced in 2012
Kylylahti Copper Oy	-	-	-	-	0,0	0,1	0,2	0,3	0,0	0,0	Operations have commenced in 2012
Total	155,2	200,2	259,8	284,7	349,5	362,0	401,4	233,6	693,3	882,0	

Source: PwC, Company statements

Appendix 2

Glossary

Glossary of terms and abbreviations

Term	Definition
Ag	Silver
Au	Gold
bn	Billion
Co	Cobalt
Cr	Chrome
Cu	Copper
EIA	Environmental Impact Assessment
Fe	Iron
Lt	Lithium
m	Million
Nb	Niobium
Ni	Nickel

Glossary of terms and abbreviations

Term	Definition
Oz	Ounce
P	Phosphorus
Pd	Palladium
PGM	Platinum Group of Metals (Platinum, Palladium, Rhodium, Ruthenium, Iridium and Osmium)
Pt	Platinum
S	Sulphur
Ta	Tantalum
Ti	Titanium
U	Uranium
Zn	Zinc
V	Vanadium

Appendix 3

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Contacts

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