# **Copperstone Resources**

Materials Sweden

#### **KEY DATA**

Stock country	Sweden
Bloomberg	COPPB SS
Reuters	COPPb.ST
Share price (close)	SEK 1.28
Free Float	100%
Market cap. (bn)	EUR 0.03/SEK 0.31
Website	www.copperstone.se
Next report date	22 Nov 2018



#### VALUATION APPROACH



Source: Nordea estimates

#### ESTIMATE CHANGES

Year	2018E	2019E	2020E
Sales	0%	0%	0%
EBIT (adj)	0%	0%	0%

Source: Nordea estimates

#### Nordea Markets - Analysts Christian Kopfer

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### In position to ride the copper wave

With a solid copper market outlook – boosted by increased demand in emerging markets, an expected ninefold increase in the global fleet of electric vehicles in the coming ten years and a project pipeline that has hit historical lows – we believe that Copperstone is well-positioned at the forefront of porphyry copper exploration.

#### Long mining heritage supports a sustainable energy future

Copper is a crucial component for green energy. The world's transition to renewable energy and the growing sustainability mandate among investors are setting the stage for copper prices to perform solidly over the next decade. An investment in Copperstone Resources gives exposure to copper mineral assets with considerable upside in Scandinavia, which has greater geopolitical stability than many other major mining locations. As a copper explorer operating in a region with a long heritage of mining, Copperstone Resources is focusing its prospecting efforts on its namesake flagship project. Our base case is that the company will hold around 200 Mt at a copper grade of 0.37%. Its growth potential is also boosted by its pending acquisition of Viscaria.

#### Geographic location close to existing infrastructure

Copperstone's resources are strategically located close to existing infrastructure, including roads, railways and electricity. We believe that having properly functioning infrastructure, including Boliden's Rönnskär copper smelter, close to the resource is essential and limits future capex needs. In addition, we believe that operating in a country (Sweden) with limited political risk is positive and should be factored into valuation. Comparing Copperstone with its peer group, we believe that the company has the one of the best geographical footprints, with all of its properties near one another in a stable and low tax jurisdiction.

#### Upside potential in Viscaria

In our valuation approach for Copperstone, we apply a low-to-high tonnage range to each exploration site, as well as the probable grades. We believe that the largest potential in terms of tonnage and contained metal lies in Granliden, followed by Svartliden. We base our fair value range on a probability-weighted relative valuation approach, based on an EV/resource multiple that is supported by our junior prospecting peers. Based on the relative valuation approach, we estimate a fair value range of SEK 1.2-2.1. We have not incorporated any cost synergies for the pending Viscaria acquisition into our estimates, which potentially could offer additional upside to our valuation.

#### SUMMARY TABLE - KEY FIGURES

SEKm	2014	2015	2016	2017	2018E	2019E	2020E
Total revenue	1	0	0	0	0	0	0
EBITDA (adj)	-7	-1	-7	-8	-6	-5	-4
EBIT (adj)	-16	-2	-9	-8	-6	-5	-4
EBIT (adj) margin	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.
EPS (adj)	-0.26	-0.03	-0.08	-0.03	0.01	-0.02	-0.02
EPS (adj) growth	36.8%	88.5%	-170.2%	59.9%	126.3%	-358.8%	21.7%
DPS (ord)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EV/Sales	15.2	539.6	802.9	22,720.5	n.m.	n.m.	n.m.
EV/EBIT (adj)	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.
P/E (adj)	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.
P/BV	0.4	1.9	2.5	4.0	3.8	3.4	3.0
Dividend yield (ord)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
FCF Yield bef acq & disp	-96.5%	-23.6%	-23.6%	-8.9%	-1.7%	-7.2%	-7.4%
Net debt	0	2	7	-19	-30	-23	-15
Net debt/EBITDA	0.0	-1.9	-1.0	2.5	4.7	4.2	3.7
ROIC after tax	-66.0%	-6.8%	-32.2%	-20.2%	-12.4%	-8.3%	-4.8%

# Contents

Valuation	3
Factors to consider when investing in Copperstone Resources	8
Potential risks	12
Company overview	14
The lifecycle of a mine	29
Market outlook	37
Historical financials	45
Estimates	49
Sustainability	51
Reported numbers and forecasts	55
Disclaimer and legal disclosures	58

# Valuation

We base our fair value range on a probability-weighted relative valuation approach based on an EV/resource multiple supported by our junior prospecting peers. Based on the relative valuation approach, we derive a fair value range of SEK 1.2-2.1 per share, corresponding to upside of 0-65%.

### Valuation approaches for mineral properties

Income- or cash flow driven approach

This type of method is based on a determination of the present value of future cash flow or through a multiple approach, such as EV/EBITDA or P/E over the future life of the mine or property.

#### **Discounted cash flow**

A discounted cash flow (DCF) analysis is one of the most common means to evaluate the intrinsic value of a business. All future cash flows are estimated and discounted by using weighted cost of capital (WACC) to give their present values. The WACC takes into account the expected return for both the equity and bondholders of a company. A DCF valuation includes the following steps: 1) discount a company's free cash flow at WACC to derive the company's total enterprise value (EV); 2) identify which parts of the total enterprise value are related to debtholders and non-equity claims; and, 3) deduct all components that are not related to the equity holders' claim to derive the equity value for the company. The equity value is then divided by the number of outstanding shares to achieve a DCF-based share price.

In our view, this type of analysis is not the most appropriate valuation method for exploration properties. It is more suitable for development- and production properties for which the input variables are more certain and the complete mine lifecycle can be taken into account.

#### Market-driven analysis

Market-driven analysis values a property in relation to or compared with other similar transactions or properties on an open market. This is also known as relative valuation.

#### **Comparable transactions**

Comparable transaction methods are commonly applied to all types of mineral properties (both exploration and production). This method is based on the valuation of similar M&A transactions benchmarked against each other to examine what the market is willing to pay for the specific asset. Factors that should be considered when applying this valuation method include: the potential for existence and discovery of an economic deposit; mineralisation, including results and targets; and, infrastructure, including water and energy supply.

This valuation method is dependent on several factors, such as the area and location of an exploration property. This is a premium for companies established in mining areas driven by high perceived potential for discovery of mineral deposits and wellfunctioning infrastructure. More remote geographical areas, such as some parts of the Andes or deep underground, are valued at a discount owing to difficult extraction. Other factors could offset the discount, such as a high ore grade.

In Copperstone's case, we have seen an increasing amount of relevant market transactions globally. The most recent was Spearmint Resources' acquisition of NEBA West, a prospecting company in the golden triangle of British Columbia; however, as no defined resources were found, we have not included this transaction in our valuation of Copperstone. Other relevant transactions include BHP buying into SolGold's Ecuador copper project (a USD 35m stake) and Zijin Mining's all-cash agreement to acquire Nevsun for USD 1.41bn.

The flipside with a comparable transaction valuation approach is that all exploration property is unique in its specific geology, mineralisation and cost base, which could mislead the valuation multiples. In addition, as the industry is highly cyclical, the number of relevant transactions will be limited during periods of low commodity

DCF analysis is not the most appropriate valuation method for exploration properties and is more suitable for development- and production properties for which the input variables are more certain

Comparable transaction methods are commonly applied to all types of mineral properties (both exploration and production)

Increasing number of relevant market transactions globally

#### prices.

Investors should focus on EV/ resource multiples, EV/MI, EV/ inferred and EV/total resource...

...which take into account the company's balance sheet as well as the mineral resource classification

We believe that the largest potential – in terms of both tonnage and contained metal – is in Granliden, followed by Svartliden

We have not taken into account any realisation of cost synergies from the acquisition of Viscaria

We consider an EV/resource multiple of USD 50/t appropriate for both Granliden and Svartliden, in line with the peer group

#### Relative valuation the most relevant approach

We consider the relative valuation approach the most relevant method for valuing Copperstone. High market consolidation has resulted in several comparable M&A transactions for companies similar to Copperstone. In addition to the M&A transactions, we support the valuation by using a peer group consisting of global mineral explorers with multi/commodity mineralisation including Cu, Au and Ag.

In terms of multiples, we believe that investors should focus on EV/resource multiples, which take into account the company's balance sheet as well as the mineral resource classification. We prefer the relative valuation method over a discounted cash flow model in this case owing to the high uncertainty in the company's input variables.

Our peer group consists of nine junior exploration companies with the same type of mineralisation (ie porphyry and with almost the same metals, including Cu, Au and in some cases Ag). As mentioned, the mineralisation and metal types are crucial to conduct a proper comparison. Geographically, our peer group is diverse, as a handful of the companies are operating in South America, while Nevsun and Copperstone are the only ones based in Europe. In our view, Copperstone is exposed to significantly lower political risk than the peer group.

In our valuation approach for 'standalone Copperstone' (ie excluding Viscaria), we apply a tonnage range from low to high for each exploration site, as well as the probable CuEq (%). We believe that the largest potential in terms of both tonnage and contained metal is in Granliden, followed by Svartliden and EVA. Based on current levels, and discussions with company management, we estimate a tonnage range for Granliden of 5 million tonnes at the lowest range and 350 million tonnes at the upper end of our range. As the company will provide new drilling results in mid-H2, we believe that the upper-range value has a higher probability of being correct than the lower-range value.

Granliden has the highest level of CuEq (%) compared with the total weighted average of 0.37% and compared with 0.35% in Svartliden and 0.20% in EVA.

#### Is Viscaria a value-accretive acquisition?

Copperstone has estimated a tonnage range for Viscaria of 30-76 million tonnes at a CuEq of 1.2%, which implies a contained metal range of 0.4-0.9 million tonnes. We consider a EV/resource multiple of USD 40/t fair, implying some discount to the peer group multiples. In our view, the discount can be justified by a slightly higher need for infrastructure and a significantly higher burn-rate of around SEK 100m until 2020. The multiple valuation implies a value range of SEK 146-368m. In our valuation approach below, we use the mid-range value of SEK 243m (excluding the acquisition cost).

Viscaria is located close to other known Cu porphyries including Aitik, which is the largest Cu-Au open pit mine in Europe with proven resources of 823 million tonnes at 0.23% Cu and 0.15 g/t Au. As Copperstone's acquisition of Viscaria has not closed yet, we have not taken into account any realisation of cost synergies at this time.

We consider an EV/resource multiple of USD 50/t appropriate for both Granliden and Svartliden, whereas we apply a multiple of 0 for EVA and Copperstone's other properties. The USD 50/t multiple is in line with our peer group median. We argue that valuation in line with the peer group is justified by Copperstone's low political risk, proximity to existing mines (Boliden area), and favourable royalties and taxation compared with some peers operating in Argentina, Chile etc. When examining the peer group multiples, we find a clear correlation between the exploration maturity and a higher multiple. Nevsun Resources, which already has a mine operation up and running and mature exploration properties with low political risk, is rewarded with an EV/ resource of USD 88/t, a premium versus the peer group of around 100%.

When it comes to Copperstone's EVA and 'Other operations', we take a defensive position and pencil in a zero value owing to early-phase exploration properties, and as we believe the estimated tonnage volumes currently are too low for commercial production. Nevertheless, we would consider positive drilling results as offering upside to our estimates, which could result in ascribing a value to this property. Based on our low/base/high scenarios for standalone Copperstone excluding probability weighting, we derive fair value ranges between SEK 0.1 and SEK 3.3 per share. The low case reflects the risk of not finding enough minerals to proceed to the production phase. We argue that the low/base/high scenarios need to be probability-weighted and include Viscaria in order to factor in the likelihood of reaching our main scenario.

- In our low scenario, we apply 30% probability to the low scenario materialising, 60% to the base scenario and 10% to the high scenario; accordingly, we derive a fair value of SEK 1.2 per share. Viscaria represents SEK 0.04 per share.
- In our base scenario, we apply 10% probability to the low scenario, 60% to the base scenario and 30% to the high scenario, thereby deriving a fair value of SEK 1.8 per share. Viscaria represents SEK 0.04 per share.
- In our high scenario, we apply a 5% weight to the low scenario, 55% to the base scenario and 40% to the high scenario, thereby reaching a fair value of SEK 2.1 per share. Viscaria represents SEK 0.04 per share.

# TOTAL EFFECTIVE TAX RATE FOR A COPPER MINE IN SELECTED COUNTRIES

Sweden	22%
Chile	37%
Argentina	40%
Papua New Guinea	43%
Zimbabwe	40%
Philippines	45%
South Africa	45%
Greenland	50%
Kazakhstan	46%
Westen Australia	36%
China	42%
US (Arizona)	50%
Indonesia	46%
Tanzania	48%
Ghana	54%
Peru	47%
Bolivia	43%
* As of 2010	

#### EV/RESOURCE FOR PEER GROUP, USD/T



Source: Company data, Thomson Reuters and Nordea estimates

Source: OECD

#### PEER GROUP VALUATION

	Тс	onnage.	Mt	CuEa	Contai	ned metal.	Cu. Mt	EV/Resou		EV. SEKm	1	Value	oer share	. SEK	
SOTP, standalone	Low	Base	High	(%)	Low	Base	High	USD/t	Low	Base	High	Low	Base	High	
Granliden	5.0	120	350	0.4%	0.0	0.5	1.3	50	8.6	205	599	0.0	0.8	2.3	
Svartliden	5.0	80	150	0.4%	0.0	0.3	0.5	50	7.9	126	236	0.0	0.5	0.9	
EVA	5.0	5.0	8.0	0.2%	0.0	0.0	0.0	0	0.0	0	0.0	0.0	0.0	0.0	
Other	0.0	0.0	0.0	0.1%	0.0	0.0	0.0	0	0.0	0	0.0	0.0	0.0	0.0	
Total	15	205	508	0.4%	0.0	0.7	1.9	49	16	331	835	0.1	1.3	3.2	
Net Debt											-7			0	
Minorities											0			0	
Total EV									24	339	842	0.1	1.3	3.3	
Total shares outstanding	, millions													257	
Current shareprice, SEK														1.2	
Upside to shareprice, (	%)											-92%	10%	173%	

				EV	Contai	ned metal,	Cu	EX	(%	)	EV/Resource
Peer multiples	Mineralisation	Metal	Location	USDm	M&I	Inferred	Total	M&I	Inferred	Total	USD/t
Nevsun	Porphyry	Cu, Au	Serbia	992	1.26	10.0	11.3	11%	89%	100%	88
SolGold	Porphyry	Cu, Au	Equador	608	3.4	4.2	7.6	45%	55%	100%	80
NGEX Resources	Porphyry	Cu, Au, Ag	Chile/Argentina	171	10.9	4.6	15.5	71%	29%	100%	11
Filo Mining	Porphyry	Cu, Au, Ag	Chile/Argentina	120	1.8	0.7	2.5	71%	29%	100%	47
Regulus Resources	Porphyry	Cu, Au	Peru, US etc	107	0.34	2.90	3.2	10%	90%	100%	33
Western Copp and Gold	Porphyry	Cu, Au, Ag	Canada	65	5.54	6.36	11.9	47%	53%	100%	6
Xanadu Mines	Porphyry	Cu, Au	Mongolia	51	0.35	0.73	1.1	32%	68%	100%	47
Cordoba Mines	Porphyry	Cu, Au	Colombia	22	0.26	0.21	0.5	56%	44%	100%	47
Kaizen Discovery	Porphyry	Cu, Au	Peru	16	0.26	0.22	0.5	54%	46%	100%	32
Median				107	1.3	2.9	3.2	0.5	0.5	1.0	47
Average				239	2.7	3.3	6.0	0.4	0.6	1.0	43
Implied discount, med	ian (%)										
Granliden	7%	,									
Svartliden	7%	1									
Implied discount, aver	age (%)										
Granliden	15%	)									
Svartliden	15%										

\* Nevsun is adjusted for minorities

Source: Company data, Thomson Reuters and Nordea estimates

As the graph above indicates, we find that the largest value in Copperstone lies within Granliden and Svartliden.

### Peer group description

Below, we provide a brief description of the peer companies that we find to be most relevant for a comparison with Copperstone.

#### **NGEx Resources**

NGEx Resources is engaged in the acquisition, exploration and development of mineral properties in South America. The company's main project is Project Constellation, which consists of mines at Los Helados and Josemaria. Both mines are in the exploration stage for copper, gold or silver, and are located in Chile and Argentina. NGEx has copper-gold projects in Chile and Argentina. Josemaria is located in San Juan, Argentina, whereas Los Helados is located approximately 125 km southeast of Copiapo. Josemaria is located in the Andes Mountains, Argentina, and over 130 km southeast of Copiapo. The company's copper-gold mineralisation at Josemaria is associated with a porphyry intrusive complex of the late Oligocene that intrudes rhyolites and tonalities of presumed Permo-Triassic age.

#### **Filo Mining**

Filo Mining is a Canada-based mineral exploration company. The company has interest in the Filo del Sol Project located in Argentina's San Juan Province and Chile's Region 3. The project is located around 100 km southeast of Copiapo, Chile. The Filo del Sol Project consists of mineral titles in both Chile and Argentina; those in the former are referred to as the Filo del Sol property, while those in the latter are referred to as the Tamberias property. The Filo del Sol Project is in a high-grade copper-gold-silver system. It is based on drill holes of approximately 3 km in a north-south direction and 1 km in an east-west direction. The total project area is approximately 16,000 hectares.

#### SolGold

SolGold is geographically focused on the North Andean Copper Belt in Ecuador

SolGold is an Australia-based copper and gold exploration company. The company is geographically focused on the North Andean Copper Belt in Ecuador. The company has several class intersections of copper and gold mineralisation from its project Cascabel.

gold projects in Chile and Argentina

Filo del Sol Project is in a high-

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NGEx Resources has copper-

Xanadu Mines has several advanced exploration projects in Mongolia's underexplored south region

Cordoba Minerals is engaged in the acquisition, exploration and development of precious and base metal properties

Kaizen Discovery focuses on exploration in South America, home to many of the world's largest and most profitable copper and gold deposits

Regulus Discovery is a Canadabased mineral exploration company

Nevsun Resources' principal mining operation is the Bisha Mine The company also has assets in Ecuador and Australia. The Cascabel Project is a porphyry copper-gold deposit located in the northwestern Ecuador.

#### Xanadu Mines

Xanadu Mines is a copper and gold exploration company with several advanced exploration projects in Mongolia's underexplored south region. Xanadu Mines controls one porphyry copper-gold project in Asia called Kharmagtai, and has an expanded portfolio of exploration projects, including Red Mountain and Yellow Mountain. The company's vision and growth strategy aim to: create shareholder value through conversion of exploration projects in the Sough Gobi of Mongolia into mineable deposits through discovery of high value copper, gold and gold resources; and, build and maintain a portfolio of highly prospective copper-gold projects through acquisitions or partnerships utilising its knowledge of Mongolia.

#### **Cordoba Minerals**

Cordoba Minerals is a Canada-based exploration and development company with exploration projects in Colombia. The company is engaged in the acquisition, exploration and development of precious and base metal properties. It holds interest in the San Matias Copper-Gold Project, which is an early stage exploration project that is located approximately 200 km north of the city of Medellin. The San Matias Project consists of a land package of approximately 20,000 hectares on the inferred northern extension of the Mid Cauca Belt, located in the Municipality of Puerto Libertador, in the Department of Cordoba, Colombia. It holds interest in the Alacran Copper-Gold Project (Alacran), which is located within a ~390-hectare mining title in the northern central parts of the San Matias Project. Its Alacran is located approximately 2 km southwest of its Montiel discovery.

#### **Kaizen Discovery**

Kaizen Discovery's purpose is to build shareholder value through the discovery of mineral resources. Kaizen focuses on exploration in South America, home to many of the world's largest and most profitable copper and gold deposits. Kaizen was founded in 2013 through a combination of Concordia Resource and assets acquired from HPX, a subsidiary of High Power Exploration. HPX is a metals-focused exploration company deploying proprietary geophysical technologies to evaluate buried targets rapidly.

#### **Regulus Discovery**

Regulus Resources is a Canada-based mineral exploration company. The company is engaged in the exploration and development of exploration and evaluation assets. The company holds a ~50% interest in the Rio Grande copper-gold porphyry project in Argentina, held through its subsidiary. In addition, the company owns an option to earn an interest in the AntaKori Project through option agreements executed by its Peruvian subsidiary.

#### **Nevsun Resources**

Nevsun Resources is a base metals company with two main principal properties in Serbia and Eritrea. The company's principal mining operation is the Bisha Mine. The Timok Project is located in eastern Serbia near the Bor Mining and Smelting complex. In addition, the company owns the 'New Mogoraib River Exploration License', which covers an area of 630 km<sup>2</sup>, and the 'Tabakin Exploration License', covering 184 km<sup>2</sup>; both are adjacent to the 'Bisha Mining License'.

# Factors to consider when investing in Copperstone Resources

We see several positive factors to consider when investing in Copperstone and the Copperstone project, particularly the project's attractive geographical location, with its close proximity to infrastructure and other producing mines, and the vast geological database that has been built up as part of the region's history. We also see several risks related to copper mining in general, as well as to Copperstone and the Copperstone project, such as a declining copper price on the global market, or a negative outcome in the EVA concession appeal.

The Copperstone project's location is attractive, being in a low-risk country like Sweden with close proximity to wellfunctioning infrastructure

#### Attractive geographical location

Copperstone's resources are strategically located close to existing infrastructure including roads, railways and electricity. We believe that well-functioning infrastructure close to the resource is essential and limits future capex needs. In addition, we believe that being present in a country (Sweden) with limited political risk is positive and should be taken into consideration when valuing the company. Comparing Copperstone with the peer group, we estimate that the company has one of the best geographical footprints, with all of its projects being within a short distance of each other, including Boliden's copper smelter Rönnskär.



Source: Company data

#### The Copperstone project – an area with a long geological history

The area where the Copperstone project is located, the Skellefte field, has been explored and drilled since the 1920s. Having been operational for such a long period, the field offers a wealth of geological data, enabling a vast database to be compiled. We believe that this can benefit Copperstone, as understanding the region's geology is vital in determining the probability of finding mineral resources. It might also be of help when trying to locate the core of systems as large as those typical for porphyry copper.

#### Advantageous Swedish mine taxation

The taxation of mining has frequently provoked controversy and discussion globally, often regarding royalty tax. Royalty tax is unique and can manifest itself in a wide variety of forms, including being based on profitability, quantity of material produced or its value. The purpose of a royalty tax is generally two-pronged: 1) it is a payment to the owner of the land in return for the removal of minerals from the land; and, 2) it gives the company the right to develop the resource for its own benefit.

Swedish taxation of a copper mine is favourable in a global context

There is a vast geological

database for the area where

Copperstone project is located

As shown in the table below, Sweden can be considered as one of the more favourable countries globally in terms of taxation of a copper mine. The Swedish effective tax rate for a general copper mine (22%) is almost in line with the Swedish tax rate (21%),

implying a royalty tax of 0.6%. Copperstone on a standalone basis is a local Swedish operation based in Västerbotten County in the north of the country and therefore is subject to lower taxation compared with the peer group. If we were to include the prospective acquisition of Viscaria, which has a broader footprint including a project in Bramaderos in Ecuador, this would have a slightly negative tax effect in the long term. It should be kept in mind that taxation is only applied if a company reaches the production phase.

TOTAL EFFECTIVE TAX RATE FOR A COPPER MINE IN SELECTED COUNTRIES*	
Sweden	22%
Chile	37%
Argentina	40%
Papua New Guinea	43%
Zimbabwe	40%
Philippines	45%
South Africa	45%
Greenland	50%
Kazakhstan	46%
Westen Australia	36%
China	42%
US (Arizona)	50%
Indonesia	46%
Tanzania	48%
Ghana	54%
Peru	47%
Bolivia	43%
* As of 2010	

Source: OECD

#### Close to well-known porphyry deposits

Besides easy access to infrastructure, Copperstone's geographical location is also favourable because its projects are close to other well-known copper porphyries, including Aitik and Laver. Aitik is the largest Cu-Au open pit mine in Europe with proven resources of >800 million tonnes with 0.23% Cu and 0.15 g/t Au. Laver, owned by Boliden, is probably the most similar copper porphyry to Svartliden and Granliden, located with the same tectonic setting and having similar host rocks. Laver has 1.1 million tonnes of measured resources, 512 million tonnes indicated, and 550 million tonnes inferred at Cu 0.20, 0.22 and 0.21%.

In addition to the above, the Copperstone project is located close to Boliden Rönnskär in Skelleftehamn, one of the world's most efficient copper smelters. The smelter receives copper deliveries from Boliden mines and external suppliers, and it extracts Cu, Au and Ag from their materials.

The project is located close to regions with known copper porphyries



#### Upside in the Viscaria acquisition

In August 2018, Copperstone signed a non-binding letter of intent to acquire Viscaria from Sunstone Metals Australia. We believe that the potential acquisition of Viscaria could create positive upside for Copperstone, as it can provide Viscaria with a local presence, which we consider very important in the field of prospecting. The Viscaria copper project in Sweden is a high-quality project with over 600 kt of resources and interesting exploration upside. Furthermore, we see potential from cost synergies with the current resources, which could provide for a common mill, although we do not yet include such synergies in our estimates.

#### Synergy potential from EVA exploitation concessions

For the EVA deposit inside the Copperstone project, the company was previously granted a 25-year exploitation concession in November 2017, although this is currently under appeal with the Swedish government. The company views the outlook for the decision on the objection as positive. We believe that an exploitation concession at EVA would create good potential for synergies between EVA and Svartliden/Granliden relating to future mining and sustainability. In addition, having a fully-approved exploitation concession in one of the country's exploration areas of interest would be positive for the company and might generate future cash flows, we argue.

#### Key risk factors to consider when investing in Copperstone

We believe the following company-specific risk factors should be considered when investing in Copperstone. The purpose of this is not to provide a comprehensive picture of all of the risks that the company may face, but rather to highlight those that we find most relevant.

An acquisition of Viscaria could create positive upside for Copperstone

Having a fully-approved EVA concession could create synergies with the Svartliden concession

Mining is an industry associated with risk

- Prospecting is an industry where the reward for potential mineral resource discoveries needs to be weighed against the risk of no or immaterial discoveries. The exploration risk inherent in the mining industry can go both ways. Copperstone's advantage is that its Copperstone project is situated in a relatively well-known area from an exploration point of view.
- The profitability of mining companies, Copperstone's included, depends heavily on price levels in the global metals market. In the event of the company discovering significant mineral resources, the value of those discoveries would still be highly dependent on the future price of the commodity; in Copperstone's case, this would primarily be the price of copper. It is therefore important to Copperstone that global demand for copper remains high.
- Deep core drilling is expensive and consumes a lot of capital. Porphyry systems can stretch for several kilometres, and finding the core, which contains the highest grade of copper, can require a lot of drilling. This puts Copperstone in a position where it needs to be able to raise capital to fund its operations. This has historically been done through the equity capital markets and it is likely that the company will need to be able to do so in the future too. If not, it risks coming to a standstill.
- If the outcome of the objection to Copperstone being awarded the EVA concession turns out to be negative, Copperstone might miss out on synergy potential with its Svartliden/Granliden exploitation concession related to, for example, sustainability and future mining operations, as well as potential cash flows from the EVA area.

# **Potential risks**

The mining industry regularly experiences volatility. Although junior mining stocks have strong profit potential, they entail higher risk than more established players. Most exploration projects will not generate any revenue, even though a significant amount of capital is invested in them. This is one of the inherent risks of this industry. We discuss the key risk factors and potential concerns investors face when investing in Copperstone. The purpose of this is not to provide a comprehensive picture of all of the risks that the company may be subject to, but rather to highlight those that we find most relevant.

Commodities are known for a higher level of volatility versus other assets

#### Price volatility of commodities

Recognised as one of the most volatile asset classes, commodities fluctuate on a daily basis and are affected by numerous factors including:

- Speculative positions taken by investors;
- Recession or reduced economic activity in major industrialised or developing countries;
- Decreased industrial, jewellery or investment demand;
- Increased import and export taxes;
- Increased supply from production, disinvestment and scrap;
- Forward sales by producers in hedging or similar transactions; and
- Availability of cheaper substitute materials.

#### **Exploration risks**

Copperstone is a junior mining company focused on exploration and mine development. The exploration for natural resources and the development and production of mining operations are activities that involve a high level of uncertainty. Additionally, risks inherent in exploration primarily include successful exploration and identification of ore reserves. Data indicates that only one in every 3,000 potential mines ever makes it from the early developmental stages to actual production.

Factors that contribute to risks that are associated with exploration may include:

- Poor access to exploration areas as a result of remoteness or difficult terrain;
- Poor weather conditions over an extended period which might adversely affect mining and exploration activities and potentially the timing of revenue;
- Unforeseen major failures, breakdowns or repairs of major exploration equipment and vehicles, mining plant and equipment or mine structure resulting in significant delays, despite regular repair, maintenance and upkeep;
- The mining industry has been impacted, from time to time, by increased demand for critical resources such as input commodities, drilling equipment, trucks, shovels and tires. These shortages may impact the efficiency of the operations, and result in cost increases and delays in construction of projects and thereby impacting operating costs, capital expenditure and production and construction schedules.

#### Pricing and financial estimates uncertainty

A common valuation technique for mining stocks is to look at the value of mineral resource of the company versus its enterprise value. In a favourable price environment, many junior mining stocks can soar without any change in operations. However, when metals prices are subdued, junior stock performance can come under significant pressure.

In the meantime, mine development projects typically require longer timelines and significant expenditure during the development phase before production is possible. The projects could experience unexpected problems and delays during development, construction and mine startup. Therefore, estimates for development projects are uncertain, such that higher costs and lower economic returns than estimated may incur. The decision to develop a project is typically based on the results of feasibility studies, which estimate the anticipated economic returns of a project. The actual project

There are inherent risks in the exploration business

Road access, weather conditions and machinery failure are among the risks associated with exploration

Mining companies, especially junior miners like Copperstone, are price sensitive

The actual project profitability or economic feasibility are subject to uncertainties A wide range of factors can contribute to the deviation from economic estimates

Mineral estimates are also main source of uncertainty

Data from feasibility studies may become out of date due to the longer timeline to production

Financial position of the company may be materially impacted if actual mineral reserves are less than originally estimated

Mining is a capex-intensive business

The company's access to funding may be constrained due to such factors as depressed copper price and soft economic conditions

Drilling for porphyry copper requires a lot of capital

profitability or economic feasibility may differ from estimates as a result of a wide range of factors:

- Changes in tonnage, grades and metallurgical characteristics of ore to be mined and processed;
- Delays in obtaining environmental or other regulatory permits or approvals or changes in the laws and regulations related to project development;
- The quality of the data on which engineering assumptions were made;
- Weather or severe climate impacts, including prolonged or unexpected precipitation and/or sub-zero temperatures;
- Adverse geotechnical conditions;
- Potential delays relating to social and community issues, including, without limitation, issues resulting in protests, road blockages or work stoppages;
- Potential challenges to permits or other approvals or delays in development and construction of projects based on claims of disturbance of cultural resources.

#### Minerals estimates uncertainty

Estimates of proven and probable reserves are subject to considerable uncertainty. Such estimates are largely based on the prices of gold and copper and interpretations of geologic data obtained from drill holes and other exploration techniques, data which may not necessarily be indicative of future results.

Feasibility studies are used to derive estimates of capital and operating costs based on anticipated tonnage and grades of ore to be mined and processed, the predicted configuration of the ore body, expected recovery rates of metals from the ore, the costs of comparable facilities, the costs of operating and processing equipment and other factors. But actual operating and capital cost and economic returns on projects may differ significantly from original estimates. Additionally, it may take years from the initial phases of exploration until production, so the economic feasibility of production may change during that time.

In addition, if the price of gold or copper declines from recent levels, if production costs increase or recovery rates decrease or if applicable laws and regulations are adversely changed, the indicated level of recovery may not be realised, or that mineral reserves or mineralised material may not be mined or processed profitably. Consequently, if the actual mineral reserves and mineralised material are less than current estimates, the business, operational outlook and financial position may be materially impaired.

#### **Funding risk**

While the recovery of the global economy and commodity prices led to increased investor confidence, the mining business requires substantial capital investment. Potential future projects and exploration projects entail significant funding. The company's operating cash flow and other sources of funding may become insufficient to meet all of these requirements. As a result, new sources of capital may be needed to meet the funding requirements of these investments.

The company's ability to raise significant new sources of capital will be a function of future metals prices, financial market conditions, its operational performance and its financial position, among other factors. In the event of lower gold and copper prices, unanticipated operating or financial challenges, or a further dislocation in the financial markets as experienced in recent years, the business' ability to invest in existing and new projects, fund the ongoing operations, retire or service all of its outstanding debt could be significantly constrained.

The development of Copperstone's projects is dependent on the company's ability to raise capital on the equity and debt capital markets. As porphyry copper systems usually occur deep down in the ground, deep core drilling is generally needed, requiring more capital. In addition, it is difficult to estimate when a porphyry deposit will be discovered, putting continuous pressure on Copperstone's ability to fund its operations. Historically though, Copperstone has managed to raise funds for its project according to plan.

# **Company overview**

Copperstone Resources is a base and precious metals exploration company, founded in 2006 and listed on Nasdaq First North Stockholm. The company has a long history in mineral exploration and is currently actively searching for copper porphyry in northern Sweden, in the Arvidsjaur municipality at its Copperstone project. Copperstone Resources' strategy is to systematically and innovatively explore for mineral resources, using its extensive geological database. In addition, the company is in the process of acquiring the Viscaria copper project, which should provide further resource upside potential.

Copperstone is a Swedish mineral exploration company operating in the Skellefte field in northern Sweden Founded in 2006, Copperstone Resources (formerly Kopparberg Mineral) is a Swedish mineral exploration company (base and precious metals) that was listed on Nasdaq First North in 2011. Copperstone primarily operates in the vicinity of the Skellefte field mining region in northern Sweden, and also in the Bergslagen region of central Sweden.

The company aims to identify and develop Swedish mineral deposits

The company's mission is to identify and develop Swedish mineral deposits to the benefit of producing mines in a sustainable way and in collaboration with local communities. Its current portfolio consists of five exploration permits and three exploitation concessions. All permits and concessions are 100%-owned directly by the company or one of its subsidiaries.

Name	Area (ha)	Valid from	Valid to	County	Municipality
Exploration permits					
Sandberget nr 100**	8074	15/12/2004	01/01/3000	Norrbottens län	Arvidsjau
Sandberget nr 200	19	03/10/2012	03/10/2018	Norrbottens län	Arvidsjau
Sandberget nr 300	19	03/10/2012	03/10/2018	Norrbottens län	Arvidsjau
Svartliden nr 1001**	444	18/09/1996	01/01/3000	Norrbottens län	Arvidsjau
Såggården nr 1*	199	12/06/2019	12/06/2019	Dalarnas län	Smedjebacken
Exploitation concessions					
Svartliden K nr 1	36	27/12/2000	27/12/2025	Norrbottens län	Arvidsiau
Eva K nr 1***	34	13/11/2017	13/11/2017	Norrbottens län	Arvidsiau
Tvistbogruvan K nr 1*	11	17/04/2012	17/04/2037	Dalarnas län	Smedjebacken
*Kopparberg Mining Exploration					

\*\*\*awaiting decision from government

Source: Company data and Nordea

Copperstone's current strategy is focused on exploration of porphyry copper

The company started a deep core drilling campaign in 2017 that resulted in several findings such as potassic alteration In recent years, Copperstone has focused on prospecting for porphyry copper; this is associated with high potential for mineral findings, but also entails higher risk due to the potential size of the hydrothermal systems and the complex and time-consuming geological footprint left in the bedrock. An integral part of this is the Copperstone project in Norrbotten county, where the company aims to have at least one production mine in the next three to five years. It also intends to have started or acquired the minimum of one mining development project in the Nordic region.

Since the beginning of 2017, Copperstone has been on a deep core drilling campaign at its site in the Skellefte region, mainly at Granliden Hill, where it has drilled a total of nine holes. In August 2018, it announced that the initiative had been completed on time and within budget, demonstrating promising results. The campaign has been partly financed by an equity rights issue of SEK 30m that took place in the beginning of 2017. In particular, the holes that have been drilled during 2018 were successful in discovering potassic alteration – a typical sign of porphyry copper – at several sites, as well as mineralisation consisting of interspersed chalcopyrite veins.

2018	DRILL	HOLE	SUMMARY	
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Drillhole	Depth (m)	Azimuth	Dip	Target/Objective
COS18356	638	090 - East	-65	Circular Magnetic Anomaly drilled with vertical hole.
COS18357	711	Vertical	-90	Circular Magnetic Anomaly associated with potassic alteration drilled with hole orientated to the east.
COS18358	843	0 - North	-55	Circular Magnetic Anomaly associated with potassic alteration and potential sulphide veins underlying Granliden Hill mineralisation.
COS18359	878	275 - West	-55	Resistive Natural Sourcea Audio frequency magnetotelluric (NSAMT) feature underlying Granliden Hill mineralisation.
COS18360	In progress	275 - West	-60	Drill testing the NSAMT conductor.
COS18361	In progress	275 - West	-55	Drill testing vertical extension of the mineralisation intercepted in COS18359.

Source: Company data and Nordea

Copperstone has more than 8,000 shareholders

It mostly explores for copper, zinc, gold and silver

### **Company history**

Copperstone Resources, formerly known as Kopparberg Mineral, is a Sweden-based mining company founded in 2006 and listed on Nasdaq First North in Stockholm with more than 8,000 shareholders.

The company, in addition to the Copperstone project, also owns exploration operations in the Berslagen region of central Sweden – Tvistbo mine and Såggården. The mineral deposits that Copperstone holds in Tvistbo mainly contain zinc, lead and silver. It is also engaged in cobalt exploration through its exploration permit at Såggården. Copperstone consists of three wholly-owned subsidiaries.



Source: Company data and Nordea

Argo has historically carried out service commissions internally and externally, Kopparberg Mining Exploration is engaged in the exploration activities, and Copperstone Skellefteå AB owns exploration permits and exploitation concessions in the Skellefte field.

In addition, the company owns 9.8% of Nordic Iron Ore (NIO) plus a convertible bond at a nominal value of SEK 7m, which focuses on re-opening and developing the production of iron ore in Blötberget and Håksberg (the Ludvika mines) in southern Dalarna county. A feasibility study being carried out at Blötberget is in its final stages and should be completed soon. NIO also aims to grow its mineral assets and upgrade them to iron ore reserves, primarily through prospecting and exploration of the Väsman field that combines the Ludvika mines. Its intentions here are bolstered by increased global demand for high-quality iron ore (concentration >65%), mainly from emerging markets. NIO is expected to be listed shortly on Nasdaq First North.

In 2015, the company started to focus its operations on northern Sweden with its first drilling of the Copperstone project after confirming the region was an "exploration target". In 2016, the Copperstone project achieved success with mineral assets discoveries of 5.4m tonnes at a copper grade of 1.03%. After that, Chris McKnight took over as the company's new CEO in 2017; the company has now been more focused on deep core drilling in the Skellefte field, resulting in several positive mineralisation discoveries.

In August 2018, Copperstone signed a non-binding letter of intent to acquire the Viscaria project from Australian copper and gold exploration company Sunstone Metals. The project will run as a partnership between the two, with Sunstone Metals expected to become the largest shareholder in Copperstone Resources upon completion.

Copperstone owns 9.8% of Nordic Iron Ore AB (NIO), which operates in southern Dalarna county

The company started to focus its operations in northern Sweden in 2015

COPPERSTONE'S KEY EVENTS				
Year	Event			
2006	The company was founded			
2007	Listing on AktieTorget			
2007	Investment in the first drilling rig is made			
2010	Exploration permits to Väsman- and Håksberg-fields are sold to NIO			
2011	Listing on Nasdaq OMX First North			
2012	Exploitation concession rights for the Tvistbo-mine granted			
2013	Initial results from the diamond drilling in the Håkansboda-project achieved			
2015	The company changes its name to Copperstone Resources AB			
2015	The company starts to focus its operations to the north of Sweden			
2016	Mineral assets with copper concentration of 1.03% found as part of the Copperstone-project			
2017	Chris McKnight takes over as the new CEO			
2017-2018	Deep core drilling campaign is initiated with several important mineral findings			

Source: Company data and Nordea



Source: Company data and Nordea

Copperstone's main strategy centres on the Copperstone project in Norrbotten county The company's core strategy is to contribute to the development of Swedish mineral deposits by identifying and developing mineralisation that can be used by production mines in a sustainable way and in close collaboration with the local communities and their interests.

Using its unique geological database of core drilling information gathered from 50 years of prospecting (either its own or acquired), it also aims to systematically and innovatively identify and develop mineralisation as a foundation for profitable mining.

### The Copperstone project

The Copperstone project is situated close to the Skellefte field in Norrbotten county's Arvidsjaur municipality, in northern Sweden. The project stretches over some 800 hectares, an area with a history of prospecting, dating back to the 1920s. Systematic core drilling was first used there in the early 1970s, when Boliden Mining started to explore the area. In total, Boliden drilled 109 drill holes across approximately 12,000 km<sup>2</sup> until 1978. Lundin Mining started to explore the area in 2004, drilling 138 holes over some 22,000 km<sup>2</sup>. More than 260 drill holes in total have been drilled and analysed. In addition, extensive material from field investigations with maps and reports is available.

Over 260 historical drill holes in the project area

The company took over the exploration permits and exploitation concession of the Copperstone area in 2010

The location in which pre-production miners, such as Copperstone, operate is vital. Having operations close to operating mines or mines previously in production can provide the benefits of existing infrastructure (eg roads, water, electricity) and some understanding of the region's geology. The Copperstone project is located in such an area. The vast database of its exploration history came into Copperstone's possession with its acquisition of Lundin Mining Exploration's Swedish assets in 2010. The divestment was prompted by Lundin wanting to focus on its operations outside of Sweden and owing to the financial crisis.

Company	Number of drill holes	Total Meterage	Average Depth (m)
Boliden	109	12,168	112
Lundin	138	21,717	157
Copperstone prior to 2017	13	2,242	172
Copperstone 2017	3	2,602	867
Copperstone 2018	9	7,200	800
Total Boliden and Lundin	247	33,885	137
Total Copperrstone	25	12,044	482
Overall Total	272	45,929	169

Source: Company data and Nordea

#### MAP OF THE COPPERSTONE PROJECT



Source: Company data

Previous drill holes have been relatively shallow

An important observation is that the historical drilling in the area has been relatively shallow (<200m depth) and at different locations than Copperstone is currently investigating. Using deep core drilling instead might increase the understanding of the area's geology and unlock potential mineralisation.

The company holds several exploration permits at Granliden Hill and Sandberget, and exploitation concessions at EVA in southern parts of the area. There are three deposits in the area: Granliden, Svartliden and EVA.

#### MINERAL RESOURCES IN THE COPPERSTONE PROJECT

Class	Name	Tonnage (millions)	Cu (%)	Zn (%)	Pb (%)	Au (g/t)	Ag (g/t)	CuEq (%)
Inferred	Granliden	4.74	0.85	0.04	-	0.1	5.53	0.98
	Granliden Södra	0.65	1.28	0.05	-	0.08	11.13	1.45
Total		5.39	5.39	0.04	-	0.1	6.2	1.03
Indicated	EVA	5.16	5.16	2.39	0.36	0.96	38	
Total		5.16						

Source: Company data and Nordea





Source: Company data

#### MINERALISATION FOUND AT GRANLIDEN HILL



Source: Company data

# POTASSIC ALTERATION FOUND AT GRANLIDEN HILL



Source: Company data

#### Granliden Hill

The Granliden Hill is located north west of the Skellefte field and can be divided into the Granliden and Granliden South sub-projects. It is covered by the Sandberget 200 and Sandberget 300 exploration permits and the Svartliden 1001 exploitation concession. The mineralisation at the Granliden Hill area amounts to 5.4m tonnes with a copper grade of 1.03%, estimated in 2012 in accordance with the Joint Ore Reserves Committee (JORC) standards.

In a technical report published by Copperstone in May 2018, the company reported several important findings as part of the deep core drilling campaign that started in 2017.

It drilled in total nine different drill holes as part of the campaign, six of them during 2018, with the targets generated based on recently conducted geophysical surveys with the help of ground magnetics and Natural Source Audio-frequency Magnetotellurics (NSAMT).

Most noteworthy was the discovery of mineralisation of interspersed chalcopyrite veins in one of the drill holes. Chalcopyrite is the principal source of copper and thus the most important copper ore.

Moreover, potassic alteration was intercepted over several hundred metres in two of the drill holes. Potassic alteration is typical for porphyry copper and is the centre of the porphyry copper system, making it the best host for the mineralisation.



INTERPRETATION OF MINERALISATION BASED ON NSAMT

Source: Company data

The campaign was completed on time and within budget, and the results that followed may lay the foundation for future discoveries in the Granliden Hill area. The company has found proof-of-concept for its porphyry copper hypothesis, which we consider a step in the right direction, demonstrating the existence of porphyry copper potential on the property.

#### Svartliden

The Svartliden area is situated between Granliden Hill and the EVA area of the Copperstone project. It falls mainly within the Svartliden K nr 1 exploitation concession. The Svartliden area is characterised by copper/gold/zinc mineralisation, which has been intercepted in drill holes with a steep incline and length of 100-300m by previous exploration companies operating in the area. Drill holes of this character make it difficult to identify areas of contiguous mineralisation. The mineralisation tested in the area shows values of Au 0.1-1.0 g/t, Cu 0.2-1.5% and Zn 0.5-10%.

Copperstone has carried out investigations in the Svartliden area in 2013-16. In autumn 2016, a group of international experts under the leadership of CEO Chris McKnight started an extensive investigation to speed up analysis of the geology in the Svartliden and EVA areas. The result of this was presented in a technical report in January 2017. The result of the study indicates a hydrothermal alteration system related to hydrothermal breccia bodies and copper/gold/zinc/silver mineralisation present in the Svartliden area.

Together, the evidence indicates there might be a hydrothermal mineralisation system with potential for copper/gold porphyry presence. In addition, this adds to the understanding of the ore genesis and the potential for mineralisation in the Svartliden area.

Svartliden is characterised by copper/gold/zinc mineralisation

Investigation of the area was conducted in 2013-16





Source: Company data

#### EVA

One of Copperstone's most interesting projects is the EVA deposit, located in the southern part of the Copperstone project. It is a volcanogenic, complex sulphide mineralisation, found in 2005 as part of geophysical estimations. Along with Svartliden, the EVA deposits have been classified as being of particular interest to the Swedish state by the Geological Survey of Sweden (SGU).

The company was granted a 25-year exploitation concession of the area in November 2017, subject to an objection currently under appeal with the Swedish government. In total, 55 deep core drill holes have been drilled in the area to investigate the occurrence, extent and continuity of mineralisation. A previous study made by an independent qualified person (QP) shows that the EVA deposit has indicative mineral resources of 5.2 Mt with Cu 0.3%, Pb 0.4%, Zn 2.4%, Au 1 g/t and Ag 40 g/t. The study was used as part of the exploitation concession application.

Copperstone conducted a prospecting campaign of historical drill holes in the area in 2010 to investigate geophysical anomalies in close proximity to the EVA deposit. One of the drill holes, LSB10010, encountered sulphide mineralisation, showing metal grades of Au 1.5 g/t, Ag 21 g/t, Cu 1.6% and Zn 0.1%. In addition, the geophysical estimations that were made from the air showed that there are several anomalies not previously explored.

Below is a summary of the findings made in the EVA deposit.

SUMMARY OF DRILLING CAMPAIGN IN EVA							
Drill hole	From (m)	To (m)	Width (m)	Cu (%)	Zn (%)	Au (g/t)	Ag (g/t)
Cos05250	52.80	104.90	52.10	0.30	3.17	1.35	57.00
Cos05252	27.83	66.20	38.37	0.32	2.57	1.01	41.00
Cos05214	18.20	39.40	21.20	0.32	5.00	2.69	30.00
Cos05259	20.00	57.55	37.55	0.34	2.93	1.70	62.00
Cos05259	149.15	200.20	51.05	0.40	0.42	1.78	14.00
Cos05243	140.60	229.80	89.20	0.10	0.50	0.91	9.00

Source: Company data and Nordea

The EVA exploitation concession is currently under scrutiny by the Swedish government due to an objection, mainly relating to the impact on reindeer and the local environment. The concession was approved by the local government and Bergsstaten after the company presented documentation containing a compensation plan for the affected Sami village in the area. The company remains optimistic and expects the Swedish government to support the previous decision. Having the

The EVA deposit is a volcanogenic, complex sulphide mineralisation

A study made by an independent QP indicates that the EVA deposit contains mineralisation

Drill hole LSB10001 encountered sulphide mineralisation concession fully in place would be particularly beneficial for Copperstone because it would have large synergy potential with the Svartliden concession, for example.

### Bergslagen – Tvistbo mine and Såggården

In addition to the Copperstone project, the company has an exploration permit at Såggården and an exploitation concession at the Tvistbo mine (Tvistbogruvan) in the Bergslagen region of central Sweden.

Tvistbo has been operational since the 16th century	<b>Tvistbo mine</b> The Tvistbo mine has been operational since the 16th century, although the most recent mining there was during 1942-45. Prospecting was carried out after that by several different companies (Rederi Nordstjernan (Johnson) in 1961-78, Statsgruvor, NSG and LKAB 1978-85), focused on iron and sulphide ore mainly in zinc and lead.
	Thirty-eight drill holes in total have been drilled on the site. The indicated mineral resources have been estimated by an external independent consultant at 575,000 tonnes, with Zn 3.3%, Pb 2.6% and Au 22 g/t. In addition to this, 280,000 tonnes of inferred mineral resources have been estimated by the same consultant, containing Zn 3%, Pb 2.5% and Ag 20 g/t. The company was granted an exploitation concession in the area in spring 2012.
Drilling during 2013 showed results of higher grades of metals	During 2013, the company started to drill in the area, aiming to explore the potential correlation between the Tvistbo deposit and the Norr mine (Norrgruvan) located 1 km to the south. Analysis of the collected material shows higher grades of metal, indicating that a correlation might exist. Further geological investigation is needed to determine whether any mineralisation of economic interest exists, such as by starting a core drilling campaign.

#### ESTIMATED MINERAL RESOURCES AT THE TVISTBO MINE

Class	Tonnage (Kt)	Zn (%)	Pb (%)	Ag (g/t)
Inferred	280	3.0	2.5	20
Indicated	575	3.3	2.6	22

Source: Company data and Nordea

The Viscaria project is valued

The project is expected to close

at AUD 41m, consisting of a

mix of shares and cash

in November 2018

#### Såggården

Copperstone owns an exploration permit covering the Såggården area, a cobalt project located in the municipality of Smedjebacken, where historical findings show grades of cobalt of 0.04-0.1%. Såggården covers an area of 2,000 hectares, with several drilling holes there by LKAB Prospektering. Copperstone is currently evaluating further investment in the project.

#### From Down Under to the Arctic

Copperstone is in the process of purchasing the Viscaria copper project in Kiruna, northern Sweden from Sunstone Metals, an Australian copper/gold explorer. The two parties signed a non-binding letter of intent on 8 August 2018. The transaction is valued at AUD 41m (about USD 30m), consisting of shares and cash payment. Sunstone will initially receive a cash payment of around AUD 6m (about USD 4.3m), and AUD 25m (about USD 18m) worth of Copperstone shares, with a further AUD 3m cash and AUD 7m (USD 5m) worth of shares upon Viscaria obtaining environmental permission. The deal is slated to close in November 2018, subject to regulatory and shareholder approval and completion of due diligence by both parties.

The project will be run as a partnership between the two. Upon completion of the deal, Sunstone Metals will become the largest shareholder in Copperstone with about a 30% of stake.

#### Viscaria project history

The Viscaria copper project produced 12.5 million tonnes of ore at 2.3% copper in its previous operation The Viscaria copper project is a former mine with three main deposits, the A, B, and D zones, and with potential for several others to be defined. The A zone and a very small portion of the B zone were mined as an underground operation by LKAB, one of Sweden's oldest industrial companies, and then by Finnish stainless steel group Outokumpu from 1983 to 1997; 12.5 Mt of ore were mined at 2.3% copper. The mine was later closed primarily owing to a weakening copper price and USD/SEK exchange rate.

Despite the vast amount of historical core drillings, exploration potential still exists in the A, B and the D Zones - the latter zone has never been mined and provides several promising intersections of mineralisation, according to management.



Source: Sunstone Metals

#### Viscaria today and current development philosophy

The Viscaria project has nearly 345 km of historical drill cores and estimated mineral resources of 52 Mt at 1.2% copper of various classes, representing potentially over 600,000 tonnes of copper. Open pit and underground development were proposed in the pre-feasibility study. 18 million tonnes of the estimated 52 million tonnes of mineral resources were used in the 2016 Scoping Study.

According to Sunstone Metals, its development philosophy includes:

- 75% open pit feed and 25% underground feed over the life of the mine to ensure steady state production
- Value order of open pits is A zone, followed by D zone and then B zone, to be mined to that order
- Rapid progression of underground production to the maximum depth due to higher economic value than open pits
- Surface level portals will be required for D zone underground as opposed to developing of the bottom of the D zone pits.

#### Location, location, location

The Viscaria copper project is located approximately 1,200 km north of Stockholm, in the Kiruna region, which is regarded as a world-class mining province. It is about 5 km west of Kiruna town, which provides Copperstone with access to infrastructure such as railroad, power grids, tier-one service providers and contractors.

It is noteworthy that the region is home to Europe's largest open pit copper mine (Aitik) and the world's largest underground magnetite mine (LKAB).

An estimated mineral resource of 52 million tonnes at 1.2% copper – 600,000 tonnes of copper

#### COPPER ORE BODIES OF THE VISCARIA PROJECT

#### LOCATION AND INFRASTRUCTURE





Source: Sunstone Metals

Source: Sunstone Metals

Metallurgical studies show that the D zone ore delivers a very high quality concentrate that is desirable to smelters. At a plant scale of 2 million tonnes per year, Viscaria will produce about 100,000 tonnes of concentrate annually. Multiple regional logistics options are available such as railway and road to Narvik and/or Luleå.

**REGIONAL NETWORK OF VISCARIA** 



Source: Sunstone Metals and Nordea

#### Mineral and economic overview

Viscaria A zone is a copper-rich deposit with minor concentrations of zinc and gold, and was mined by Outokumpu Oyj in 1983-97.

Some very minor material was mined from one level of B zone during Outokumpu's time, with access via a development drive from the A zone underground development.

D zone is a copper and iron deposit, which, although directly adjacent to the A and B zones, has a different mineralisation style. It has previously been interpreted as an IOCG style deposit, or a VMS deposit.

#### VISCARIA'S MINERAL RESOURCE ESTIMATES

Resource Area	Classification	Tonnes (Mt)	Cu Grade (%)	Contained Cu (kt)
	Measured	14.44	1.7	240
A 7000	Indicated	4.69	1.2	57.2
A Zone	Inferred	2.48	1	25.5
	Subtotal	21.61	1.5	322.7
	Measured	0.12	1.3	1.6
B Zone	Indicated	4.12	0.7	29.7
	Inferred	15.41	0.8	118.7
	Subtotal	19.65	0.8	150
	Indicated	3.11	0.81	25.2
	Inferred	0.01	0.32	0.02
D Zone	Subtotal (open pit)	3.11	0.81	25.2
D Zone	Indicated	7.26	1.37	99.8
	Inferred	0.78	1.57	12.2
	Subtotal (underground)	8.03	1.39	111.9
Overall Cu	Total	52.4	1.2	609.8

Source: Sunstone Metals

The base case scoping study at a copper price of USD 3 per lb provides tentative annual operating free cash flow about SEK 200m and an IRR of 15% per year during the life of the mine. Despite the vast amount of historic core drillings, exploration potential still exists in the A, B and the D Zones - the latter zone has never been mined and provides several promising intersections of mineralisation. In a 2015 exploration drilling campaign, VDD 193 yielded 26 metres at 2.6% Cu and down below VDD 195 encountered 21 metres of 1.5% Cu outside the resource boundary in the North Shoot.

Modelling at US\$3.25/lb	Unit	Base Case (1.2Mtpa)	Expanded (2.0Mtpa)
Ore Mined (Open Pit)	Mt	6.20	9.60
Ore Mined (Underground)	Mt	3.81	8.25
Waste Mined	Mt	36.06	57.92
Strip Ratio	t:t	5.8	6
Total Tonnes Mined	Mt	46	75.77
Mine life	Years	9	ç
Ore Milled	Mt	10	17.85
Ore Grade	%	1.18%	1.20%
Recovery	%	90.20%	92.50%
Cu Produced	t	106,745	199,358
Concentrate Produced	dmt	444,771	830,659
Pre-prod Development	USDm	87	115
Pre-prod Underground	USDm	15	15
Sustaining Capex (UG)	USDm	20	35
Sustaining Capex (Plant	USDm	11	14
C1 Cash Costs	USD/lb	1.86	1.81
AISC	US\$/lb	2.1	1.97
EBITDA	USDm	294	593
Net Operating Cashflow	USDm	161	415
Net Cashflow	USDm	160	410
NPV 7%	USDm	74	215
IRR	%	22%	37%
Payback	Years	3.7	3
Capital Intensity	US\$/t cu	7,335	5,192

COPPER PRICE SENSITIVITY

Copper Price Sensitivity:	\$3.00/lb	Base Case (1.2Mtpa)	Expanded Case (2.0Mtpa)
EBITDA	USDm	238	489
Net Cashflow	USDm	103	304
NPV 7%	USDm	39	150
IRR	%	15%	29%
Payback	Years	4.5	3.7
Copper Price Sensitivity:	USD3.60/lb		
EBITDA	USDm	372	740
Net Cashflow	USDm	239	600
NPV 7%	USDm	125	341
IRR	%	31%	59%
Payback	Years	2.9	1.7

Source: Sunstone Metals

Pre-production capex at USD 130m

A 2016 update to the scoping study found that Viscaria could produce some 200,000 tonnes of copper over a mine life of nine years, or some 21,000 tonnes/year based on a two-million tonne per year operation.

The updated scoping estimated a capital investment requirement of some USD 130m, with pre-tax net present value at the time estimated at more than USD 150m, and the internal rate of return at over 28%.

#### Financing and synergy

According to management, the total capex until planned mine-reopening in 2021-22 is expected to be well below USD 150m, including DFS, environmental permission and construction, of which the working capital need until environmental permission (Viscaria on a standalone basis) in 2018-21 by FDSAT is around USD 10m-plus.

While Copperstone has no immediate funding need, it intends to launch a rights issue and/or a directed issue prior to or upon closing of the deal, which will be equal to or exceed the initial purchase price, and/or up to 24 months working capital including the next phase of project development at the Copperstone project.

Potential synergies proposed by both Copperstone and Sunstone include: achieving an optimal future size of the potential joint ore plant Kiruna/Arvidsjaur; additional international geological competence; and good relations with the financing and local community, municipalities and stakeholders, which Viscaria can leverage during the project development phase.

We have not factored the project into our valuation of Copperstone.

#### Management, board of directors and shareholders

Copperstone's board and executive management comprises five individuals from different backgrounds. The company has also a qualified person (QP) who reviews reports and exploration results before they are published.

The management team is led by CEO Chris McKnight, who also oversees technical aspects of the business. Mr McKnight is a veteran in mineral exploration and an entrepreneur in the mining sector. The chairman of the board is Michael Mattsson, who has extensive experience in financial services including M&A, share issues and IPOs.

Mining requires some very specialised skills, and a good mining company needs a wellrounded team with expertise in both business and geology. Our overall impression is that Copperstone's executive management possesses the relevant experience and expertise to drive the company towards its strategic goals.

### EXECUTIVE MANAGEMENT

Michael Mattsson	Chris McKnight	Niclas Löwgren
Position	Position	Position
Executive director and chairman of the board	CEO and executive director	Executive director
Other appointments	Other appointments	Other appointments
Endomines AB, Nordic Iron Ore AB, among others	-	NextCell Pharma AB, Board member Omnivation AB
Background	Background	Background
MSc from Stockholm School of Economics. Mattsson has substantial experience in mergers and acquisitions (M&A), IPO, Rights- and share issues and Fund management from Enskilda Securities, Blackstone (New York) and Kaupthing	Chris McKnight is the CEO but also oversees the technical aspects. Geologist and entrepreneur with over 30 years of experience in exploration and geology in infrastructure, raw materials, metals and mining. Successfully completed more than 300 exploration and geotechnical projects in Africa and Europe. McKnight founded Horizon Blue Resources AB in northern Sweden in 2010 and since 2012, McKnight has worked close to Copperstone with the task of conducting extensive exploration in the Copperstone Project, and today McKnight represents the company's technical project geologist.	M.Sc. Business Management from Stockholm University. Private investor, which included participation in financing and consulting work linked to both listed and unlisted companies. Niclas has previously worked with business development as well as sales and market- related issues, within the finance and real estate sector.
No. of shares	No. of shares	No. of shares
14,375,843 (~6% shareholding)	none	2,856,973 (~1.6% shareholding)



Position	Position
Executive director	Executive director
Other appointments	Other appointments
-	CFO at Brighter AB, Owner of Hagra Equity AB
Background	Background
M.Sc. from Stockholm School of Economics. CEO of Lantero AB, developing organisational cultures. Previously broad experience within communications, including media relations, investor relations and public affairs.	B.Sc. From Stockholm University. CFO at Brighter AB, Owner of Hagra Equity AB. Several years of experience as CFO for the Swedish Hunters Association
No. of shares	No. of shares
2,268,404 shares	100,000 shares

### **EXPLORATION AND MANAGEMENT TEAM**

Maurice Zongo	Chris McKnight	Karsten	Drescher
Position	Position	Position	
Project geologist	CEO and executive director	GIS consultant (Geolo	gist)
Other appointments	Other appointments	Other appointments	;
-	-	-	
Background	Background	Background	
Holds an M.Sc. in Geology. Has 10 years experience in exploration and mining and is proficient in Micromine modeling.	Chris McKnight is the CEO but also oversees the technical aspects. Geologist and entrepreneur with over 30 years of experience in exploration and geology in infrastructure, raw materials, metals and mining. Successfully completed more than 300 exploration and geotechnical projects in Africa and Europe. McKnight founded Horizon Blue Resources AB in northern Sweden in 2010 and since 2012, McKnight has worked close to Copperstone with the task of conducting extensive exploration in the Copperstone Project, and today McKnight represents the company's technical project geologist.	M.Sc. in Geology. Kars years experience in th an expert in GIS applic exploration and enviro	sten has a total of 25 e mining industry. He is cations for engineering, nmental studies.
No. of shares	No. of shares	No. of shares	
-	-	-	
SHAF	REHOLDER STRUCTURE AS PER SEPTEMBER	2018	
Shar Avan Mich	eholder za Pension** ael Mattsson*	Number of shares 15 924 319 14 375 843	Ownership (%) 6.6% 5.9%
Biörr	I Israelsson*	11 000 000	4.5%
Nord	net Pensionsförsäkring**	10 567 762	4.4%

Source: Company data and Nordea

\*Including capital insurance and ISK \*\*Excluding capital insurance and ISK in respect of \*

Leif Bengtsson

Niclas Löwgren

Petter Tiger

Johan Flink

Other

Total

Fredrik Attefall

Steen Lyckegaard

1.5%

1.2%

1.0%

0.9%

0.8%

0.7%

73%

100%

3 521 050

2 856 973

2 386 058

2 268 404

1 950 000

1 747 782

175 755 570

242 353 761

# The lifecycle of a mine

Mining companies can be categorised into two groups – junior and major miners – based on the stages at which they operate during the lifecycle of a mine. A junior mining company such as Copperstone Resources searches for new deposits of precious minerals and targets properties with the greatest probability of containing large resource deposits. A major miner's primary business is bulk mining. Junior mining stocks are typically more volatile than major miners' stocks, but they also generally offer more upside.

Every stage of mine development has distinct properties

### A mine lifecycle walkthrough

Recovering minerals from the earth is still a complex process, even though the science and technology behind mining have evolved significantly over the past century. It takes years to develop a producing mine from start to finish. Any given mining project advances through a number of different phases and can take a few years and sometimes decades to complete. Altogether, these phases are referred to as the lifecycle of a mine.

Copperstone operates in the early stages of making a mine - prospecting and exploration, ie the process of searching for deposits. Below we offer an overview of the entire mine lifecycle, which puts Copperstone's role into perspective and helps map out the process before the company generates its first positive free cash flow.



Companies at this stage are labelled as junior mining companies because they focus their time, efforts and funds on the discovery of new economic natural resource projects.

Prospecting and exploration are pre-mining phases and often occur simultaneously. This can take from two to several years to complete. Prospecting is the physical search for minerals. In exploration, experts use special techniques to determine the possible size and value of the mineral deposits discovered during prospecting. Mineral exploration, by contrast, is a much more intensive, organised and professional form of mineral prospecting; it is a large-scale effort undertaken by mineral companies to find ores (commercially viable concentrations of minerals) to mine.

Exploration is commonly the

Copperstone is a junior mining

Critical guestions to answer in

company focused on

the exploration stage

exploration

Exploration is commonly the longest and riskiest phase leading up to establishing a

longest and riskiest phase

Mineral resource versus mineral reserve

mine. Methods such as geological surface mapping, sampling, geophysical measurements and geochemical analysis are often used an early stage to pinpoint potential deposits.

Samples that are collected via drilling undergo various analyses by geologists and metallurgists to determine the richness and extent of the mineral content in each deposit. Based on the level of geological confidence, along with technical and economic evaluations, experts label a deposit as a "mineral resource" and/or an "ore reserve," to better identify the economic value of the deposit and estimate total mining costs. The Combined Reserves International Reporting Standards Committee (CRIRSCO, now known as the Committee for Mineral Reserves International Reporting Standards), published an international framework for classifying Mineral Resources and Mineral Reserves. In short, the two classifications are defined as follows:

- **Mineral resource**: A concentration or occurrence of material of intrinsic economic interest in or on the Earth's crust (a deposit) in such form and quantity that there are reasonable prospects for eventual economic extraction.
- Mineral reserve/ore reserve: The economically mineable part of a measured or indicated mineral resource.



Source: University of Arizona Superfund Research Program

# Framework for classifying exploration results

Mineral resources are subdivided into inferred, indicated and measured categories Whether a mineral resource is worth extracting depends on the amount, form, location and quality of the material – commonly called geological confidence. Mineral resources are sub-divided in order of increasing geological confidence, into *inferred*, *indicated* and *measured* categories.

- An **inferred** mineral resource is the part of a mineral resource for which tonnage, grade and mineral content can be estimated with a low level of confidence.
- An **indicated** resource is an economic mineral occurrence that has been sampled enough that a reasonably confident estimate has been made of its contained metal, grade, tonnage, shape, density and physical characteristics.
- A **measured** resource is an indicated resource that has undergone enough further sampling that a 'competent person' (defined by the norms of the relevant mining code; usually a geologist) declares a high degree of confidence in the estimates about grade, tonnage, shape, density, physical characteristics and mineral content of the mineral occurrence.

Ore reserves are sub-divided, in order of increasing confidence, into *probable* ore reserves and *proved* ore reserves.

- A **probable** mineral reserve is the economically mineable part of an indicated mineral resource (and in some circumstances a measured mineral resource).
- A **proved** mineral reserve is the economically mineable part of a measured mineral resource. This represents the highest confidence category of reserve estimates.

Following the completion of the prospecting and exploration stages, a feasibility study is performed to determine whether it is economically viable to develop the mineral deposit into a mine. At this point, a decision can be made about whether the project will be abandoned or continued based on the feasibility report.

#### **Exploration activities on recovery**

Exploration and earlier-stage projects have been depressed in recent years. As a consequence, it is no surprise that initial resource announcements have been subdued since 2015. There were 44 announcements of initial resources in 2015, compared with a peak of 168 in 2012. While the value of initial resource announcements in 2016 was USD 130bn, up 26% from USD 103bn in 2015, this remained short of the 2012 peak at USD 367bn.





Note: As defined in S&P Global Market Intelligence's Monthly Industry Monitor, initial resources include initial estimates for both new deposits and new zones at mines, as well as projects with previously defined reserves and/or resources. Source: Worldwide "Mining Exploration Trends", S&P Global Market Intelligence

Exploration activity strengthened throughout 2017, however, with the number of projects reporting drill results increasing markedly in Q4 2017 and recording 14% growth q/q. Gold rose 10% and copper remained flat. Improved support from equity markets for explorers allowed miners to launch or reinstate drilling programmes on their most promising projects. While the main focus remained on gold, exploration targeting base metals also saw a recovery in H2 2017.

Ore reserves are sub-divided, into *probable* ore reserves and *proved* ore reserves

Exploration activity is recovering after years of decline

The number of projects

markedly in Q4 2017

reporting drill results increased





Source: S&P Global Market Intelligence as of 31 January 2018. Note: Significant drilling includes initial finds, new zones or satellite deposits, and extensions to existing mineralisation – essentially any drilling that adds to the resource potential of a particular project or deposit.

#### 2. Development

If the data generated during the exploration phase is strong, a mining project may progress to the design/development phase. The development stage may take around 4-12 years.

This phase typically involves pre-development planning and paperwork, the preparation of budget and financial reports, application for permits and generating reports on the impact to the environment/nearby communities. Plans may address topics such as: 1) the mining process/technology that will be used; and 2) the building of roads, processing facilities, environmental management systems, employee housing and other facilities that may be needed.

#### 3. Extraction

In the extraction phase, the mineral is removed from the earth in large quantities, as the mine begins producing. Some exploration and development may continue at this stage, as well.

According to statistics based on research by the International Copper Study Group, the world's 20 largest copper mines were producing nearly nine million metric tonnes of copper a year as of the end of 2017, about 40% of the world's total copper mine capacity.



Source: International Copper Study Group

Minerals are recovered,

The two most common methods of mining are surface and underground mining. The

A mining project will proceed to the development phase, where the mine site is built, if data is strong

The world's 20 largest copper mines account for about 40% of the world's total copper mine capacity processed and smelted before hitting the market

Environmental and socio-

economic challenges are

highlighted in mine closure

method is determined mainly by the characteristics of the mineral deposit and the limits imposed by safety, technology, environmental and economic concerns.

Recovering the minerals is the first step in production. This is the process of extracting the ore from rock using a variety of tools and machinery. In the second step of processing, the recovered minerals are processed through crushers or mills to separate commercially valuable minerals from their ores. Smelting is the final step in production, where the concentrate is melted and moulded into bars of bullion that are ready for sale.

#### 4. Closure

Each mining site has a mine closure and reclamation plan that is developed early in the lifecycle and agreed upon by the mining company, government and local community. In these reclamation plans, the mining operator describes the processes it will use to restore or redevelop the land that has been mined to a more natural or economically usable state.

Considerations when planning for closure may include:

- Protecting public health and safety
- Addressing environmental damage, returning the land to its original state or an acceptable new use
- Sustaining the social and economic benefits brought by the mine

The cost of closing a mine depends on the age, location, type and size of a mine, as well as the amount of waste, geological characteristics and the type of mineral being extracted.



Source: Environment and Climate Change Canada

#### Lifecycle of a junior explorer

Noted economic geologists have proposed a lifecycle for

The relative value and risks of a mining project tend to move up and down as it advances through its lifecycle – and the valuation of a junior mining company tends to

#### junior mining shares

correlate with those fluctuations. Exploration Insights, a research firm that focuses on the junior mining and exploration sector, has outlined the evolution pattern of mining shares as the economic viability of the underlying mineral discoveries are evaluated across the cycle. For example, with regards to Copperstone, there is usually an upswing in relative value during exploration, when investors speculate based on drilling or other sampling results.

After the initial hype related to drilling results, shares tend to enter what Exploration Insights dubbed the "orphan period" – a period of lower valuation associated with the results of feasibility studies. Next the lifecycle of the share moves into development and operation, which is typically funded by institutional investors who become interested as the company defines its resources and releases further results. At this point, according to Exploration Insights, a share price should start to edge up to its full value.





It is important to know where you are when looking at junior mining shares

Copperstone primarily explores copper deposits

The deposits that Copperstone explores are primarily copper, although it is also involved with zinc, gold, silver and cobalt. The price and demand of copper and zinc, as base metals, depend on global industrial trends. Gold and silver are precious metals; price levels are usually connected to the global economic environment. In times of economic downturns, the price levels for precious metals usually appreciate, and vice versa.

In general, metal markets are cyclical with periods of drastic price appreciation, usually followed by a prolonged decline in prices. The prices of base metals have shown a positive trend in recent years, and this trend will likely continue in the coming years as well. This is due to an increasing industrial demand for base metals that might continue over the coming decades, stemming from urbanisation in emerging markets and the advancement of green energy in the transportation sector. Coupled with increasing demand, a shortfall in the supply of metals has been observed recently; Wood Mackenzie estimates the shortfall of copper will increase in the future. For instance, several zinc mines were shut down in 2017 due to environmental concerns. Simultaneously, the copper grade is deteriorating in some of the world's biggest mines in Chile and the copper grade is expected to continue declining in the years to come, according to AME Group.

## Exploration budgets and capex outlook

Global spending on exploration for nonferrous metals increased to an estimated USD 8.4bn in 2017, up from USD 7.3bn in 2016, representing the first annual uptick after four years of declines, according to analysis by S&P Global Market Intelligence. The mining exploration sector has endured several years of belt-tightening following the downturn starting in 2012. Improving market conditions and stronger metals prices since mid-2016, however, have seemingly led to a rebound in exploration budgets, particularly among the junior explorers. Analysis by S&P Global Market Intelligence shows that this group increased its aggregate exploration budget in 2017 by 23% y/y.

Sourcing demand and supply shortfall in the global base metal market

Mining exploration budgets are improving due to strengthening metals prices after years of slump

Source: Exploration Insights

#### CAPEX VS CAPITAL VELOCITY IN MINING, 2010-17



# NONFERROUS EXPLORATION BUDGETS BY COMMODITY, 2017



Source: S&P Global Market Intelligence (as of 27 September 2017)

Producing companies still spend more than junior companies in looking for minerals, but the latter could see a higher growth rate

Although the major mining companies still dominate the search for metals, making up almost 54% of the global budget, junior explorers register higher budget growth. Both groups of companies, collectively accounting for >80% of global exploration budgets, are likely to continue increasing their exploration efforts well into 2018. Supported by sustained market interest, junior miners should benefit the most, and may see their aggregate budget grow at a faster pace than the producers' budget.



#### Mining exploration spending is expected to stabilise into 2025

Riskier projects remain

...but overall budget trend

unattractive...

tailwinds

Source: Bloomberg, Deloitte

Specifically, copper recorded an 8% increase in exploration budgets during 2017. Producing companies were solely responsible for the growth, however, indicating that the commodity in 2017 had yet to regain its attractiveness in the eyes of junior explorers.

In the meantime, exploration efforts have increasingly shifted towards later-stage projects. This trend has been accelerating since 2013, as investors shunned the industry in light of headwinds, such as weaker demand growth and falling prices, and as major companies tightened their investment purse strings.

Nevertheless, given the overall upbeat trend in metals prices into 2018 (which benefits looks upbeat owing to multiple incumbent producers in the search for new deposits) and stabilising financing throughout 2016-17 (which bodes well for junior mining companies), the global exploration spending for 2018 is expected to increase by 15-20% y/y, according to S&P.

#### EXPLORATION BUDGETS BY DEVELOPMENT PHASE



Source: S&P Global Market Intelligence

#### Imminent new capex cycle

Major names have been on a spending hiatus over the past few years, as discussed earlier, but mining is ultimately a capex-intensive sector; the hiatus cannot last forever. With global economic activity improving and new technologies providing tailwinds for growth, mining companies are now poised to launch into a new cycle of capex investment, according to analysis by Deloitte.

The level of capex has remained at its lowest level over the past decade, featuring low capital velocity. As companies press ahead with long-term development strategies (greenfield or brownfield investments, new acquisitions), capex looks set to rise starting from 2018, according to PwC's estimates. As discussed earlier, global exploration spending data showed encouraging signs of a turnaround. In the meantime, sustaining capex has likely fallen behind because some miners moved into harvesting mode in order to weather the downturn of the last few years. Thus, even though there has been a shortage of new project announcements, capex still appears poised to rebound.

Mining companies are poised to enter a new cycle of capex investment

# **Market outlook**

The mining industry is dependent on commodity price trends. Fluctuations in commodity prices, mainly base metal prices, significantly impact profitability and the way a mining and exploration company operates. Demand has historically had the largest impact on most metal prices in the global market, but in recent years, an existing and expected shortfall in the supply of some base metals has materialised; this is true of copper, the primary metal that Copperstone is hoping to discover. We expect this to support the copper price trend over time.





Source: Thomson Reuters

Source: S&P Global Intelligence

The company's inferred resources in its Copperstone project consist of 96% copper and 4% zinc. Moreover, an important part of Copperstone's strategy is to explore and find a copper porphyry system. Therefore, copper price trends are clearly important to Copperstone.





Source: Company data and Nordea

#### Copper

Copper is among the three most used metals in the world and high quantities must be mined every year to meet global demand. Copper has very good electrical conductivity, second only to silver, and 75% of copper is used in electrical wires or for wiring in industrial machinery. Moreover, copper is an essential input to green energy, which is growing significantly. Essentially, as the global transportation sector gradually becomes greener, the demand for copper increases. As an example, the International Copper Association (ICA) estimates that a car that runs on fossil fuels requires 25 kg of copper, whereas a hybrid car requires 50 kg of copper and an electric car requires 75 kg. Furthermore, it is also estimated that each megawatt of wind power, an energy source that is becoming more common, requires 3.6 tonnes of copper. Copper is also one of the most recycled metals, which increases the efficiency of the metal and makes it more sustainable.

Copper is among the three most used metals globally

and remodelling,

Increased global demand for copper is being driven by the Chinese market and infrastructure investments

Copper is used in construction

The copper price has recovered

in the past two years after hitting a record low in 2016

transportation and wiring

According to the International Copper Study Group (ICSG), global copper production has an estimated market value of USD 120bn per year, rivalling that of iron ore, which is one the most traded metals globally and usually has an annual growth rate of around 2-3% y/y. The increased copper demand in recent years has primarily been buoyed by the Chinese market and large infrastructure investments in the US under the Trump administration.

#### Global demand is essential to the copper price

Several factors impact the copper price, including supply and demand and existing copper in inventories. These factors impact the copper price to varying degrees, although the price is most sensitive to global GDP development. This stems from copper being used in many applications, such as construction and remodelling, transportation and wiring.

During 2011-16, there was an overall decrease in the copper price, as it reached a fiveyear low of around USD 4,600 per tonne in October 2016. This was mainly owing to decreased global demand, as well as lower growth forecasts by the World Bank in 2015. Worries about the Chinese market also weighed on the price, where the growth rate of the domestic market has been gradually decreasing over the past few years. Decreasing oil prices also had an impact on the copper price, as it lowered overall energy costs. In addition, the appreciation of the USD, the currency in which copper is mostly traded, weighed on the copper price because the appreciation made the metal more expensive for foreign investors. From mid-2016 to 2017, the copper price recovered, mainly thanks to increased demand from the Chinese market, as well as a weakening USD. By the end of 2017, the base metal was trading at USD 7,312 per tonne. The copper price has been on a downtrend during 2018, mainly owing to the tensions between the US and China.



Source: The ECB

China accounts for 50% of global copper consumption

#### 7500

COPPER PRICE EVOLUTION 2013-18, USD/t



Source: Thomson Reuters

8000

#### The Chinese economy continues to grow

As the Chinese economy continues to grow, so does the global demand for base metals. With its rapid plans of urbanisation, coupled with the size of its population, China is an increasingly significant driver of the global economy. The country's strong economic growth over the past few decades has boosted global consumption of copper. Today, approximately 50% of global copper consumption comes from China. The annual growth rate of China's demand for copper has been significant in recent decades. For 2018, Beijing Antaike estimates the growth rate to be 3.6% versus 2017, or 11.15 million tonnes, and then for the growth rate to be maintained between 3% and 5% until 2020. The evolution of the copper price is therefore sensitive to the Chinese domestic market, including the environmental and safety policies the country adopts. For example, when the Chinese government decided to shut down several factories in 2017 to battle the country's polluted air, global metal prices increased, including copper prices.

#### **GLOBAL COPPER CONSUMPTION 2017**



Source: The ECB

#### India's copper demand on the rise

According to ICRA, India, one of the world's fastest-growing economies with an annual growth rate between 6% and 8% and a population of more than 1.3 billion, is expected to become a net importer of copper by 2019-20 if the domestic demand for nonferrous metals continues to show a CAGR of 7-8%. In addition, a supply shock has struck the country, as the government ordered a shutdown of one of the top plants in Tuticorin during the first half of 2018. The smelter produces approximately 400,000 tonnes of copper per year, roughly half of India's copper production, and now this has to be deducted from the domestic supply.

There is a consensus among researchers that India is in the same economic, highgrowth situation as China was decades ago. Australia's Department of Industry, Innovation and Science estimates that annual domestic demand for copper in India in 2035 will be between 2.8 and 13.5 million tonnes, depending on whether India's economy industrialises in a similar way to China's and other South Asian countries', or if it becomes more service oriented. Similarly, it estimates that the CAGR until 2035 for copper consumption lies between 9% and 18%.



INDIA'S ESTIMATED ANNUAL GROWTH RATE UNTIL 2035 FOR SELECTED METALS

Source: Australia's Department of Industry, Innovation and Science

#### Electric vehicles buoying demand for copper

The demand for copper used in electric vehicles (EVs) is projected by the ICA to increase ninefold by 2027, rising from 185,000 tonnes per year in 2017 to 1.74 million tonnes in 2027. This would mean that copper could account for approximately 6% of global demand by 2027, up from less than 1% today. Copper is used throughout EVs, charging stations and supporting infrastructure thanks to the metal's durability, electrical conductivity and efficiency. Moreover, as battery technology is progressing, the breakeven of the economic cost of owning an EV versus a traditional fossil fuel-driven vehicle is expected to be reached in 2021. As the global economy is turning

India is expected to become a net importer of copper in the coming years

ICRA estimates India's annual demand for copper to be between 9% and 18%

The ICA estimates that the

demand for copper used in

electric vehicles is expected to

increase ninefold by 2027 and

hit breakeven with traditional

fossil vehicles in 2021

greener, it is likely that the demand for copper will increase as a result.



TOTAL COST OF OWNERSHIP FOR DIFFERENT VEHICLES, USDm

Source: CRU

#### Copper resources are becoming scarcer

The production capacity is struggling to keep up with the increasing demand for copper. A recent study by Wood Mackenzie found that there will be a copper supply deficit of around 10 million tonnes by 2028. To put this into perspective, the largest producing copper mine in the world, Escondido in Chile, produces approximately one million tonnes of copper per year.

#### GLOBAL COPPER PRODUCTION AND DEMAND, MILLION TONNES



Source: www.visualcapitalist.com

#### Copper grades are deteriorating

In our view, there are several reasons to explain why the supply of copper cannot keep up with demand. One reason is that it is becoming more difficult to discover copper, with the time from discovery to production taking longer. Geological, environmental and political challenges faced by miners add to the lead time. Moreover, the copper grades of existing production mines have been declining over time.

The average copper grade has declined over the last decade from 0.74% to 0.59%, a 2005-17 CAGR decrease of 1.8%. This is mainly owing to declining grades at the world's largest mines and development of new low-grade mines. This indicates that the copper grades might continue to decline for the same reasons over the next few years. The largest decreases in recent years have been in Zambia and Australia, but large decreases can also be seen in large copper producing countries, such as Chile.

Higher unit costs might occur as a result of declining copper grades, as it requires more material in the mining process for the same amount of payable metal. This could also entail higher capital costs, as more investments are needed to increase throughput and sustain the copper production.

Deficit of 10 million tonnes in copper supply expected by 2028, says Wood Mackenzie

Copper is becoming more

lower global copper grades

difficult to discover, resulting in

The average copper grade has

Declining copper grades might

decreased from 0.74% to

0.59% during 2005-17

cause higher unit costs



Source: Company data and AME

#### Copper project pipeline at its lowest in decades

The global copper project pipeline has reached its lowest level in 20 years The global copper project pipeline has reached its lowest level in almost 20 years and is expected to drop further by the end of 2018, according to a recent study by Wood Mackenzie. Recent research done by UK company CRU Group indicates that only six major construction projects will be completed by 2020, with two of those at risk of being delayed further. Chile, the world's largest copper producing country, experienced a 4% decline in its copper production in 2017. We believe this might relate to historically high copper prices and economic factors (primarily relating to demand, volatility and increasing cost of capital), making miners more cautious.



Source: NGEx Resources

#### **Copperstone's opportunity**

With soaring demand, deteriorating copper grades and a projected supply shortfall, there are indications that the need to discover more copper resources and to start more copper projects is becoming substantial. This leaves an opportunity for Copperstone, with its Copperstone project, should the company discover a porphyry copper system in the region.

#### Zinc

60% of zinc is used to produce galvanised steel

Zinc is the fourth most consumed metal today after copper, aluminium and iron. 60% of all zinc is used to produce galvanised steel that is used to protect against rust. Galvanised steel is primarily used in infrastructure applications and to an increasing degree in the automobile industry. Similar to copper, the annual growth for zinc demand in recent years has been between 2% and 3%, and given the increased demand for the metal over the past years, we believe it is indicative that this growth might continue in the coming years. The zinc price has increased rapidly since 2009

Owing to its electrochemical properties, zinc is also used in dry-cell consumer batteries, known as zinc carbon batteries. Moreover, zinc is an important resource for paint, cosmetics, fertiliser and medicines. The metal is also used as a dietary supplement, as it is a vital trace element for the human body.

The zinc price peaked in 2007, followed by a drastic price decline; it has increased rapidly since 2009 from USD 2,000 to USD 3,200/t, stemming from a tightening supply. Wood Mackenzie's study found that only a few new projects to explore and mine zinc have been started and that this will result in a supply drought in the coming years, thus having an impact on the zinc price.



Source: Thomson Reuters

#### Depleted zinc supply resulting in a solid market outlook

Similar to copper, the zinc price is very dependent on global supply and demand for the metal. In recent years, emerging markets, primarily China and India, have boosted the demand for zinc. China is the largest producer of zinc, but it has been cutting down on its zinc production in recent years.

In 2016, the Chinese government shut down 26 of the country's zinc mines to deal with its smog problems. This campaign escalated further when additional Chinese zinc mines were shut down in 2017, reducing the domestic supply by 11% or 4.63 million tonnes. The decline in the zinc supply intensified further when two of the world's major zinc mines, the Century mine in Australia and the Lisheen mine in Ireland, shut down in 2017. These two mines had a combined output of 630,000 million tonnes per year. Adding to this, the Brunswick and Perseverance mines were also shut down in Canada the same year. The closing of mines in 2017 resulted in a zinc price gain of 4% because the market projected a future shortfall in the zinc supply. This might present an opportunity for Copperstone, as it has found indicative zinc resources as part of its Tvistbo mine exploitation concession of grade Zn 3.3%, or 19,000 tonnes.

### Gold

The primary usage of gold is in jewellery (roughly 53% of total usage in 2017), followed by investments. A common form of investing in gold is through exchange traded funds (ETFs). It is still not uncommon to buy gold in physical form. Less than 10% of global gold consumption is in industrial uses. Around two-thirds of global gold production comes from producing mines and one-third from recycling, according to the company. The gold price has been quite volatile in recent years, trading around USD 300/oz during 2000-10 up to its record high of USD 1,900/oz in 2011. Today, the gold price is trading around USD 1,250-1,350/oz. The gold price correlates with the macroeconomic environment as opposed to the demand for industrial applications. It typically increases in terms of global economic turmoil and falling interest rates.

Several zinc mines have been shut down since 2016

Gold is most commonly used in jewellery; less than 10% is used for industrial applications



### Silver

Around half of the silver production today is used in industrial applications, primarily in electronic devices. The other half of the production is used in jewellery and different investments (according to BullionVault). In total, the company projects that roughly 27,000 tonnes of silver come from production mines and 4,600 tonnes from recycling. The silver price, just as gold, rose drastically around five years ago and peaked around USD 50/oz, but it has since declined and is trading around USD 15-20/oz.

#### EVOLUTION OF SILVER PRICES 2013-18, USD/kg



Source: Bloomberg

### Cobalt

Cobalt prices have increased by 300% in the past two years

The global demand for cobalt is today very high. Cobalt is an integral part of battery production and electric applications in cars, trucks, households and electricity power reserves. DR Congo is the main supplier of cobalt globally and the metal is receiving more and more attention, as its price level has increased by 300% over the past two years. Among other things, it is used in important parts of Tesla's S model. Copperstone explores cobalt resources through its exploration permit Såggården Nr 1.

#### 50% of global silver production is used for industrial applications; the other half is used in jewellery and for investing



Source: Bloomberg

# **Historical financials**

Copperstone's balance sheet has increased in size rapidly over the past five years, going from SEK 35m in 2012 to SEK 79m in 2017, which represents more than 100% growth in total assets. This is in line with the company's growth strategy, where capital expenditure has increased significantly in recent years. The strategy has been financed primarily by raising equity capital, and the company has maintained a good financial position with high liquidity and low leverage.

Raising new capital is an integral part of the company's strategy

#### Copperstone's need for capital has increased in the past years as part of its growth strategy

Financing

Financing and raising new capital is an integral part of Copperstone's growth strategy. The company's long-term financing is dependent on its ability to raise capital from the equity markets and other types of financing, such as debt financing and investments from governmental organs.

#### **Financial structure**

The company's ability to attract capital to finance its long-term capital needs and projects has increased gradually over the past couple of years. This goes hand in hand with Copperstone's growth strategy and correlates with the achievements of its Copperstone project. The company's most common long-term financing comes from private and qualified investors via rights issues. Over the years, the company has managed to establish good relationships with investors and creditors, and management is confident it will be able to finance its long-term capital needs. That said, the company does not see any reason to stop the current pace of the progression and development of its projects; in fact, the reverse.





The company has attracted significantly more capital in the past five years than previously

Source: Company data and Nordea

### Liquidity

Copperstone's liquidity has improved in the past five years

Copperstone's short-term financing has improved in the past five years, where both working capital and net debt have improved to a large degree. This becomes more evident from the fact that the company managed to finish its core drilling campaign during 2018 on time and within budget.

#### Net working capital (NWC)

Copperstone's NWC at the end of 2017 amounted to approximately SEK 6m, mainly derived from an increase in other current assets. This was offset by increased other current liabilities. Overall, Copperstone has managed to improve its NWC position over the past five years and management believes it will maintain sufficient NWC as well.

#### NWC peaked in 2017







Source: Company data and Nordea

**NWC FOR 2012-17, SEKm** 

Source: Company data and Nordea

Net debt at five-year low in 2017

#### Net debt

Over the past five years Copperstone has managed to decrease its net debt and turn it to a net cash position of some SEK 17m at year-end 2017, while at the same time maintaining a good equity position. This gives the company some room to make more investments in its Copperstone project and to focus on the project's development. The company's net debt was at a five-year high in 2016 related to an increase in short-term financing.



Source: Company data and Nordea

#### **Cost structure**

Mining is a capital-intense industry entailing high expenses; in particular, deep-level mining, Copperstone's core business, requires a high level of capital. There are several reasons for this, mainly:

- There might be a need for more skilled staff
- Increase in overheads and maintenance costs
- Increased costs related to energy consumption
- Intricate infrastructure.

In Copperstone's case, the biggest cost relates to prospecting, which accounted for 62% of total costs in 2017. As with other mining and exploration companies, the overhead and administration costs account for a large portion of Copperstone's total costs: 34% in 2017. Moreover, the development of Copperstone's total costs over the past five years indicates a substantial increase. This is mainly related to increased capital expenditure to finance the company's deep core drilling campaigns which, in turn, gives potential for future income.

Mining is a capital-intense industry

Copperstone's expenses have increased in recent years, due to its deep core drilling

#### COST DEVELOPMENT FOR 2013-17, SEKm



Source: Company data and Nordea

between 2012 and 2017



**Balance sheet** 

Copperstone's balance sheet has more than doubled in the past five years, going from SEK 35m in 2012 to SEK 78.6m at year-end 2017. This development reflects the growth strategy, and the company sees no reason why this development should come to an end in the coming years.

Copperstone's balance sheet has low leverage

Total assets more than doubled

The structure of the balance sheet has historically been characterised by low leverage, manifesting its ability to meet its long-term debt obligations. Copperstone's average debt-to-equity ratio has been 23% for the past five years and it has never surpassed 45%, which is quite impressive considering the company's expanding balance sheet.

**COST DISTRIBUTION FOR 2017** 



Source: Company data and Nordea



Source: Company data and Nordea

# The lion's share of the company's debt is short term

The majority of the company's debt is categorised as current liabilities, with a maturity of less than three months, in the form of loans. 35% of the debt has a maturity longer than five years, reflecting the company's healthy liquidity position.

#### DEBT STRUCTURE AS OF THE END OF 2017



Long-term liabilities
 Current liabilities

Source: Company data and Nordea

#### DEBT SPLIT ON MATURITY BUCKETS, SEKm

Per 2017-12-31, SEKm	<3 months	3 months-1 year	1-2 years	2-5 years	>5 years
Loans	5.199	0	0	0	4
Financial leasing	0	0	0	0	0
Accounts payables and other	1.251	0	0	0	0
Total	6.45	0	0	0	4

Source: Company data and Nordea

Current assets increased substantially in 2017

Looking at the company's distribution of equity, current and non-current assets, it is apparent that the equity portion has always been large. Moreover, the current assets portion increased in 2017, implying that the company's ability to finance short-term expenses has increased.





Source: Company data and Nordea

# **Estimates**

We expect Copperstone's capex to increase in the coming years as the company continues to focus on core drilling and infill drilling. Copperstone has historically raised new capital primarily through equity and we believe this will continue in the future as well. At the end of Q2 2018, Copperstone had SEK 8m in cash. In addition, the NIO investment made during Q2 2018 was marked-to-market, adding approximately SEK 16m in current assets that can be utilised by Copperstone as short- to medium-term liquidity. Moreover, we estimate a burn rate of SEK 54m over the next three years compounded, excluding Viscaria. If we were to include the Viscaria acquisition, the burn rate would amount to some SEK 150m until 2020E. We forecast that the company will finance its capital need via equity.

We estimate an intangible capex CAGR of 10% for 2018-20 due to expenses relating to the Copperstone project We estimate that the company's intangible capex will grow at a CAGR of 10% during 2018-20. This mainly relates to expenses incurred as part of the current Copperstone project, where several sites have been deemed to potentially contain porphyry copper systems and require more exploration. One of these areas is Svartliden, which is situated between Granliden and EVA. Porphyry copper systems usually occur deep in the ground and require deep core drilling to discover. Drilling deeper is usually more costly, driving up the company's expected capex and intangible assets.





Source: Company data and Nordea estimates

We believe the company's opex will remain stable in the coming years We estimate that Copperstone's operational expenses (opex) will increase slightly by the end of 2018 and remain stable for the next three years. We expect other external costs to remain stable and to increase by 2% y/y until 2020. Moreover, we predict wages and salaries to remain stable until 2020, as we do not believe any significant number of new employees will be hired.

Invested capital will continue

driven by capitalised

exploration

expenditure related to

to increase in the coming years,



Source: Company data and Nordea estimates

Copperstone's invested capital will continue to increase in the coming years, driven by a continued high level of capitalised expenditure related to exploration, thereby enabling the company's growth strategy. Historically, Copperstone has issued capital primarily through equity, and we believe this will be the case in the future too, so as to finance its needs. At the end of Q2 2018, Copperstone had SEK 8m in cash. We also estimate a burn rate of SEK 54m over the next three years compounded, excluding Viscaria. If we were to include the Viscaria acquisitions, the burn rate would amount to some SEK 150m for the next three years. We forecast that the company will finance its capital need via equity.



HISTORICAL AND FORECAST SHAREHOLDER EQUITY AND INVESTED CAPITAL, SEKm

# **Sustainability**

Mining is a long-term business with commitments and investments that can span decades. The development activities of mining companies inevitably have a significant impact on the environment and local communities in which they take place. Therefore, the policies and standards that a company adopts to ensure resources are mined sustainably, and to prevent or otherwise mitigate or remediate the impacts from their activities, are a crucial part of its business strategy. While Copperstone is a pre-production miner, its approach to sustainability still has important implications for its business prospects.

### Beyond the mining pit

Mines have the potential toEcast a long shadow over thecpeople and the environmentsFin which they operatew

Enhancing the sustainability of mining operations is one of the industry's biggest challenges. Mines have a lasting impact on the host community's air, water and land. For years, the traditional corporate responsibility agenda has required miners to work with greater transparency and with local communities throughout the lifecycle of their projects. In this sense, sustainable practices are at the core of a mining company's "licence to operate."

The way in which a mining company manages social, environmental and political risks, and how it achieves environmental performance while creating shared value with the people and communities that host its operations, eventually impacts its reputation and ability to create value.

Elements beyond "first-aid" measures, such as assessing the true community impact, entered the equation over time

SOCIAL AND ENVIRONMENTAL IMPACT OF MINING INDUSTRY

The main focus of the sustainability mind-set when it was first integrated into the business strategy in mining was on carbon and other airborne emissions, and on the types of community investments that directly benefit the local host, such as hospitals and schools. Over time though, concerns about true community engagement came into the picture, as the long-term impacts that mining have on the environment were increasingly understood.

In general, key sustainability concerns surrounding mines are social and environmental issues that can be grouped into six subcategories: water, land, air, socio-economic, health and safety, and quality of life.

	Cat	tegory	Key subcategories							
ivironmental ipact	<b>†</b>	Water	<ul> <li>Acidity and toxicity (acid mine drainage)</li> <li>Shortage and limited access</li> <li>Sedimentation</li> </ul>							
	2	Land	<ul> <li>Biodiversity</li> <li>Waste</li> <li>Heavy metal levels spillage</li> </ul>							
ii. Er	Ĩ	Air	<ul> <li>Energy and CO2 use and emissions of nitrogen oxide and sulfur oxide</li> <li>Mining or blasting dust</li> <li>Road dust</li> </ul>							
oact	X	Social-economic	<ul> <li>Job creation</li> <li>Education and skills development</li> <li>Infrastructure and housing</li> </ul>							
ocial imp	<b>🔶</b>	Health and safety	<ul> <li>Number of deaths (at mine; on road)</li> <li>Number of injuries (at mine; on road)</li> <li>Illness (respiratory, cancer and HIV, for example)</li> </ul>							
S	۷	Quality of life	<ul><li>Visual impact on landscape</li><li>Vibration Noise</li></ul>							

Source: A.T Kearney Analysis

Companies increasingly looking beyond basic regulatory regimes when addressing sustainability Beyond navigating extensive regulatory regimes set out for heavy industries, mining companies are increasingly looking beyond basic regulatory compliance when setting a sustainability agenda as a core element of their business strategy. Now, the sustainable development discussion is not only focused on the reputational or legal aspects, but

A mine that operates with good sustainability practices is more likely to be profitable given factors such as improved operational transparency and efficiency compared with peers. In sum, sustainability activities move a mine towards improving profitability. Mixed picture painted by the clean economy The boom of electric vehicles The rapid development of electric vehicles and renewable energy is having a and renewable energy brings significant impact on demand for metals such as cobalt, lithium and copper, which are important and specialty metals for the use of electric vehicles and re-chargeable opportunities... batteries. In particular, copper is heavily used in batteries, electric wiring in cars, motors of electric vehicles as well as transmission lines. A pure electric vehicle requires roughly four times more copper than an internal combustion engine. Against that backdrop, we argue that "the clean economy" is painting a rosy outlook for copper demand. The company also identifies potential tailwind, and highlights China, which consumes almost 50% of global copper production, as a key driver of the industry. As the company steps up its effort to look for the metal, and aims to commence production in the next three- to five years, we believe it is important that management make its approach to sustainability more transparent and pronounced, given the development/ extraction stage has arguably the biggest impact on the environment. ...but challenges are also In addition to opportunities, the robust growth in the clean economy brings challenges. For example, ore grades have been in decline for a long time, while global demand for looming copper is still on the rise. According to a Harvard Business Review analysis, the copper ore grade dropped from 4% a century ago to well under 1% in 2018 (and falling). From 2006 to 2016, the copper ore grade dropped 25%, but total production was up 30%. Combined with the growth of electric vehicles, this means more earth needs to be mined in order to get the same amount of metal. In this sense, copper mining embodies natural resource constraints. As a clean economy with electric vehicles and an increasing use of renewable energy continues to materialise, more raw materials are needed, and these resources need to be mined sustainably. This emphasises once again the importance of Copperstone embedding sustainability across its business, if it is to help improve industry standards and to truly contribute to a more sustainable energy future while riding the boom of the clean economy. Lifecycle commitment to sustainability Sustainability needs to be Every phase of the lifecycle of a mine has different impacts on the environment, and integrated across the stages in varying magnitudes of impact. Therefore, it is crucial that mining companies the lifecycle of a mine understand what activities and processes are driving environmental and social impacts during different stages of a project, and then direct their efforts and resources accordingly to address the issues.

also on innovative design and the economic return.

#### IMPACT OF ACTIVITIES THROUGHOUT THE LIFECYCLE OF A MINE

Marketing material commissioned by Copperstone Resources



Source: A.T. Kearney Analysis

Exploration companies rely on investors before generating production revenue...

...and investors increasingly look to the sustainability practices of miners

Sustainable mining practices demonstrate commitment to protecting the environment...

....and minimising the impact of activities during all stages of mine development

While it may appear that the earlier stages of mining development activities have the fewest environmental and social impacts, it is still crucial that mineral exploration companies are committed to responsible development of their properties. The earlier sustainability initiatives are defined and executed, the more likely they are to be successfully integrated into the development of a project.

Additionally, junior mining companies are characterised by the absence of production revenue, and therefore rely, to a large extent, on investors, whose concerns about corporate responsibility, environmental compliance and social acceptability have been growing. Therefore, a company's commitment to sustainability can play a big role in maintaining the trust and confidence of investors.

During the exploration phase, a company may begin forging relationships with local communities. Perceptions and attitudes towards mining can be formed early in the lifecycle of a mine. Transparent communication helps set expectations and shapes positive and mutually-beneficial relationships with host communities.

When planning and building a mine, the company should maintain collaboration and ongoing communication with local governments and communities on how best to ensure the proposed future mine delivers sustainable value and opportunities. This is a phase of intense activity and requires more effort than any other phase across the cycle. While there is significant job creation, standards of sustainable practices should be carefully maintained to minimise strain on local communities.

Even when a mine enters into production, a responsible miner continues to invest in community development, infrastructure and socio-economic programmes, with a view to generating benefits for the communities long after mining activities end.

Sustainability does not cease after a mine is closed. Apart from reclamation efforts, a mining company may also continue to work with local communities by building infrastructure and schools, or in general, playing a role in fuelling local economic growth.

#### INFLUENCE AND IMPACT BY MINING PHASE



Source: A.T. Kearney Analysis

In it for the long haul

### Copperstone's approach to sustainability

While Copperstone does not disclose an elaborate sustainability strategy, management has stated on multiple occasions that it does not adopt the fly-in-fly-out method commonly used among mining companies – a means of employing people in remote areas by flying them temporarily to the work site rather than relocating employees and their families permanently – at local operations. Instead, management has stated that it is "here to stay" and grow roots.

Copperstone can make a bigger impact beyond the lifespan of the mine...

...but there is room for improvement

We believe this reflects management's commitment to building a business that plays a long-term positive role and shares wider benefits in local communities. By building a lasting collaborative relationship with communities and local governments, which continues beyond the lifespan of a mine, the company can enhance the benefits brought by a sustainable energy future, and fuel local socioeconomic development.

That said, we would like to see increased transparency of Copperstone's sustainability approach, and a more developed strategy. As the company expands it operations and footprints, management's commitment to responsible mining will be a key element in building investor trust and confidence, given that the global investment community is becoming increasingly green-minded.

# **Reported numbers and forecasts**

INCOME STATEMENT											
SEKm	2010	2011	2012	2013	2014	2015	2016	2017	2018E	2019E	2020E
Net revenue	9	6	1	1	1	0	0	0	0	0	0
Revenue growth	n.a.	-35.5%	-86.5%	-17.1%	4.7%	-87.2%	5.8%	-87.9%	-100.0%	n.a.	n.a.
of which organic	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Depreciation and impairments PPF	0	-4	-7	-0 0	-7	-1	-/	-0 0	-0	-5	-4
EBITA	1	-4	-7	-8	-7	-1	-7	-8	-6	-5	-4
Amortisation and impairments	-1	-1	-4	-2	-9	0	-3	-1	0	0	0
EBIT	0	-4	-11	-11	-16	-2	-9	-8	-6	-5	-4
of which associates	0	0	0	0	0	0	0	0	0	0	0
Associates excluded from EBIT	0	0	0	0	0	0	0	0	0	0	0
Pre-tax profit	0	-4	-11	-11	-16	-2	-4	-8	9	-6	-1
Reported taxes	0	- 0	0	0	0	0	0	0	0	0	0
Net profit from continued operations	0	-4	-11	-11	-16	-2	-14	-8	2	-6	-5
Discontinued operations	0	0	0	0	0	0	0	0	0	0	0
Minority interests	-1	-2	-3	0	6	-1	0	0	0	0	0
Net profit to equity	0	-6	-14	-11	-10	-3	-14	-8	2	-6	-5
DPS	-0.08	0.00	-0.81	-0.42	-0.26	-0.03	0.08	-0.03	0.01	-0.02	-0.02
of which ordinary	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
of which extraordinary	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Profit margin in percent											
EBITDA	10.3%	-62.5%	-889.8%	n m	n m	n m	n m	n m	n m	n m	n m
EBITA	10.3%	-62.5%	-889.8%	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.
EBIT	2.6%	-73.2%	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.
Adjusted earnings											
EBITDA (adj)	1	-4	-7	-8	-7	-1	-7	-8	-6	-5	-4
EBITA (adj)	1	-4	-7	-8	-7	-1	-7	-8	-6	-5	-4
EBIT (adj)	0	-4	-11	-11	-16	-2	-9	-8	-6	-5	-4
EPS (adj)	-0.08	-0.86	-0.81	-0.42	-0.26	-0.03	-0.08	-0.03	0.01	-0.02	-0.02
Adjusted profit margins in percent											
EBITDA (adj)	10.3%	-62.5%	-889.8%	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.
EBITA (adj)	10.3%	-62.5%	-889.8%	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.
EBIT (adj)	2.6%	-13.2%	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.
Performance metrics											
CAGR last 5 years											
Net revenue	n.a.	n.a.	n.a.	n.a.	n.a.	-60.4%	-56.3%	-57.3%	n.m.	n.m.	n.m.
EBITDA	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.
EBIT	n.a.	n.a.	n.a.	n.a.	n.a.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.
EPS	n.a.	n.a.	n.a.	n.a.	n.a.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.
DPS	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.
Average last 5 years		<b>n</b> 0	<b>n</b> 0	<b>n</b> 2	250 2%	552 5%	2 156 5%	2 0/0 1%	1 931 99/14	5 5 4 4 10/20	2 226 10/
Average EBITDA margin	n.a.	n.a.	n.a.	n.a.	-150.5%	-345.3%-	1.344.9%	2.082.2%	3.426.3%	1.643.5%2	.,020.4%
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VALUATION RATIOS - ADJUSTED E	ARNINGS										
SEKm	2010	2011	2012	2013	2014	2015	2016	2017	2018E	2019E	2020E
	2010	2011	2012	2013	2014	2013	2010	2017	2010	2013	20202
EV/EBITDA (adi)	8.9	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.
EV/EBITA (adj)	8.9	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.
EV/EBIT (adj)	35.5	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.
VALUATION RATIOS - REPORTED E	ARNINGS										
SEKm	2010	2011	2012	2013	2014	2015	2016	2017	2018E	2019E	2020E
P/E	n.m	n.m	n.m	n.m	n.m	n.m	n.m	n.m	n.m	n.m	n.m
EV/Sales	0.9	1.8	10.2	12.1	15.2	539.6	802.9	22,720.5	n.m.	n.m.	n.m.
EV/EBITDA	8.9	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.
EV/EBITA	8.9	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.
EV/EBII Dividend viold (ord.)	35.5	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.
ECE vield	0.0% -127 7%	-51.2%	-151.0%	-49.0%	0.0% -96.5%	-23.6%	-23.6%	0.0% -8.9%	0.0% -1.7%	0.0%	0.0%
Pavout ratio	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
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BALANCE SHEET											
SEKm	2010	2011	2012	2013	2014	2015	2016	2017	2018E	2019E	2020E
Intangible assets	7	12	12	12	3	22	27	39	56	74	94
of which R&D	7	12	12	12	3	22	27	39	56	74	94
of which other intangibles	0	0	0	0	0	0	0	0	0	0	0
of which goodwill	0	0	0	0	0	0	0	0	0	0	0
Tangible assets	1	1	1	2	1	1	0	0	0	0	0
Shares associates	6	8	15	10	18	0	0	0	0	0	0
Interest bearing assets	0	0	0	0	0	0	0	0	0	0	0
Deferred tax assets	0	0	0	0	0	0	0	0	0	0	0
Other non-IB non-current assets	0	0	0	0	0	0	6	0	0	0	0
Other non-current assets	0	0	0	0	0	4	2	3	0	0	0
Total non-current assets	14	21	27	25	22	27	35	42	56	74	94
Inventory	0	0	0	0	0	0	0	0	0	0	0
Accounts receivable	0	0	0	0	0	0	0	0	0	0	0
Other current assets	4	1	1	2	5	1	1	8	0	0	0
Cash and bank	3	12	6	9	2	2	3	28	39	32	24
Total current assets	7	14	8	12	6	3	3	36	39	32	24
Assets held for sale	0	0	0	0	0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total assets	21	35	35	36	29	30	38	79	95	106	118
Shareholders equity	18	31	32	32	23	23	26	67	86	97	109
Of which preferred stocks	0	0	0	0	0	0	0	0	0	0	0
Of which equity part of hybrid debt	0	0	0	0	0	0	0	0	0	0	0
Minority interest	0	0	0	0	0	0	0	0	0	0	0
Total Equity	18	31	32	32	23	23	26	67	86	97	109
Deferred tax	0	0	0	0	0	0	0	0	0	0	0
Long term interest bearing debt	1	0	0	1	1	4	3	4	9	9	9
Pension provisions	0	0	0	0	0	0	0	0	0	0	0
Other long-term provisions	0	0	0	0	0	0	0	0	0	0	0
Other long-term liabilities	0	0	0	0	0	0	0	0	0	0	0
Convertible debt	0	0	0	0	0	0	0	0	0	0	0
Shareholder debt	0	0	0	0	0	0	0	0	0	0	0
Hybrid debt	0	0	0	0	0	0	0	0	0	0	0
Total non-current liabilities	1	0	0	1	1	4	3	4	9	9	9
Short-term provisions	0	0	0	0	0	0	0	0	0	0	0
Accounts payable	1	1	1	1	0	1	1	1	0	0	0
Other current liabilities	2	3	2	2	3	1	1	1	0	0	0
Short term interest bearing debt	0	0	0	0	0	1	6	5	0	0	0
Total current liabilities	3	3	3	3	4	3	8	8	0	0	0
Liabilities for assets held for sale	0	0	0	0	0	0	0	0	0	0	0
Total liabilities and equity	21	35	35	36	29	30	38	79	95	106	118
Balance sheet and debt metrics											
Net debt	-3	-12	-6	-7	0	2	7	-19	-30	-23	-15
Working capital	1	-2	-1	0	1	-2	-2	6	0	0	0
Invested capital	15	19	26	25	23	26	33	48	56	74	94
Capital employed	18	31	32	34	25	27	30	71	95	106	118
ROE	-3.8%	-22.6%	-44.2%	-33.2%	-35.8%	-13.3%	-55.1%	-16.9%	2.9%	-6.3%	-4.4%
ROIC	3.0%	-24.4%	-49.8%	-41.9%	-66.0%	-6.8%	-32.2%	-20.2%	-12.4%	-8.3%	-4.8%
ROCE	1.2%	-13.3%	-35.0%	-31.6%	-64.1%	-6.2%	-31.7%	-11.5%	-6.8%	-5.1%	-3.4%
Net debt/EBITDA	-3.0	3.3	0.9	0.9	0.0	-1.9	-1.0	2.5	4.7	4.2	3.7
Interest coverage	13.2	-484.9	-32.3	-41.8	-203.5	-4.5	-1.7	-4,2	3.5	-3.3	-2.0
Equity ratio	84.0%	89.5%	91.2%	88.3%	81.6%	77.2%	69.1%	85.3%	90.3%	91.3%	92.2%
Net gearing	-15.5%	-38.2%	-18.4%	-22.9%	-1.3%	10.5%	25.5%	-28.5%	-34.9%	-23.5%	-13.7%

#### CASH FLOW STATEMENT

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SEKm	2010	2011	2012	2013	2014	2015	2016	2017	2018E	2019E	2020E
EBITDA (adj) for associates	1	-4	-7	-8	-7	-1	-7	-8	-6	-5	-4
Paid taxes	-2	-2	0	0	0	0	0	0	0	0	0
Net financials	0	0	0	0	0	0	-4	0	9	0	-1
Change in provisions	0	0	0	0	0	0	0	0	0	0	0
Change in other LT non-IB	0	0	0	0	0	-4	-4	5	3	0	0
Cash flow to/from associates	0	0	0	0	0	0	0	0	0	0	0
Dividends paid to minorities	0	0	0	0	0	0	0	0	0	0	0
Other adj to reconcile to cash flow	-13	-3	0	0	0	-6	7	-6	0	0	0
Funds from operations (FFO)	-14	-8	-7	-8	-7	-12	-7	-9	5	-6	-5
Change in NWC	-1	1	-1	-1	0	3	5	0	6	0	0
Cash flow from operations (CFO)	-15	-7	-7	-10	-7	-9	-2	-9	11	-6	-5
Capital expenditure	1	-5	-13	2	-3	-2	-14	-15	-16	-18	-20
Free cash flow before A&D	-14	-11	-21	-7	-10	-10	-16	-24	-6	-24	-24
Proceeds from sale of assets	0	0	0	0	0	0	0	0	0	0	0
Acquisitions	0	0	0	0	0	0	0	0	0	0	0
Free cash flow	-14	-11	-21	-7	-10	-10	-16	-24	-6	-24	-24
Dividends paid	0	0	0	0	0	0	0	0	0	0	0
Equity issues / buybacks	17	20	15	11	1	8	17	49	17	17	17
Net change in debt	0	0	0	0	1	3	0	1	0	0	0
Other financing adjustments	0	0	0	0	0	0	0	0	0	0	0
Other non-cash adjustments	0	0	0	0	0	0	0	0	0	0	0
Change in cash	3	9	-6	3	-8	0	1	26	11	-7	-8
Cash flow metrics											
Capex/D&A	-149.3%	735.9%	308.9%	-88.8%	33.0%	383.8%	525.3% 2	2,920.2%4	1,695.5%	n.m.	n.m.
Capex/Sales	11.5%	-78.9%-1	,743.7%	336.2%	-419.7%-	1,789.5%	5,240.7%35	5,390.9%	n.m.	n.m.	n.m.
Key information											
Share price year end (/current)	3	3	1	0	0	0	0	1	1	1	1
Market cap.	11	22	14	15	10	44	66	269	329	329	329
Enterprise value	8	10	8	8	10	46	73	250	299	307	314
Diluted no. of shares, year-end (m)	4.1	6.4	11.8	36.4	38.7	100.9	169.8	242.4	257.4	257.4	257.4
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