INDOPREMIER

Merdeka Battery Materials

BUY

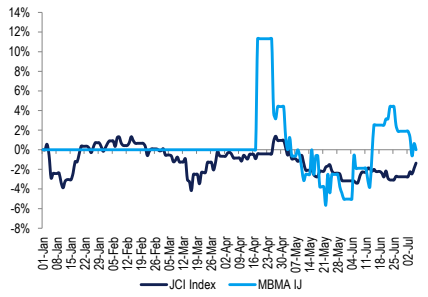
Company Initiation | Metals | MBMA IJ | 6 July 2023

Stock Data

Target price	**Rp990**
Prior TP	*RpN/A*
Current price	Rp795
Upside/downside	*+25%*
Shares outstanding (mn)	107,995
Market cap (Rp bn)	85,856
Free float	25%
Avg. 6m daily T/O (Rp bn)	N/A

Price Performance

	3M	6M	12M
Absolute	N/A	N/A	N/A
Relative to JCI	N/A	N/A	N/A
52w low/high (Rp)			750 – 885



Major Shareholders

Vale Canada	43.8%
Indonesia Asahan Aluminium	20.0%
Sumitomo Metal mining	15.0%

Erindra Krisnawan, CFA

PT Indo Premier Sekuritas

erindra.krisnawan@ipc.co.id

+62 21 5088 7168 ext. 718

Reggie Parengkuan

PT Indo Premier Sekuritas

reggie.parengkuan@ipc.co.id

+62 21 5088 7168 ext. 714

Vast resources shall pave way for battery industry leadership

- A key pillar to MBMA is its vast nickel resources (1.1bn dmt, no.1 in the world) which offers long-term (25 years) of ore supply security.
- Monetization plan of its nickel resources shall position the company as the industry leader with 192kt of class-1 nickel capacity by FY27.
- We forecast FY22-25F earnings growth of 133% CAGR (vs. nickel peers' -14% to +1%) and SOTP-based Rp990/share target price.

High-quality nickel supply supports long-term value creation

MBMA controls over 1,139mn dmt of nickel resource (13.8Mt of contained nickel at 1.22% Ni grade and 1.0Mt of contained cobalt at 0.08% Co grade), ranked as the world's largest in terms of contained nickel (based on Wood Mackenzie's estimate). Leveraging on its predominant limonite ore resource (77% of total resource or 759mn dmt), MBMA (and its potential strategic partners) aim to develop two HPAL plants, each with 120kt of contained nickel capacity. This shall add to the existing company's nickel assets i.e. RKEF operations (total 88kt by FY23-end) and AIM project asset (producing sulphuric acid to supply to HPAL projects).

Low-risk monetization plans aided by operational track records

We forecast MBMA to have 192kt of attributable class-1 nickel capacity (through nickel matte and HPAL) upon expected completion of HPAL projects by FY27. We estimate the HPAL project to garner EBITDA margin of US$8.2k/t (based on LME nickel/cobalt price of US$22k/45k per tonne vs. current price at US$20/33k). Its existing RKEF smelters has run at 94-109% of nameplate capacity and operating costs on par with peers.

Steady class-1 demand supports margin despite class-2 oversupply

We forecast demand for class-1 nickel products to grow at 9% CAGR over the next 17 years, driven by the rising adoption of EV. While growth in Indonesia's NPI capacity may continue to put the Class-2 nickel market in oversupply condition until FY27, growing demand for Class-1 nickel shall offers optionality for MBMA to capture margins through investment in nickel matte converters (e.g., recent CSPA to acquire 60% stake in HNMI).

Superior FY22-FY25F 133% EPS CAGR potentials; initiate with Buy

MBMA currently trades at 11.6x FY24F EV/ EBITDA, a premium to Indonesian/global nickel peers of 7.5/4.9x. Amid expected completion of its key growth projects between FY22-25F; we expect the company to deliver superior earnings growth of 133% CAGR (vs. nickel peers' 3-28%). We arrive at SOTP-based TP of Rp990/sh (implying 14.3x FY24F EV/EBITDA), assuming nickel price of US$22k/t. Key risks are: 1) weaker nickel price. 2) project delays and cost overruns. 3) changes in government regulation.

Financial Summary (US$ mn)	2022A	2023F	2024F	2025F	2026F
Revenue	456	1,609	2,733	3,889	5,701
EBITDA	46	211	524	991	1,819
Net profit	22	43	196	274	637
EPS growth	N/A	100%	353%	40%	133%
ROE	1%	2%	7%	8%	14%
PER (x)	264.2	132.2	29.2	20.9	9.0
EV/EBITDA (x)	131.3	28.8	11.6	8.7	4.2
Dividend yield	0.0%	0.4%	0.4%	0.4%	0.4%
IPS vs. consensus		82%	94%	74%	N/A

Source: Company, Indo Premier *Share price closing as of: 6 July 2023*

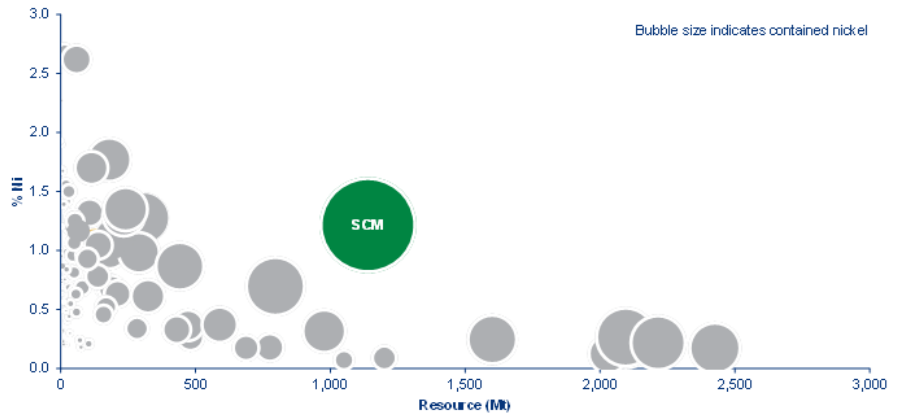
Vast resources shall pave way for battery industry leadership

Merdeka Battery Materials (MBMA) is a subsidiary of the listed diversified miner PT Merdeka Copper Gold Tbk (MDKA), which is also a controlling shareholder with 49.71% stake. MBMA became part of MDKA in 2022 following the parent company's acquisition of key nickel assets based in Southeast Sulawesi province.

High-quality nickel ore supply security

Amid the growing needs to secure nickel resource to supply the EV battery supply chain, MBMA mine's rich nickel resource (1.1bn dmt of nickel resource, at an estimated 13.8Mt of contained nickel, the largest resource base in the world, based on Wood Mackenzie's assessment) strategically positioned the company in the battery supply chain in Indonesia. MBMA's other strategic shareholders and partners currently already include players with proven track record in the nickel industry namely leading HPAL producer Huayou (8.45% ownership), and at the operating subsidiary level, it is also partnering with Tsingshan (49.9% ownership in CSI and BSI).

Fig. 1: MBM resource rank (vs. global mine)



Source: Wood Mackenzie

Feasible monetization plans, along with operational track records

MBMA's growth strategy is focused on monetization of its nickel resource given a predominant limonite ore (77% of its total resource) to supply to HPAL projects (to manufacture MHP, class-1 nickel). Its current assets in operations comprise of two RKEF smelters (total of 38kt nickel production capacity), both located in the Indonesia Morowali Industrial Park (IMIP), with a third RKEF smelter (planned 50kt of nickel) slated for completion in FY23. MBMA also plans to invest in its own HPAL projects which, assuming completion in FY25-26, shall result in estimated attributable production of class-1 nickel of 121kt by FY27 (based on our assumption of ownership and project size of 2x120kt) and position the company among the largest supplier of battery materials.

MBMA's growth project also include the acid iron metal (AIM) project (MBMA's 80% ownership, the remaining 20% owned by Tsingshan) which will produce sulphuric acid, copper, and precious metals (gold, silver). AIM project's plants are located in IMIP which will allow it to supply its sulphuric acid product to HPAL plants, as part of its feedstock.

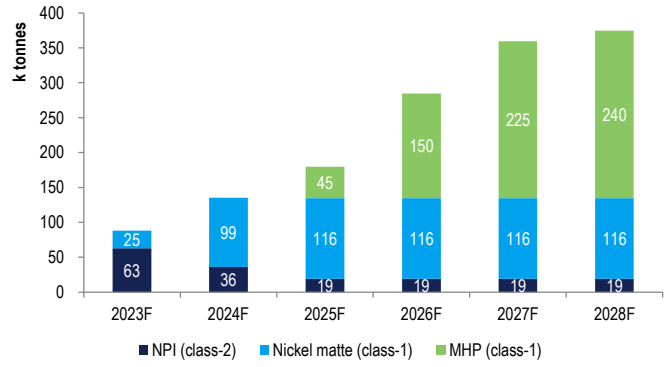
MBMA also holds 32% stake in an industrial park in Konawe (Indonesia Konawe Industrial Park/ IKIP), which is located adjacent to the SCM mine and will house future developments of the HPAL projects.

Fig. 2: MBM asset summary

Asset	Location	Stake	Output	Production capacity p.a.	Status	Production start
SCM mine	**IKIP**	**51.0%**	**Limonite & saprolite**	**>64,000,000 wmt**	**In-operation**	**1H23**
Limonite			Ore	>50,000,000 w mt	In-operation	1H23
Saprolite			Ore	>14,000,000 w mt	In-operation	1H23
RKEF smelters	**IMIP**	**50.1%**	**NPI/nickel matte**	**88,000 tonnes**		
BSI	IMIP	50.1%	NPI	19,000 tonnes	In-operation	1H20
CSI	IMIP	50.1%	NPI/nickel matte	19,000 tonnes	In-operation	1H20
ZHN	IMIP	50.1%	NPI/nickel matte	50,000 tonnes	In-construction	2H23
HGNM converter	**IMIP**	**60.0%**	**HG nickel matte**	**50,000 tonnes**	**In-operation**	**2022**
			Acid	1,200,000 tonnes		2H23
			Steam	1,360,000 tonnes		2H23
			Iron ore pellet	500,000 tonnes		2H23
AIM	IKIP	80.0%	Copper cathode	15,000 tonnes	In-construction	1H24
			Lead-Zinc product	6,000 tonnes		1H25
			Gold	17,000 tonnes		1H24
			Silver	700,000 tonnes		1H24
HPAL	**IKIP**	**53.0%**	**MHP**	**240,000 tonnes**	**Planned**	
IKIP 1	IKIP	66.0%	MHP	120,000 tonnes	Planned	1H25
IKIP 2	IKIP	40.0%	MHP	120,000 tonnes	Planned	1H26

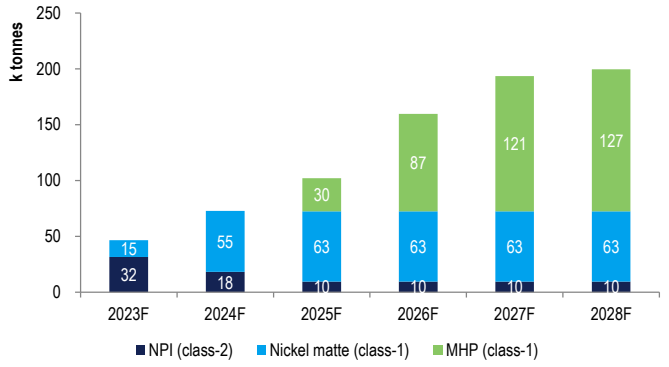
Source: Company, Indo Premier

Fig. 3: MBM nickel production profile – gross basis



Source: Company, Indo Premier

Fig. 4: MBM nickel production profile – attributable basis



Source: Company, Indo Premier

MBMA has established essential building blocks to secure leadership in the nickel and battery value chain industry. This, combined with its shareholders' proven track record in project developments and access to financing, shall offer MBMA with strong potentials to become an integrated battery supply chain champion.

1) SCM nickel mine: world's largest nickel resource

MBMA's Sulawesi Cahaya Mineral (SCM) mine is located around 50km Southwest of the Indonesia Morowali Industrial Park (IMIP), currently the center of substantial nickel processing operations (RKEF, HPAL, stainless steel). SCM's 1.1bn dmt resource (13.8Mt of contained nickel and 1mn cobalt) sits at 21.1k hectare concession and was originally discovered by Rio Tinto (named La Sampalla deposit) in 2000. SCM's current resource ranks it as the largest nickel resource globally, based on Wood Mackenzie's data.

The SCM mine shall provide MBMA with long-term supply of nickel ore, estimated at 25 years based on its current resource base. Additionally, MBMA has also identified upside from unexplored concession area within SCM. MBMA expects the SCM mine to achieve full production ramp-up in FY27 with the potential to achieve more than 60 mtpa nickel ore (500 ktpa nickel metal contained) at full ramp up.

SCM has a predominant limonite ore resource (accounting for 77% of total resource), suitable to cater for HPAL projects. MBMA designed SCM's mine plan according to the future supply volume of HPAL projects. At present, SCM's supply contract covers existing off-take agreement with Huayou for its HPAL project in IMIP (8mn wmt p.a.). We estimate future supply of 40mn wmt to cater for future HPAL projects that MBMA partners planned for development at the IKIP industrial park (adjacent to SCM mine).

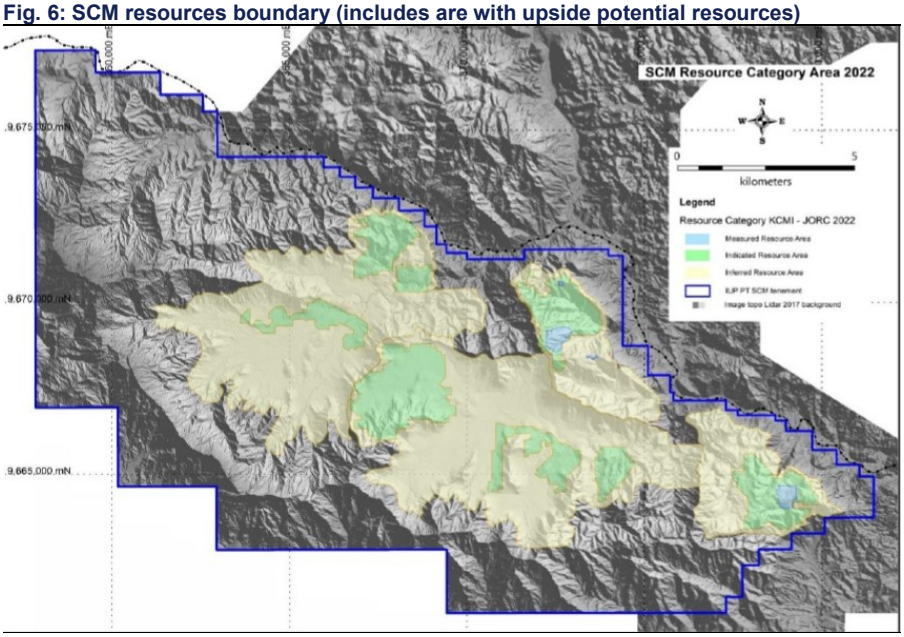
In terms of infrastructure, MBMA is currently developing a haul road (~20km) to connect SCM to IMIP. In practice, the hauling road will connect SCM with IMIP through an adjacent mine (Bintang Delapan) existing hauling road, which MBMA has a long-term agreement to utilize to transport mined nickel ore to IMIP. Additionally, we estimated capex of US$116 for SCM's mine infrastructure development, expected to be completed in FY23.

MBMA's mining operation is conducted through third-party mine contractors. We estimate mining cost of US$7/6/5 per wmt for SCM mine in FY23/24/25F, with US$23/wmt of hauling cost to transport limonite ores to IMIP. At LME price of US$22k/t, the estimated cost shall translate to EBITDA margin of US$0.9/2.8/4 per wmt for the SCM mine in FY23/24/25F, based on our estimate.

Fig. 5: SCM mine location

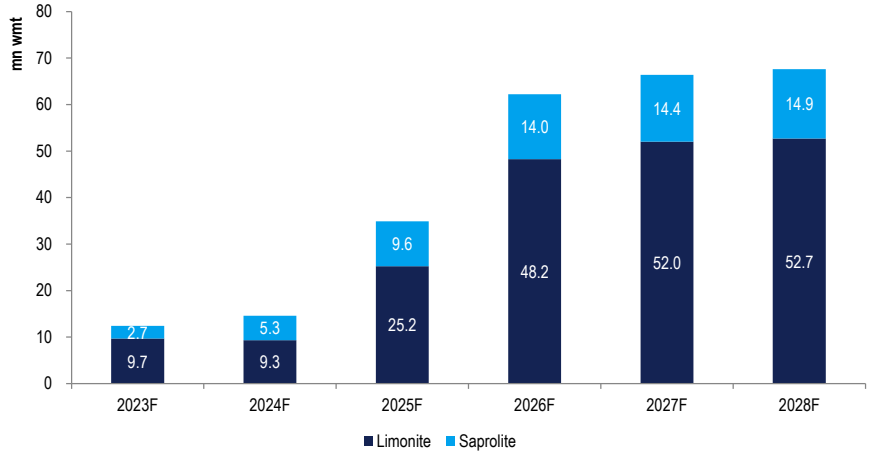
Source: Company, Indo Premier

Fig. 6: SCM resources boundary (includes are with upside potential resources)



Source: Company, Indo Premier

Fig. 7: SCM mine volume projection



Source: Company, Indo Premier

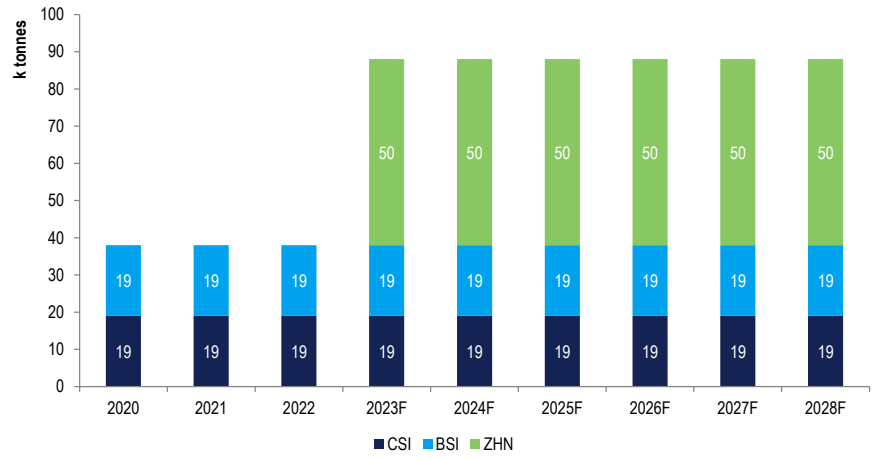
2) RKEF smelters: steady operational performance + upside from nickel matte conversion

MBMA currently owns (50.1% stake) and operates two RKEF smelters (i.e., CSI and BSI) both located in IMIP, with total nameplate capacity 38kt of nickel (comprising of two production lines totalling of 19kt in each smelter). The two smelters were commenced in Nov19 and Feb20 respectively, and have been in commercial production in Jan20 and Mar20. Since the commercial production, CSI and BSI have been producing NPI at a steady utilization rate of 109% of their nameplate capacity). We believe the RKEF smelters steady production reflected a low-risk nature of operation, benefiting from the available supply of nickel ore and power (from IMIP), as well as MBMA's strong relationship with Tsingshan (as the shareholder of the remaining 49.9% stake in the RKEF smelter).

MBMA is currently completing the construction of its third RKEF smelter (also 50.1% owned) which is planned to comprise of four production lines,

at a total of 50kt of nickel capacity, also located in IMIP. The construction of the third smelter (i.e., ZHN) is currently progressing as scheduled and MBMA expects to start commercial production in 2H23. Given ZHN smelter's identical technology and location to its predecessors, we expect its production to ramp up to its nameplate capacity in 2H23.

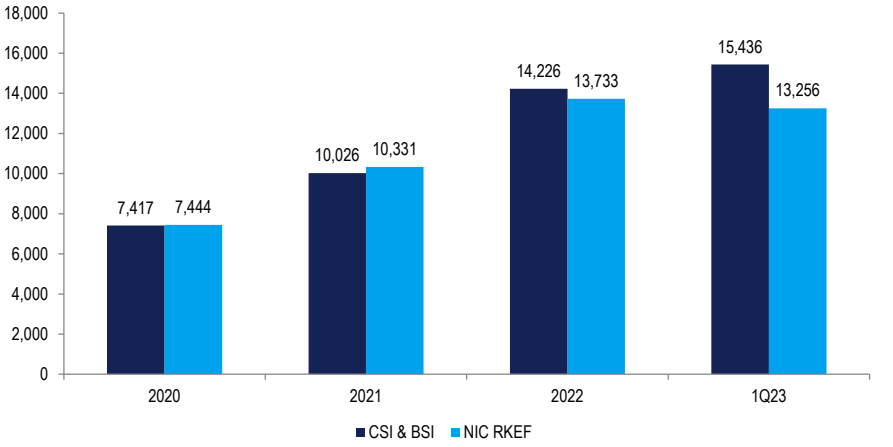
Fig. 8: MBM RKEF smelter nameplate capacity



Source: Company, Indo Premier

CSI and BSI smelters' recorded cash cost of US$15.4k in 1Q23. We noted that CSI and BSI's cost are also comparable to that of IMIP-based Indonesian NPI producers such as Nickel Industries' (NIC AU) Ranger and Angel smelter (please see below chart). We think this reflected the IMIP-based smelters' similar cost structure which mainly comprised of nickel ore (39% of FY23F total cash cost), electricity (22%) and smelting coal (17%).

Fig. 9: BSI & CSI vs. NIC RKEF cash cost



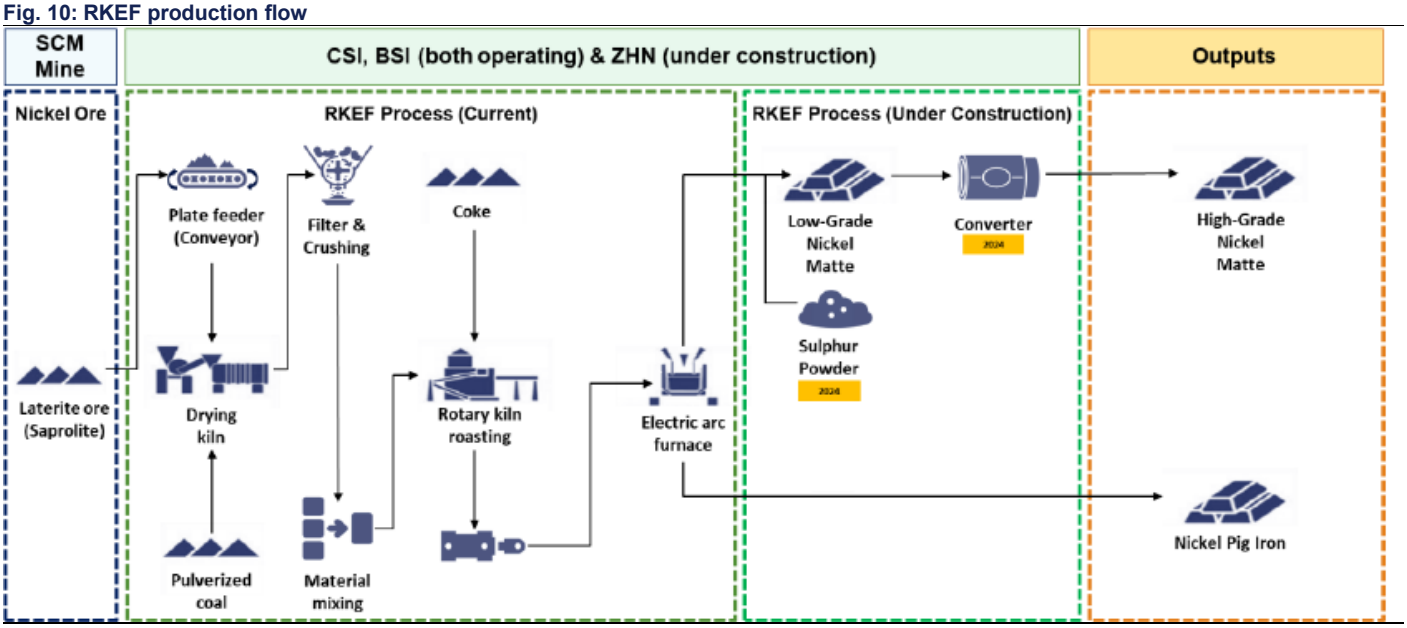
Source: Company, Indo Premier

CSI and BSI process ~1.8mn wmt of nickel ore (at 1.8% grade) per annum (equivalent to ~98wmt/t of NPI), that is currently bought from third-party mines in adjacent area. In the future, CSI and BSI aim to prioritize sourcing ores from SCM mine, though it may procure from third-party mines to obtain required ore grade of 1.8%.

Aside from nickel ore, CSI and BSI's cost structure consists of electricity consumption and smelting coal. MBMA indicated that CSI and BSI

consumed 37.5MWh/10 tonnes of electricity/smelting coal per tonne of NPI. In FY22/3M23 CSI and BSI combined recorded cash cost of US$14.2/15.4k per tonne and EBITDA margin of US$2.1/2k per tonne. In FY23, we estimate total cash cost to fall to US$13k/t and EBITDA margin to slightly improve to US$2.4k/t, as we expect the decline in nickel price shall be more than offset by the decline in coal price.

Fig. 10: RKEF production flow



Source: Company, Indo Premier

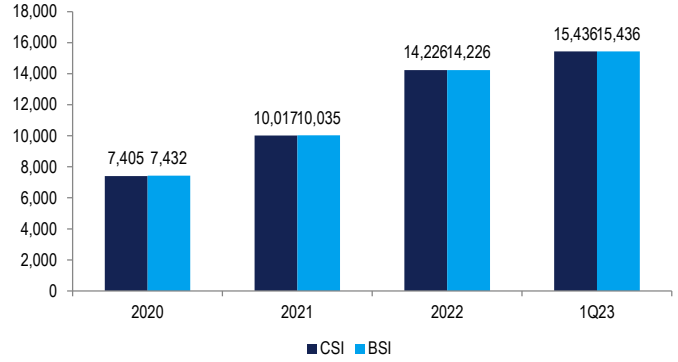
To alleviate the impact of margin pressure in NPI (class-2 nickel) market, MBMA sees the opportunity to tap into the class-1 market through adding a conversion unit which is designed to process the NPI output into nickel matte (hence, allowing MBMA to supply to nickel sulphate producers).

The conversion process is based on the technology developed by Tsingshan which adds sulphur to molten NPI to remove iron and replace it with sulphur. Tsingshan has reported first commercial production of nickel matte from this process in Dec21. NIC's Hengjaya smelter has also completed the conversion unit and reported EBITDA margin of US$5k/t from selling nickel matte in 1Q23 (vs. its NPI's EBITDA margin of US$3.2k/t in 1Q23).

In Jun23, MBMA has completed the CSPA to acquire 60% stake in a high-grade nickel matte processing facility (HNMI) for US$75mn. HNMI has 50k of processing capacity of high-grade nickel matte, located in IMIP, hence the transaction implies valuation of US$2.5k/t. This shall allow MBMA to tap into the higher-margin nickel matte market (estimated additional margin of $2-3k/t) earlier than its initial plan in FY24.

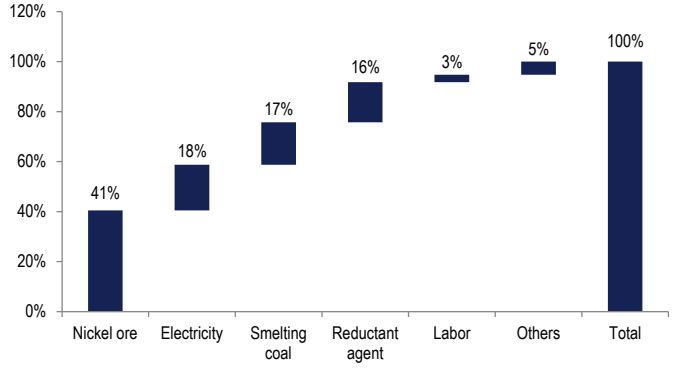
MBMA plans to invest in the additional conversion unit in its CSI and the upcoming ZHN smelters, with a combined estimated capex of US$116mn. MBMA management aims for the construction to complete in 1H24 and nickel matte production to commence in 1H24.

Fig. 11: BSI & CSI cash cost (US$/tonne)



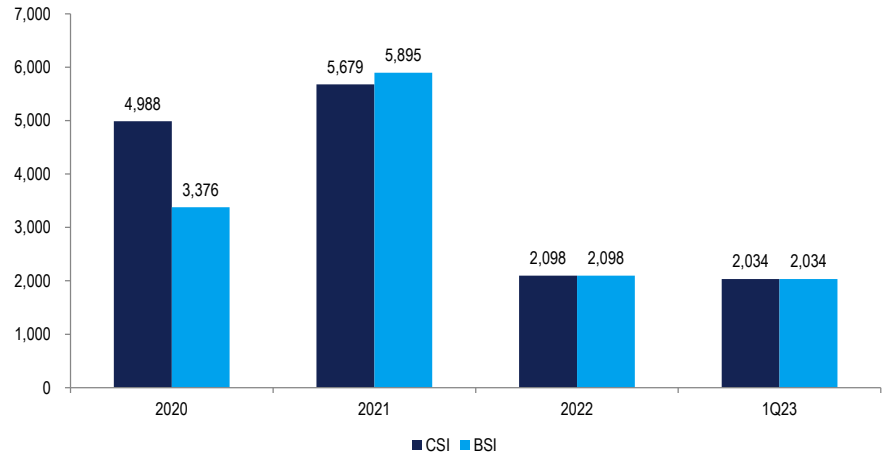
Source: Company, Indo Premier

Fig. 12: BSI & CSI cash cost composition



Source: Company, Indo Premier

Fig. 13: BSI & CSI EBITDA margin (US$/tonne)



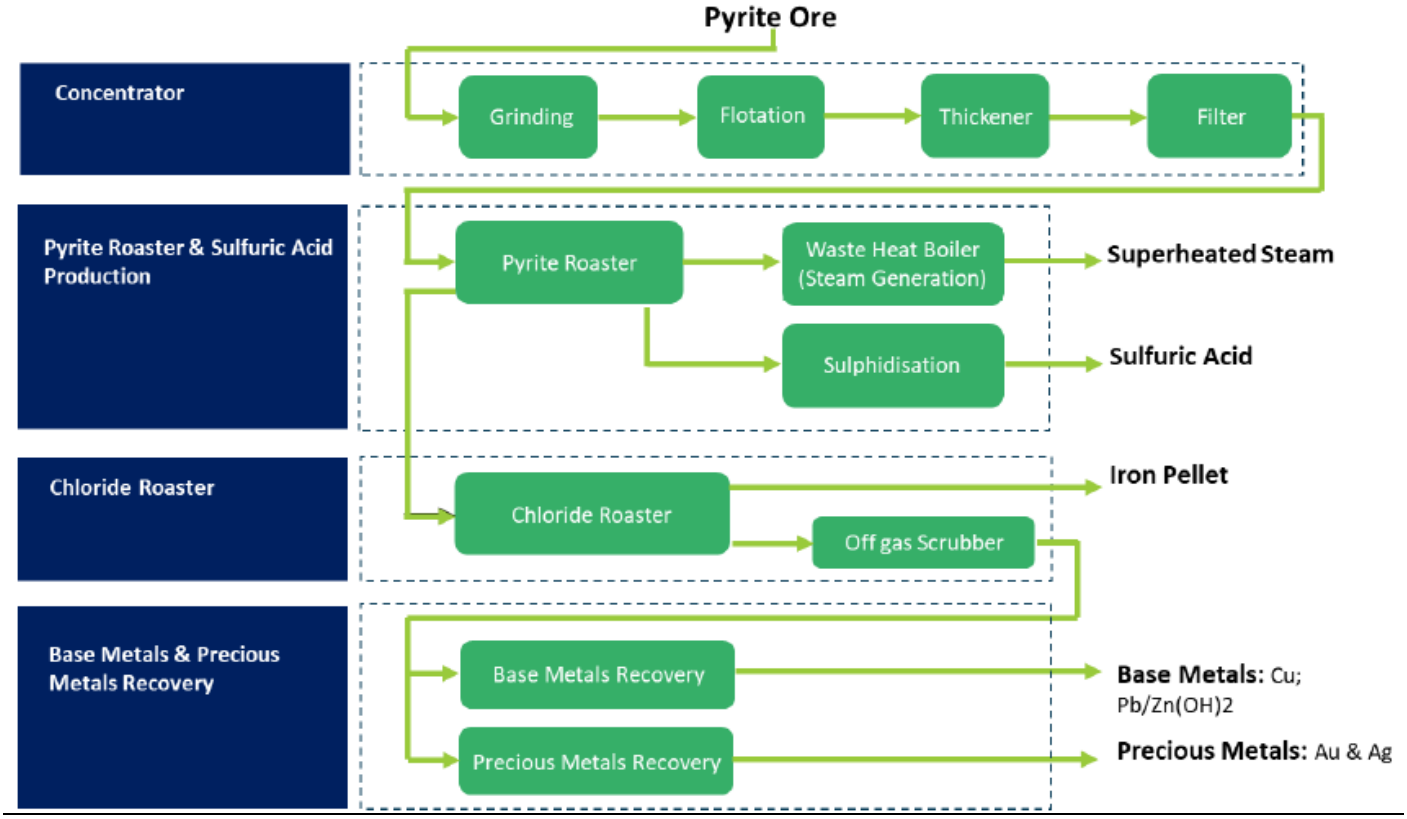
Source: Company, Indo Premier

3) AIM project: enhancing synergy

MBMA is currently constructing of its Acid Iron Metal (AIM) project which will produce sulphuric acid, iron ore pellets, copper, and precious metals (gold, silver). The AIM facility will be based in IMIP and will process high-grade pyrite sourced on a long-term contract from parent MDKA's Wetar copper mine. AIM aims to sell the sulphuric acid to HPAL operations in IMIP, iron ore pellets to stainless steel producers (also in IMIP) and other metals to third party buyers.

AIM project will comprise of four plants namely pyrite plant (to process pyrite into concentrate), acid (and steam) production plant, chloride plant (to process calcine into iron ore pellets) and copper cathode plant. MBMA estimated total capex of US$455mn for the project, with first production slated for 2H23, based on management's estimation.

Fig. 14: AIM project production flow

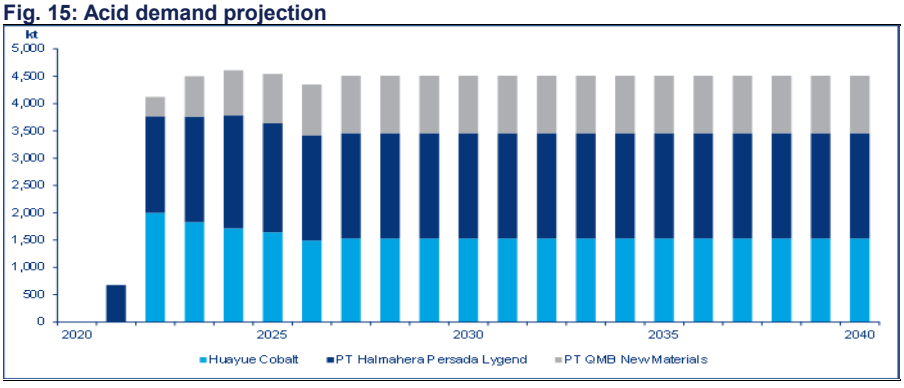


Source: Company, Indo Premier

MBMA expects its AIM project to have sulphuric acid production capacity of 1.2mn tonnes. At the estimated conversion rate of 1:3 (sulphur to acid), we expect AIM's sulphuric acid to fetch 35% price of sulphur. The expected completion of AIM project in 2H23 is timely, in our view, as it coincides with the ramp up of HPAL project operations in Indonesia which translates into higher demand for acid.

Based on Wood Mackenzie's forecast, acid demand may grow at a steady rate to reach 2,540kt in FY24 (from an estimated 2,350kt in FY22), driven by the expected completion of HPAL projects from PT Halmahera Persada Lygend and PT QMB New Materials (553-579kt estimated collective demand).

Fig. 15: Acid demand projection



Source: Wood Mackenzie

4) HPAL project plans

MBMA aims to finalize a strategic partnership to develop two High-Pressure Acid Leach (HPAL) plants in IKIP. These plants will have a planned production capacity of 120kt of mixed hydroxide product (MHP) each. We expect the first smelter to begin operation in 1H25 and reach full capacity in the 1H26, and the second smelter to commence in the 1H26 and reach full capacity in the 1H27.

The MHP produced from the HPAL plants will be sold to nickel sulphate producers. We believe there is potential upside in production volume beyond planned capacity, as Huayou's 60kt HPAL smelter in IMIP is currently producing at 10% above its nameplate capacity.

Each of the planned HPAL plants will process a combination of 19.3 million wet metric tons of limonite and 1.1 million wet metric tons of saprolite (at ore grades of 1.2% and 1.25%) sourced from SCM. The main raw material consumption includes sulphur (10 tonnes per tonne of MHP) and steel bar (0.7 tonnes per tonne of MHP). HPALs consume much less electricity, at 6,000 kWh per tonne of MHP, compared RKEFs, which consume 37,500 kWh per tonne of NPI.

We estimate that HPAL project cash cost to be at US$11.6k, which shall translate to EBITDA margin to around US$8.2k (based on LME nickel price of US$22k and cobalt price of US$45k). According to NIC's Dec22 financial report, Huayou's HPAL smelter is estimated to generate US$10k EBITDA per tonne (based on an LME price of US$24kt/t and cobalt price of US$40k/t).

Although HPALs are less expensive to operate compared to RKEFs, they require a much larger initial investment. The IKIP 1 and IKIP 2 HPALs are estimated to require an initial investment of US$2.9bn, which implies a cost of US$24.2k/t of MHP. Meanwhile, based on comments from various players, we understand that cost to build RKEFs averages at US$11-16k/t.

Partnerships with EV players

MBMA has had strategic collaborations with key players in global EV battery value chain such as CATL Group, Tsingshan group and Huayou cobalt.

- **CATL**
  CATL Group is a strategic partner holds 5% of its shares in parent MDKA. The group currently holds 25% share in the global battery production capacity. In Dec21, parent MDKA entered into an MOU with CATL group to cooperate and invest in battery materials supply chain in Indonesia.

- **Tsingshan**
  The Tsingshan group is presently the dominant player in the Indonesian NPI industry and a global leader in NPI processing technology, having pioneered the RKEF process which has enabled the low-cost production of NPI, according to Wood Mackenzie.

  MBMA operates a strategic commercial partnership with the Tsingshan group, which acts as important minority shareholder in its operating subsidiaries, as well as a majority shareholder in IKIP. It retains a 49.0% interest in the project company for the SCM Mine, a 49.9% interest in each of CSI, BSI and ZHN and a 20.0% interest in AIM project and a 68.0% interest in IKIP. In terms of operations, IKIP will be jointly developed and operated by the Tsingshan group and MBMA,

while RKEF Smelters are operated by Tsingshan and the AIM Project is operated by MBMA.

- **Huayou Cobalt**
  Huayou Cobalt is one of China's major nickel-cobalt-manganese cathode suppliers, which is a key battery component. Huayou Cobalt is currently building a feed preparation plant on the SCM Mine site and will be an offtaker of nickel limonite produced from the SCM Mine. Huayou Cobalt is also operating HPAL plants in Indonesia.

Management team

MBMA has formed a management team with strong expertise in mining, nickel operations and project management. At the operating subsidiaries level, the senior management include professionals in nickel mining and projects with working experiences in major Indonesian mining operators. Meanwhile, MBMA's board of commissioners represent majority shareholders/ sponsors which are affiliated with groups that demonstrated past track record in delivering growth and access to financing.

Fig. 16: MBM management team

Name	Position	Experience
Board of Commisioners		
Winato Kartono	President Commissioner	25 years of experience in founding, investing, building and operating business (founding partner of Provident Capital)
Michael Soeyadjaya	Commissioner	President Director of Saratoga Investama Sedaya
Hasan Fawzi	Independent Commissioner	
Board of Directors		
Devin Antonio Ridwan	President Director	Served the provident for 25+ years of experience in accounting, corporate finance, and supply chain
Jason Laurence Greive	Vice President Director	28+ years of international mining experience
Titien Supeno	Director	20+ years of experience in human resources management and currently serves as a Director at PT. Merdeka Copper Gold
Senior Management		
Jason Laurence Greive	Chief Executive Officer	
Agus Superiadi	Chief Executive Officer (SCM mine)	25+ years of international mining experiece and is qualified with Indonesia nickel mines (including exploration, permitting, contract negotiation, corporate, affairs and external relations)
Devin Antonio Ridwan	Chief Financial Officer	
Ali Sahami	Executive General Manager ESG	30+ years of experience in environmental, social, and governance aspects of nickel, copper, gold and coal mining project globally
Didik Fortunadi	Vice President of Operations (SCM mine)	25+ years of experience in nickel and coal mines and is qualified in mineral resource and reserve estimation and ore blending
Mark Mitchell	Chief Operating Office	Qualified chemical engineer with a strong technical grounding in extractive metallurgy technologies
Shi Hongchao (Rugby)	Vice President of Business Development	Experienced in project management, power plant, gold and nickel operations

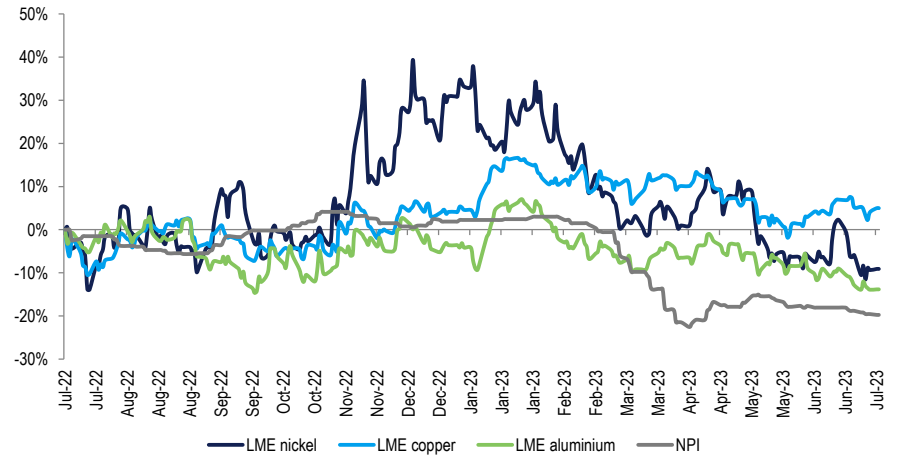
Source: Company, Indo Premier

Industry Outlook

Nickel: price correction underway

LME nickel price has corrected 32% YTD/9% in 12mo, worse than copper's (flat YTD/+5% 12months) and aluminium's (-10% YTD/-14% 12months). We see LME nickel price performance to mainly reflect a combination of limited supply of class-1 nickel and persistently low inventory levels, while its liquidity remained more constrained (vs. other metals) post the short squeeze event in Mar23.

Fig. 17: LME metals 12-months price performance



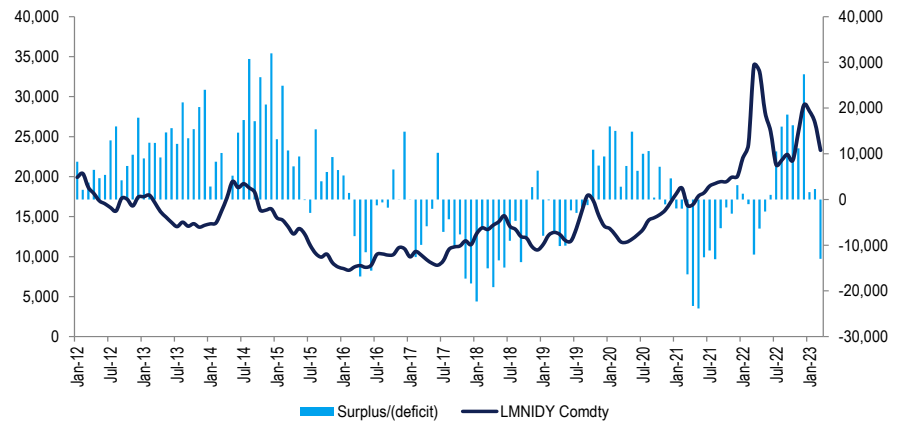
Source: Bloomberg, Indo Premier

Nickel price downside risk

Looking at historical 20 years price, LME nickel price experienced downcycle in 2007-2008 and 2011-2016 with prices hitting bottom at US$8.9k/t and US$7.5k/t in 2008 and 2016 respectively, marking 56/74% downside from the previous peak (in 2007 and 2011).

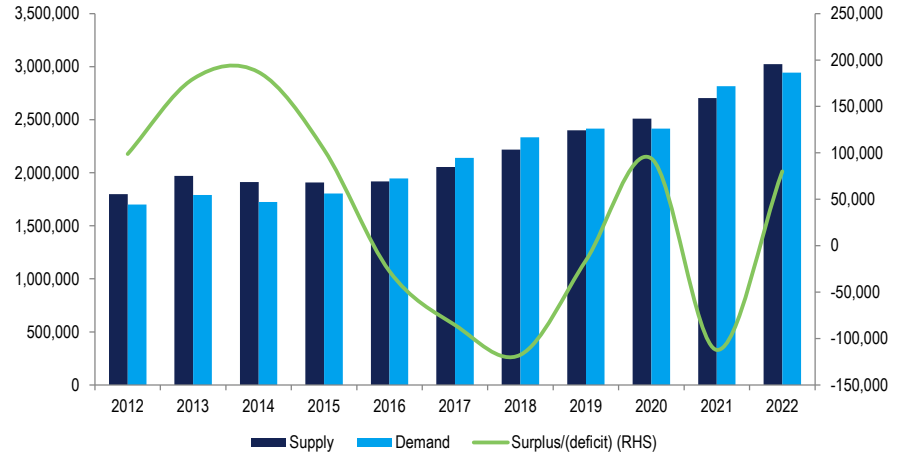
We noted that the price downcycle in 2016 was preceded by period of rising supply (+2.5% CAGR during 2012-15) which was met with slowing demand (+1% CAGR during 2012-15). The cumulative market surplus pushed inventory to a record high of 470kt and subsequently was followed by pricing bottoming in 2016.

Fig. 18: Nickel historical price vs. market balance



Source: Bloomberg, Indo Premier

Fig. 19: Nickel historical supply-demand



Source: Bloomberg, Indo Premier

Nickel supply-demand outlook

Rising nickel intermediary capacity to turn the market into surplus in the medium-term

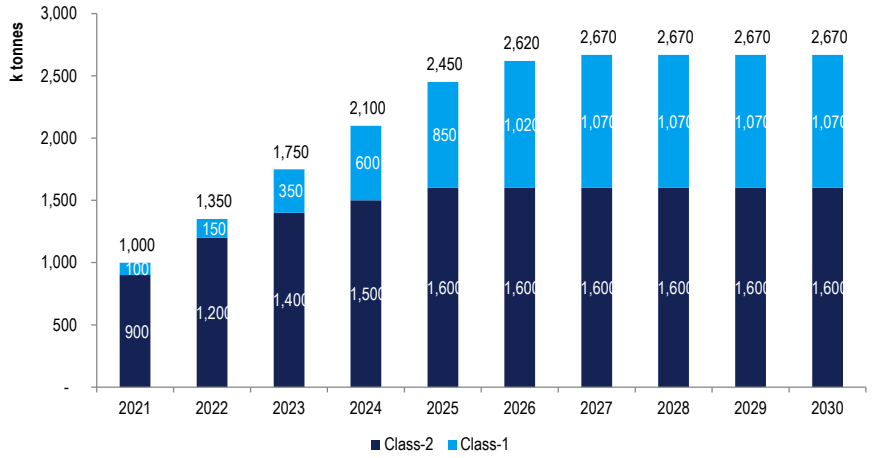
The ramp up of NPI production in Indonesia, mainly at Tsingshan (in Morowali), Virtue Dragon and Weda Bay, have brought the nickel market into surplus in FY20. Demand recovery in FY21 moved the global market back into deficit and sustained the rally in nickel price. In 2022, strong rates of NPI production from Indonesia has resulted in oversupply of class-2 nickel, resulting in the decoupling between LME price (which reflected prices for nickel matte/ class-1 nickel) and NPI price (mainly import price from Indonesia into China).

Our base case scenario expects nickel market to turn into a surplus in FY23 on rising capacity from Indonesia to outpace demand recovery. At this juncture, we believe the risk skews to demand downside, though low inventory may continue offer cushion on price.

Supply outlook: rising class-1 capacity, NPI-to-matte conversion to help balance supply outlook

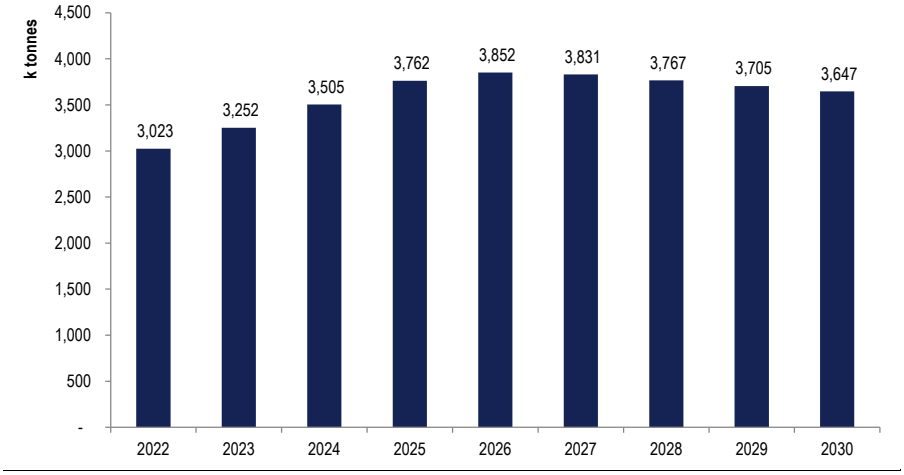
Our base case view expects 1.1mt of additional Indonesia's refined nickel capacity to come onstream in FY23-FY25, comprising of 400kt of class-1 (MHP and nickel matte) and 700kt of class-2 (NPI) nickel. While this implies higher capacity growth for class-1 (467% growth vs. class-2's 33%), our projection for class-1 capacity includes NPI-to-matte conversion which shall offer options for Indonesian NPI producers (between class-2 and class-1) and help balance the supply outlook in the two markets.

Fig. 20: Indonesia capacity outlook



Source: Bloomberg, Indo Premier

Fig. 21: Global nickel supply outlook

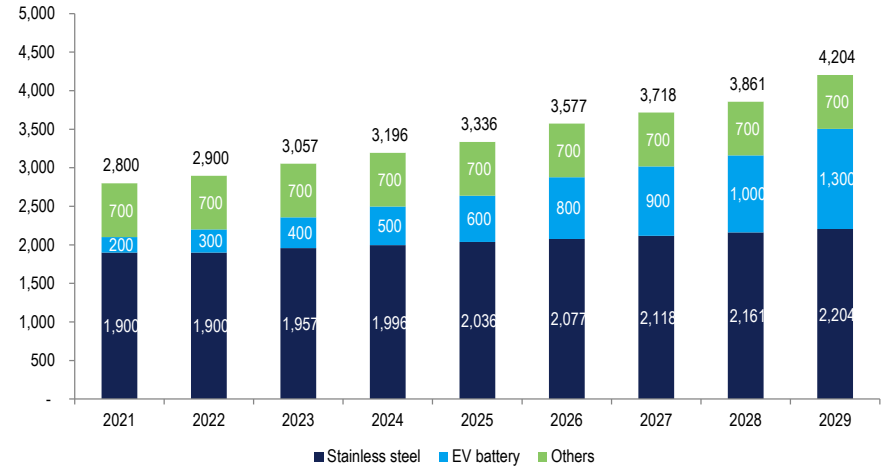


Source: Bloomberg, Indo Premier

Demand outlook: China's stainless steel remain a key demand driver in FY23-25

We expect nickel demand in FY23-25 to remain primarily driven by demand from stainless steel (at 2% pa, translating to 79k of incremental demand), though we also expect demand from EV battery to grow at exponential rate (at 23% pa, translating to 200k incremental demand). As stainless steel still accounts for 64% of nickel demand in FY23, we see downside risk if China's economic growth disappoint (China accounts for ~60% of global stainless steel production).

Fig. 22: Global nickel demand outlook



Source: Bloomberg, Indo Premier

Long-term demand outlook skews toward EV Battery segment

In the longer run, global nickel demand is forecasted to grow to 5.7Mt in FY40 from 2Mt in FY22 (3.8% CAGR in FY22-40), based on Wood Mackenzie's forecast. While stainless steel sector will remain the largest demand source, demand growth is expected to be mainly driven by EV batteries segment which is forecast to account for 59% of the incremental growth during the period, based on Wood Mackenzie's forecast.

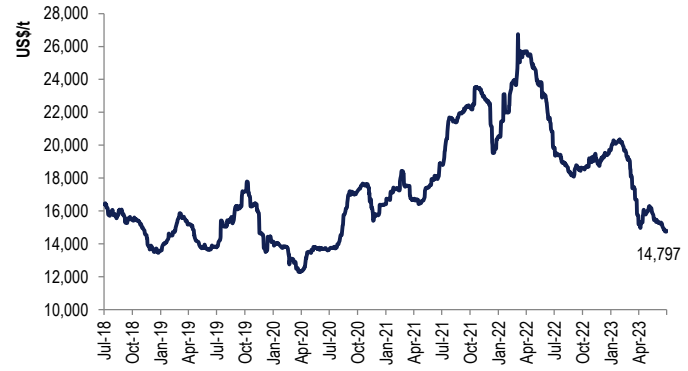
Nickel demand growth from the battery sector is expected to be underpinned by the acceleration of adoption of EVs and ESS which, based on Wood Mackenzie's forecast, will result in global battery demand to surge to close to 6,000GWh in FY40, or 11.7% CAGR.

Amid the expected higher demand growth rate, the battery sector is forecasted to account for 37% of share in nickel demand by FY40, up from 15% share in FY22. Meanwhile, stainless steel share of demand may fall to 49% in FY40 (vs. 64% in FY22). This demand profile, if materializes, will continue to favour the market balance for the Class-1 nickel products (e.g. MHP, nickel matte).

Price outlook

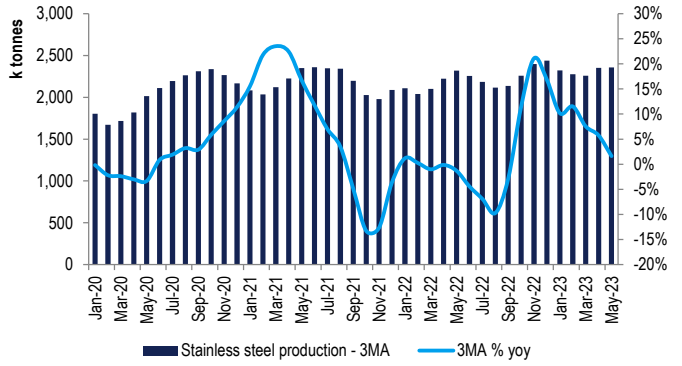
While we retain our nickel price forecast of US$22k/t in FY23 (vs. YTD average of US$24.2k/t), FY24-FY25F of US$20k/t and US$22k/t long-term price assumption, we see downside risk for price to US$20k/t if further demand weakness materializes. While we had expected NPI price to recover in FY23, the outlook hinges on further confirmation of China economic recovery, as already apparent in recent price correction in NPI back to US$15k/t (following recovery to ~US$20k/t in Dec22-Feb23).

Fig. 23: NPI price



Source: Bloomberg, Indo Premier

Fig. 24: China stainless steel production



Source: Bloomberg, Indo Premier

Industry risk factor: possible substitutions to lithium-ion NMC batteries

Lithium-iron-manganese-phosphate (LMFP)
Dubbed as an upgraded version of LFP, LMFP batteries share LFP's advantages of low cost, high thermal stability and safety. Compared to LFP, LMFP has the upside of higher energy density (15-20% higher than LFP) and better low-temperature stability. However, it also has downsides as the addition of manganese will lead to shortened life cycle, and poor charge and discharge capacity, as well as lower electrical conductivity. LMFP battery typically uses aluminium as cathode and copper as anode.

The LMFP battery technology was unveiled by Chinese battery maker Gotion High-Tech Co, which introduced a capacity to power EV for 1000kms (previously can only be served by nickel cobalt (NMC) batteries). Gotion adds manganese to the existing lithium-iron-phosphate chemistry in LFP that has been adopted by major EV makers (e.g. BYD, Tesla) and was largely commercialized in China.

LMFP's key improvement to LFP is its ability to pack more power into smaller units which primarily resulted in higher energy density, but also lower manufacturing cost.

On the cost front, the key efficiency driver for LMFP is in the ample availability of manganese ore resources (as it is not a rare metal) which resulted in its cost to be about 5%-10% higher than that of LFP. Taking into consideration the improvement in energy density, LMFP's cost per Kwh is slightly lower than that of LFP. According to Gotion's estimate, LMFP battery costs 5% less per Kwh than the conventional LFP battery, and 20-25% lower cost to NMC batteries.

On the back of these features, industry analysts have estimated that LMFP may garner up to 6% market share, potentially surpassing other technologies such as SIB.

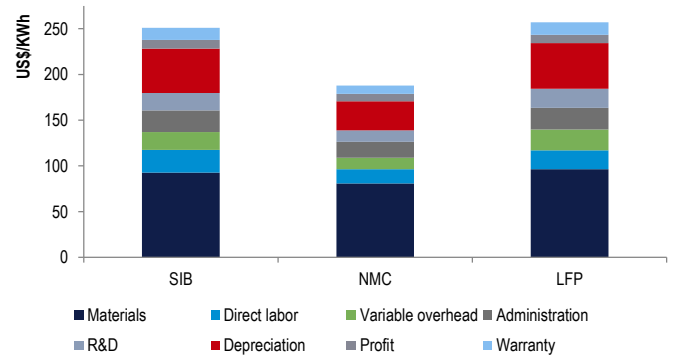
Sodium-ion based battery (SIB)
The sodium-ion battery (SIB) uses sodium ions (Na+) as its charge carriers. The battery replaces lithium with sodium as the cathode material. SIB battery's technology was discovered in the early 1980s, but its growth was overshadowed by the lithium-ion battery. SIB's resurgence in 2010 and 2020 was largely driven by the rising cost of lithium-ion battery raw materials (e.g., lithium, nickel).

SIB has several advantages over competing battery technologies. Compared to lithium-ion batteries, sodium-ion batteries have similar power delivery characteristics, somewhat lower cost, and better safety characteristics, but has a main downside of lower energy density.

The commercial prospect for SIB has been gaining traction in 2022 with CATL announcing the start of mass production of SIBs. In Feb23 China's HiNa Battery Technology Co placed a SIB (of 140 Wh/kg) in an EV for the first time. On the energy storage front, China-based manufacturer Pylontech has also obtained the first sodium-ion battery certificate from a key user which shall pave way for further commercialization in the segment.

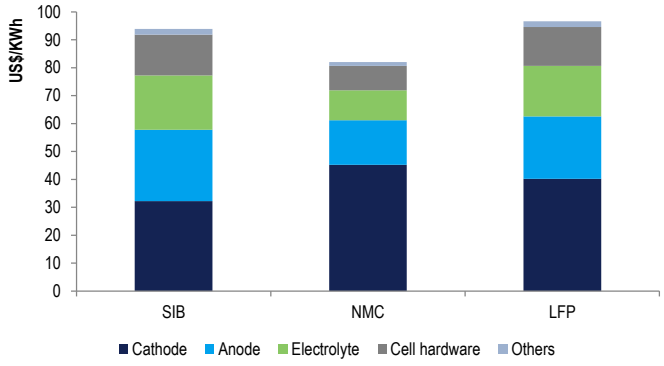
The major advantage of Na-ion batteries is sustainability amid the abundance of sodium hence, offering a lower-cost alternatives to Li-ion batteries. However, the technology may still require further development to produce energies approaching 200 Wh/kg and improve performance at high charge/discharge rates over a wide temperature range and enhance cycle-life. Amid its currently still lower energy density, SIB is more suitable for shorter-range EV.

Fig. 25: Battery cost comparison (2019)



Source: Exploring the Economic Potential of Sodium-Ion Batteries (Peters, Cruz, Weil)

Fig. 26: Materials cost breakdown (2019)



Source: Exploring the Economic Potential of Sodium-Ion Batteries (Peters, Cruz, Weil)

Among the emerging battery technologies, we view the LMFP battery to be a more likely substitute for lithium-based LFP amid its higher energy density and lower cost. Nonetheless, its inherent shortened life cycle may limit mass commercial use case in EVs (vs. NMC).

Concurrently, despite the low-cost profile, SIB's still limited energy density limits its use case for shorter-range EVs. We view that the different battery technologies (NMC, LFP, and the newer LMFP, SIB) shall co-exist and cater for different segments of the battery market. Based on the above view, we see that our FY23-25F and LT nickel price forecasts which range at US$20-22k/t shall reflect conservative prices and shall sustain competitiveness of the NMC producers.

Earnings outlook

Superior earnings growth outlook, backed by growth projects completion

We forecast MBMA to grow its earnings in FY23 onwards, with notable growth acceleration in projected net profit of 100/353/40% in FY23/24/25F, translating to 133% CAGR for FY22-25F. We expect the growth to be driven by the completion, and subsequently, ramp-up of its key growth projects in FY23-26F as below.

- **ZHN RKEF smelter**
  We expect MBMA's ZHN smelter to have 50kt (contained nickel) capacity, with assumed completion in 2H23 (at 25kt of contribution) and full-year contribution in FY24.

- **NPI-to-nickel matte conversion unit for the RKEF smelters**
  MBMA has signed the CSPA for the acquisition of 60% stake in a high-grade nickel matte processing facility (HNMI) for US$75mn. HNMI has 50k of processing capacity of high-grade nickel matte, located in IMIP, hence the transaction implies valuation of US$2.5k/t. This shall allow MBMA to tap into the higher-margin nickel matte market (estimated additional margin of $2-3k/t) earlier than its initial plan in FY24.

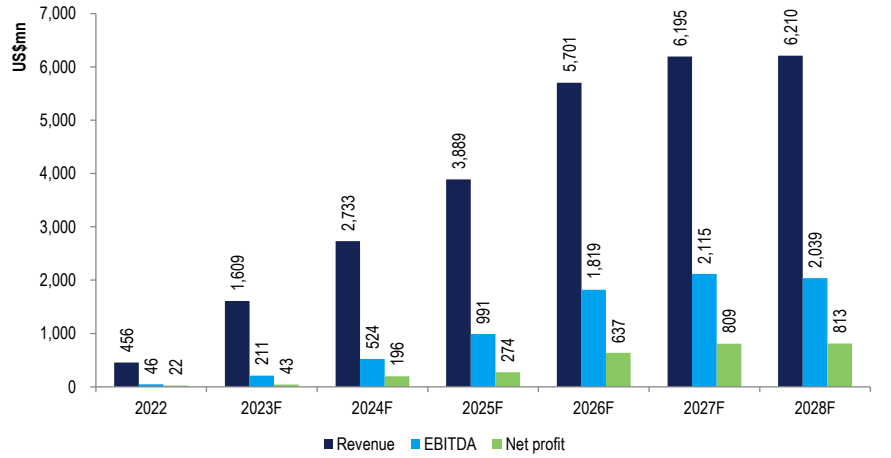
  We expect MBMA's nickel matte conversion unit facility to be completed in CSI smelter and under-construction ZHN smelter, with assumed completion in 1H24 and full-year commercial production in FY25. We assume the conversion unit to have 19kt (of contained nickel) and 50kt capacity in CSI and ZHN smelters respectively.

- **SCM mine**
  We expect MBMA's SCM mine to start commercial production in 2H23 with assumed sales volume contribution of 6.8mn wmt in FY23, and ramping up to 11.6/25.8mn wmt in FY24/25F.

- **AIM project**
  We assume MBMA's AIM project to complete its commercial production in 4Q23 and assumed sales volume contribution of 105k tonnes of sulphuric acid in 4Q23 with assumed ramp-up to 1.2mn tonnes in FY24, to be also followed by sales of other products (iron ore pellets, copper cathode, lead-zinc product, gold and silver)

- **HPAL projects**
  We assume MBMA's HPAL-1 and HPAL-2 projects to start commercial productions in 1H25 and 1H26 respectively and assume MBMA's ownership in the project of 66% and 40% respectively. We assume MHP product sales volume contribution from HPAL-1 of 45k tonnes (contained nickel) in FY25, before rising to full production of 120k tonnes in FY27. Similarly, we assumed MHP sales volume contribution from HPAL-2 of 45k tonnes in FY26, and rising to 120k tonnes in FY28.

Fig. 27: MBM revenue, EBITDA, net profit (FY22A-FY28F)



Source: Company, Indo Premier

Revenue forecast

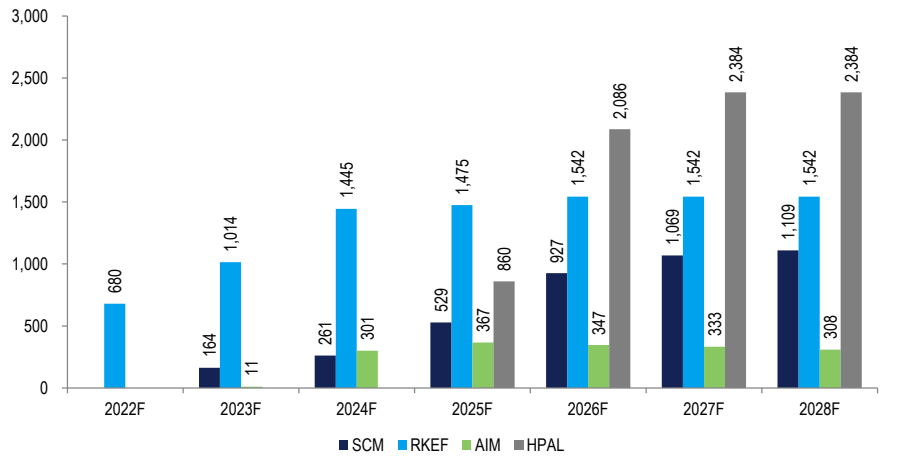
We forecast MBMA revenue to grow by 253/70/42% in FY23/24/25F, mainly driven by sales volumes contribution from MBMA's key projects (as detailed above).

We base our ASP assumptions for MBMA's nickel products on our nickel (LME) price assumptions of US$22/20/20k per tonne FY23/24/25F respectively. We then apply specific discount (to the LME price) to reflect the assumed payability for the product namely 30% for NPI, 18% for nickel matte and 22% for MHP.

For SCM nickel ore mine sales volume, we base our ASP assumption on HPM formula (which account adjustment factor for ore grade, correction factor, and moisture).

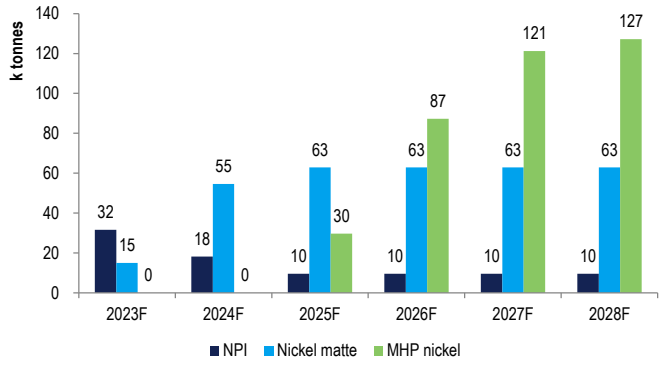
We assume ASP for the sulphuric acid product (from MBMA's AIM project) of US$43/43/46 per tonne for FY23/24/25F respectively. These assumptions are based on sulphur price assumption of US$145/145/155 per tonne.

Fig. 28: MBM revenue breakdown by business



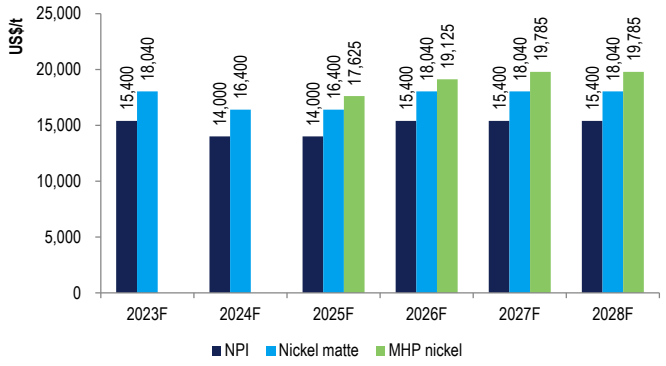
Source: Company, Indo Premier

Fig. 29: MBM attributable sales volume from nickel products



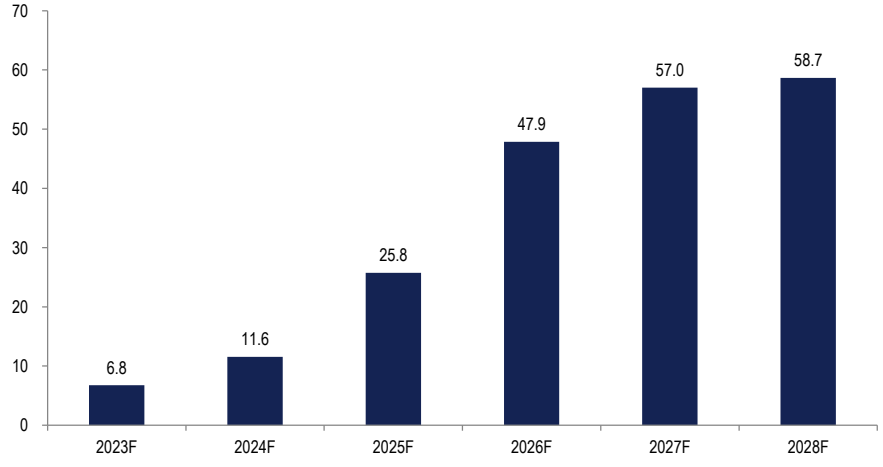
Source: Company, Indo Premier

Fig. 30: MBM nickel products ASP



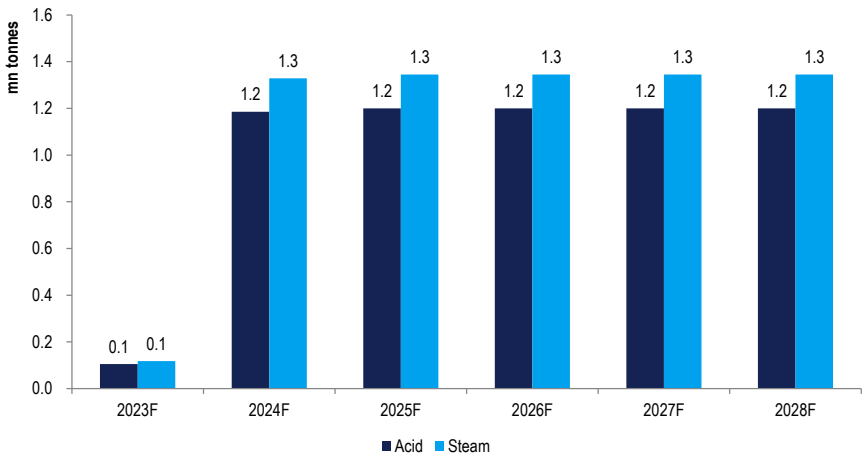
Source: Company, Indo Premier

Fig. 31: SCM mine sales volume



Source: Company, Indo Premier

Fig. 32: AIM sales volume



Source: Company, Indo Premier

EBITDA and profit forecast

We forecast MBMA EBITDA to grow by 357/149/89% in FY23/24/25F, with projected cash cost and cash margin for the different products as below. On the net profit front, we also expect MBMA's net profit to benefit from the tax break obtained from the Indonesian government and have reflected this into our FY23-25F profit forecast for the relevant subsidiaries.

- **RKEF smelters**
  We assumed cash cost of US$13/12.5/12.3k for MBMA's RKEF smelters in FY23/24/25, which reflects improvement from US$14.2k/t in FY22 mainly due to our expectation for normalization of coal price. For the CSI and ZHN smelters, we assumed additional cash cost of US$700/t reflecting cost to convert NPI into nickel matte.

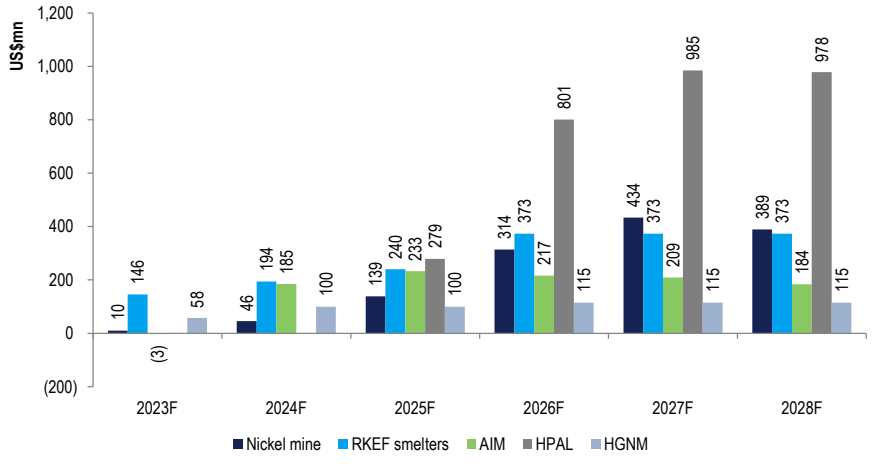
  Based on the above cost assumptions, we forecast EBITDA margin of US$2.3/1.5/1.7k per tonne for the RKEF smelters' NPI sales in FY23/24/25F. We forecast EBITDA margin of US$4.9/3.2/3.3k per tonne in FY23/24/25F for the nickel matte sales.

- **HPAL**
  We assumed cash cost of US$11.4k for MBMA's HPAL operation in FY25. Based on this, we forecast EBITDA margin of US$6.2k for the MHP sales (note that this is based on LME nickel price of US$22k/t and LME cobalt price of US$45k/t which in our calculation shall translate to cobalt credit of US$2.2k).

- **Nickel ore**
  We assumed cash cost of US$23/19/15 per tonne for MBMA's SCM mine in FY23/24/25. Based on this, we forecast EBITDA margin of US$1.5/3.9/5.4 per tonne in FY23/24/25F.

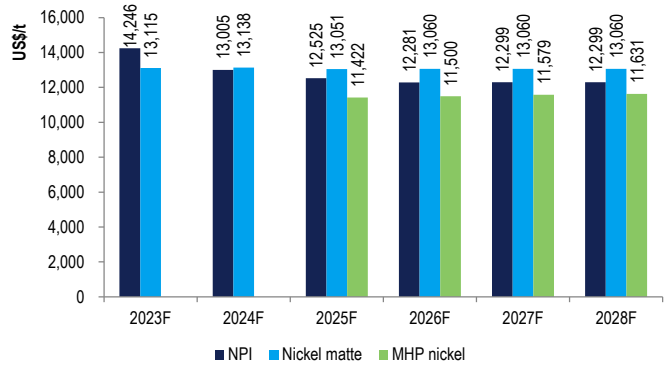
- **AIM**
  We forecast EBITDA margin of 60/62% for MBMA's AIM operation in FY24/25.

Fig. 33: MBM EBITDA breakdown by business (FY22F-FY25F)



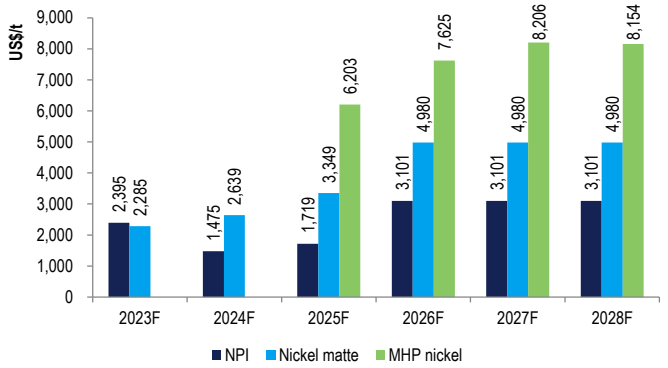
Source: Company, Indo Premier

Fig. 34: RKEF and HPAL cash cost



Source: Company, Indo Premier

Fig. 35: RKEF and HPAL EBITDA margin



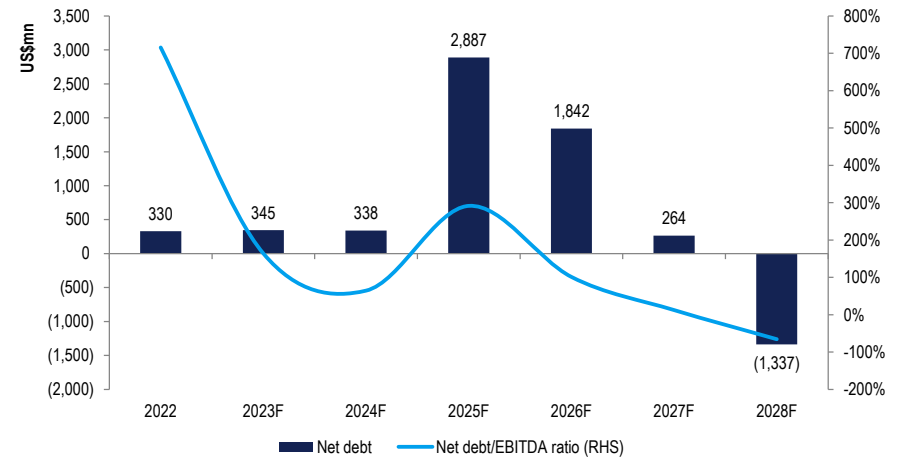
Source: Company, Indo Premier

Cashflow and balance sheet

We forecast MBMA's capex and investments of US$1.7/2.6/2.1bn in FY23/24/25F, in-line with the investment plan into its growth projects. We project the capex in FY23 will mainly go into the completion of ZHN smelter, SCM mine infrastructure, and AIM project's plants and investments to acquire the HNMI nickel matte processing facility. Additionally, we assume that MBMA will start investing into the HPAL-1 project in FY23 and FY24.

As we assume MBMA to fund its capex and investments from debt and capital raising, this will lead to increase in its net debt position to US$345/338/2,900mn in FY23/24/25F. Based on our estimation, MBMA's credit ratio will increase and peak in FY25, before falling in FY26 as the new projects are expected to start generating cash flow.

Fig. 36: Net debt and ND/EBITDA ratio (FY23F-FY28F)



Source: Company, Indo Premier

1Q23 financial review

MBMA previously owned 28/49% stake in CSI/BSI (through a holding company PT Merdeka Industri Mineral). The stake in both smelters was increased to 50.1% in May22, along with acquisition of 50.1% stake in ZHN. As such, MBMA's FY22 financial statement reflects the consolidated CSI and BSI earnings from May22 to Sep22.

MBMA posted FY22 net profit of US$22mn with revenue for the period of US$456mn, generated from selling 24.9kt of NPI at an estimated ASP of US$18.3k /t. During the period, cash cost was recorded at US$17k/t, which resulted in EBITDA of US$46mn and EBITDA margin of US$1.2k/t.

While NPI price remained under pressure in 1Q23 (flat qoq) amid the continuing oversupply condition, MBMA's ASP has somewhat improved to US$17.5k (+10% qoq, reflecting payability of 91% vs. 84% in 4Q22). As a result, EBITDA margin improved to US$2k/t in 1Q23 despite cash cost increasing to US$15.4k (+9% qoq) amid higher ore (derived from LME price) and coal price.

We compare MBMA to Harum Energy's subsidiaries namely Nickel Industries Limited (NIC) and Infei Metal Industry (IMI). Similar to MBMA, both companies produced NPI using a coal-fired RKEF smelter and are located in IMIP.

In 1Q23, NIC delivered 23.2kt of NPI at ASP of US$16.4k/ t (vs. MBMA's US$17.5k/t). NIC's cash cost stood at US$13.3k/t (vs. MBMA's 15.4k/t cost), which resulted in EBITDA margin of US$3.2k/t (+56% vs. MBMA). Meanwhile, IMI recorded 5.9kt of NPI at EBITDA margin of US$3.4k/t (+65% vs. MBMA).

Despite the seemingly lower EBITDA margin due to lower ASP, we think the difference is not material since it may reflect the timing of sales (MBMA IMI and NIC sold NPI to the same client base). On the cost side, compared to NIC and IMI, MBMA also appear to share the same efficiency, which we think is attributable to the similarity in ore and electricity cost (as the three companies are all based in IMIP).

Valuation

Our valuation for MBMA employs SOTP method to capture our estimated value of its assets. We use DCF valuation (at 9.9% WACC, no terminal growth) to value MBMA's assets; similar to our net profit forecast, we have also imputed assumption for tax break for MBMA's subsidiaries into our DCF valuation during the applicable forecast period.

MBMA currently trades at 11.9x FY24F EV/ EBITDA, a premium to Indonesian/global nickel peers of 7.5/4.9x EV/EBITDA, which reflect the gradual earnings contribution from its growth projects in the next three years. Amid expected completion of its key growth projects in FY22-28F, we expect the company to deliver superior earnings growth of 83% CAGR (vs. nickel peers' 3-28%). We arrive at Rp990/share target price based on SOTP (implying 14.3x FY24 EV/EBITDA), assuming nickel price of Rp22k/t.

Fig. 37: Valuation summary

SOTP valuation (US$mn)	Valuation	MBMA stake	Attributable valuation
SCM	**3,049**	**51.0%**	**1,555**
RKEF smelters	**2,126**	**50.1%**	**1,065**
BSI	420	50.1%	210
CSI	530	50.1%	265
ZHN	1,177	50.1%	589
AIM	**771**	**80.0%**	**616**
HPAL smelters	**7,013**	**53.5%**	**3,751**
IKIP 1	3,640	66.0%	2,402
IKIP 2	3,373	40.0%	1,349
HGNM	**831**	**60.0%**	**498**
Asset value	**13,789**		**7,486**
Cash	1,627		1,627
Debt	1,972		1,972
Equity value	**13,444**		**7,141**
USD/IDR			15,000
Outstanding shares (bn)			108
Target price			**990**
Current price			795
Upside			25%

Source: Company, Indo Premier

Fig. 38: Indonesian peers comparison

Company name	Ticker	Mkt cap (US$bn)	EV/EBITDA		P/E		ROE		EPS (3yr CAGR)
			FY23F	FY24F	FY23F	FY24F	FY23F	FY24F	
Merdeka Battery Materials Tbk	MBMA IJ Equity	5.7	29.0	11.6	133.0	29.4	2%	7%	151%
Aneka Tambang Tbk	ANTM IJ Equity	3.2	7.9	7.3	10.7	10.8	17%	16%	8%
Vale Indonesia Tbk	INCO IJ Equity	4.2	6.6	6.7	16.1	16.8	11%	9%	7%
Trimegah Bangun Persada Tbk	NCKL IJ Equity	3.9	11.4	8.4	10.1	7.4	34%	31%	27%
Average (ex-MBMA)			**8.6**	**7.5**	**12.3**	**11.7**	**21%**	**19%**	**14%**

Source: Bloomberg, Indo Premier

Fig. 39: Global peers comparison

Company name	Ticker	Mkt cap (US$bn)	EV/EBITDA		P/E		ROE		EPS (3yr CAGR)
			FY23F	FY24F	FY23F	FY24F	FY23F	FY24F	
Merdeka Battery Materials Tbk	MBMA IJ Equity	5.7	29.0	11.6	133.0	29.4	2%	7%	151%
Nickel Industries Ltd	NIC AU Equity	1.8	6.0	5.0	8.2	7.1	14%	14%	20%
MMC Norilsk Nickel PJSC	GMKN RM Equity	25.1	5.3	4.8	7.3	6.1	40%	40%	-3%
Glencore PLC	GLEN LN Equity	72.2	4.5	5.0	7.8	8.8	17%	17%	-26%
BHP Group Ltd	BHP AU Equity	151.9	5.5	5.6	10.7	11.3	32%	29%	-26%
Eramet SA	ERA FP Equity	2.6	4.5	2.9	6.3	4.5	17%	18%	2%
Anglo American PLC	AAL LN Equity	35.3	3.8	3.8	8.2	8.3	15%	14%	-2%
Vale SA	Vale3 BZ Equity	59.9	3.8	4.2	5.5	6.2	26%	21%	-22%
South32 Ltd	S32 AU Equity	11.7	4.2	4.0	9.8	8.5	11%	12%	-17%
IGO Ltd	IGO AU Equity	7.8	5.9	8.4	7.6	8.1	37%	28%	54%
Average (ex-MBMA)			**4.8**	**4.9**	**7.9**	**7.7**	**23%**	**21%**	**-2%**

Source: Bloomberg, Indo Premier

Fig. 40: Global battery peers comparison

Company name	Ticker	Mkt cap (US$bn)	EV/EBITDA		P/E		ROE		EPS (3yr CAGR)
			FY23F	FY24F	FY23F	FY24F	FY23F	FY24F	
Merdeka Battery Materials Tbk	MBMA IJ Equity	5.7	29.0	11.6	133.0	29.4	2%	7%	151%
Contemporary Amperex Technology	300750 CH Equity	137.9	15.2	11.6	18.6	14.8	24%	25%	38%
LG Energy Solution Ltd	373220 KS Equity	101.8	25.4	16.3	63.8	41.3	11%	14%	89%
Zhejiang Huayou Cobalt Co Ltd	603799 CH Equity	10.1	8.1	6.5	10.1	7.5	23%	23%	41%
Samsung SDI Co Ltd	006400 KS Equity	37.4	13.6	11.0	23.6	19.5	12%	13%	17%
SK Innovation Co Ltd	096770 KS Equity	11.9	8.1	6.1	15.9	8.4	5%	9%	21%
Average (ex-MBMA)			**14.1**	**10.3**	**26.4**	**18.3**	**15%**	**17%**	**41%**

Source: Bloomberg, Indo Premier

Income Statement (US$ mn)	2022A	2023F	2024F	2025F	2026F
Net revenue	456	1,609	2,733	3,889	5,701
Cost of sales	(411)	(1,404)	(2,176)	(2,906)	(3,819)
Gross profit	**44**	**205**	**558**	**983**	**1,882**
SG&A Expenses	(14)	(66)	(112)	(159)	(234)
Operating profit	**30**	**139**	**446**	**824**	**1,648**
Net interest	(21)	(23)	(49)	(169)	(212)
Income/(loss) from associates	1	0	0	0	35
Others	27	0	0	0	0
Pre-tax income	**37**	**116**	**397**	**655**	**1,471**
Income tax	0	(13)	(60)	(119)	(260)
Minority interest	(16)	(60)	(141)	(262)	(575)
Net income	**22**	**43**	**196**	**274**	**637**

Balance Sheet (US$ mn)	2022A	2023F	2024F	2025F	2026F
Cash & equivalent	280	1,627	2,688	432	1,247
Receivable	64	134	228	324	475
Inventory	79	156	242	323	424
Other current assets	46	46	46	46	46
Total current assets	**469**	**1,963**	**3,203**	**1,125**	**2,192**
Fixed assets	918	1,674	1,785	4,565	4,503
Other non-current assets	1,035	1,051	1,154	1,343	1,395
Total non-current assets	**1,952**	**2,725**	**2,939**	**5,908**	**5,897**
Total assets	**2,422**	**4,688**	**6,143**	**7,033**	**8,090**
ST loans	0	0	0	0	0
Payable	66	117	181	242	318
Other payables	80	80	80	80	80
Current portion of LT loans	18	158	242	266	247
Total current liab.	**164**	**355**	**504**	**588**	**646**
Long term loans	592	1,815	2,784	3,054	2,842
Other LT liab.	270	461	609	694	751
Total liabilities	**862**	**2,275**	**3,393**	**3,747**	**3,593**
Equity	863	1,613	1,613	1,613	1,613
Retained earnings	20	63	259	533	1,170
Minority interest	602	662	803	1,065	1,640
Others	74	74	74	74	74
Total SHE + minority int.	**1,559**	**2,413**	**2,749**	**3,285**	**4,497**
Total liabilities & equity	**2,422**	**4,688**	**6,143**	**7,033**	**8,090**

Source: Company, Indo Premier

Cash Flow Statement (US$ mn)	2022A	2023F	2024F	2025F	2026F
Net income	22	43	196	274	637
Depr. & amortization	16	71	78	167	170
Changes in working capital	(77)	(96)	(115)	(117)	(176)
Others	139	43	141	262	575
Cash flow from operating	**100**	**62**	**300**	**586**	**1,206**
Capital expenditure	(934)	(769)	(189)	(2,947)	(109)
Others	(210)	0	(103)	(189)	(51)
Cash flow from investing	**(1,144)**	**(769)**	**(292)**	**(3,135)**	**(160)**
Loans	610	1,362	1,054	293	(231)
Equity	937	750	0	0	0
Dividends	0	0	0	0	0
Others	(216)	(58)	0	0	0
Cash flow from financing	**1,331**	**2,054**	**1,054**	**293**	**(231)**
Changes in cash	**287**	**1,347**	**1,061**	**(2,256)**	**815**

Key Ratios	2022A	2023F	2024F	2025F	2026F
Gross margin	9.7%	12.8%	20.4%	25.3%	33.0%
Operating margin	6.7%	8.7%	16.3%	21.2%	28.9%
Pre-tax margin	8.2%	7.2%	14.5%	16.8%	25.8%
Net margin	4.8%	2.7%	7.2%	7.0%	11.2%
ROA	0.9%	0.9%	3.2%	3.9%	7.9%
ROE	1.4%	1.8%	7.1%	8.3%	14.2%
ROIC	2.8%	4.3%	8.8%	13.3%	23.2%
Acct. receivables TO (days)	12.0	12.0	12.0	12.0	12.0
Inventory TO (days)	9.0	9.0	9.0	9.0	9.0
Payable TO (days)	12.0	12.0	12.0	12.0	12.0
Debt to equity	63.8%	112.7%	155.5%	149.5%	108.1%
Interest coverage ratio (x)	2.1	3.8	5.1	5.6	8.1
Net gearing	0.3	0.2	0.2	1.3	0.6

Source: Company, Indo Premier

INVESTMENT RATINGS

BUY	:	Expected total return of 10% or more within a 12-month period
HOLD	:	Expected total return between -10% and 10% within a 12-month period
SELL	:	Expected total return of -10% or worse within a 12-month period

ANALYSTS CERTIFICATION

The views expressed in this research report accurately reflect the analyst's personal views about any and all of the subject securities or issuers; and no part of the research analyst's compensation was, is, or will be, directly or indirectly, related to the specific recommendations or views expressed in the report.

DISCLAIMERS

This research is based on information obtained from sources believed to be reliable, but we do not make any representation or warranty nor accept any responsibility or liability as to its accuracy, completeness or correctness. Opinions expressed are subject to change without notice. This document is prepared for general circulation. Any recommendations contained in this document do not have any regard to the specific investment objectives, financial situation and the particular needs of any specific addressee. This document is not and should not be construed as an offer or a solicitation of an offer to purchase or subscribe or sell any securities. PT Indo Premier Sekuritas or its affiliates may seek or will seek investment banking or other business relationships with the companies in this report.