Boab Metals Limited

19 March 2021

Lead market to surprise on upside

Resources

BML ASX $0.435 TARGET PRICE $0.85

BUY

75% owned Sorby Hills Lead Silver Project in WA has a completed a Preliminary Feasibility Study and is moving towards financial close in November 2021 and then construction. Production planned to be 47Ktpa lead and 1.4Mozpa silver in concentrate for 10 years.

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RAWSON LEWIS

Boab leverage to unloved lead an advantage

Valuation at today's spot prices, on PFS Reserves, is 73cps

Our 85cps price target is based on our project base case Net Present Value at average prices of last three years, a discount rate of 10.5%, and a 50% increase in Reserves, giving 82.8cps.

At spot prices and treatment charges as at the 15 March 2021, the NPV is 111cps with extra Reserves or 73cps without. Normally, the market price for a miner would be reflecting the spot prices movement, but for now the market appears to be slow to recognise the improving situation Boab finds itself in.

A$0.10/lb increase in lead price adds ~20cps to our valuation.

Leverage to lead price likely to be a significant benefit

The lead price has held up well over the COVID 19 impacted 2020, and the world is heading into the economic recovery phase. 2021 and 2022 are likely to see rebooting of consumer interest, restocking of supply chains, and strong commodity prices generally. Lead is particularly leveraged to a vehicle sales recovery. Purchases of vehicles has been in decline for three years and down ~20% in 2020. A strong rebound in vehicle demand is underway, with likely flow on benefit to lead demand.

Boab is the most leveraged to lead Reserves on ASX

There are very few ASX listed companies with significant lead Resources, and even fewer with lead Reserves. Boab investors are currently buying 14 pounds of lead Reserves per A$1 of Enterprise Value, which is likely to grow in the next revision, with Galena (ASX:G1A) at 13lb/$1 and Ironbark (ASX:IBG) at 10lb/$1.

Boab continues to deliver positive project news flow

1. Australia's Export Finance Corporation has issued a Letter of Support meaning that subject to due diligence, it would assist in the financing of the Sorby Hills Project.
2. Phase V drilling program evaluating the potential to expand the Sorby Hills Project beyond the current 1.5Mtpa 10yr life. An updated Resource is expected in the September Quarter 2021.
3. The Definitive Feasibility Study is expected to be completed in the March Quarter 2022, with construction to start in the June Quarter 2022.

Company Data

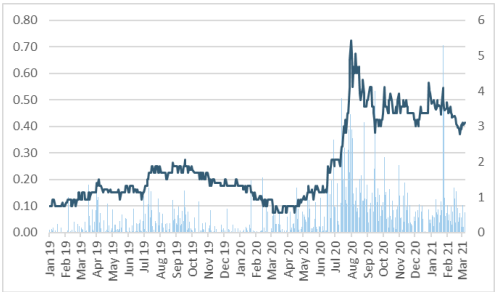
Shares Outstanding (M)	152
Price ($/sh)	0.435
Market Capitalisation ($M)	66.1
Free Float (%)	100%
Free Float Market Capitalisation ($M)	66.1
12 Month Low ($/sh)	0.05
12 Month High ($/sh)	0.750
Average Daily Volume ('000)	702

Data Source: ASX, Company, Rawson Lewis est.

Earnings Summary (A$M)

Year end June	FY21	FY22	FY23	FY24
Sales revenue	0	0	0	153.8
EBITDA	-3	-2	-3	82
PBT	-3	-1	-7	46
Underlying NPAT	-2	-1	-5	32
Reported NPAT	-2	-1	-5	32
Reported EPS (c)	-1.3	-0.4	-2.1	13.7
Underlying EPS (c)	**-1.3**	**-0.4**	**-2.1**	**13.7**
DPS (c)	0	0	0	0
PER	na	na	na	3.0
Franking (%)	na	na	na	na
Dividend Yield (%)	na	na	na	na
Gross Yield (%)	na	na	na	na

Price Graph to 15/3/21



Source: IRESS, Share price A$/sh LHS, Turnover millions of shares RHS

Directors & Management

Gary Comb	Chairman
Simon Noon	Managing Director
Richard Monti	Non-Executive Director
Andrew Parker	Non-Executive Director

Shareholders at 15/3/21

Villiers	10.41%
Zero Nominees	4.49%
Brent Connolly	2.96%
Directors	2.40%

Boab Metals Limited				BML-ASX
Share Price A$/sh				0.435
Price Target A$/sh				0.850
PROFIT AND LOSS A$M	FY21F	FY22F	FY23F	FY24F
Total Revenue - BML 75% share	0.0	0.0	0.0	153.8
COGS	0.0	0.0	-1.8	-69.9
Gross Profit	0.0	0.0	-1.8	83.9
Gross Profit Margin	*na*	*na*	*na*	*54.5%*
SG&A	-3.0	-1.5	-1.5	-1.5
EBITDA - Reported	-3.0	-1.5	-3.3	82.4
D&A	0.0	0.0	0.0	-29.4
EBIT - Reported	-3.0	-1.5	-3.3	53.0
Total Financial Income	0.0	0.1	-3.8	-7.1
PBT	-3.0	-1.4	-7.1	45.9
Tax Expense	0.9	0.4	2.1	-13.8
NPAT	-2.1	-1.0	-5.0	32.1
Minorities	0.0	0.0	0.0	0.0
Earned for Ordinary	-2.1	-1.0	-5.0	32.1
EPS A cps	-1.35	-0.41	-2.13	13.69
Ordinary shares M	152	235	235	235
Dividend A cps	0.0	0.0	0.0	0.0
EBITDA Margin %	na	na	na	53.6%
Return on Equity:	na	na	na	36.8%
Return on Invested Capital:	na	na	na	27.4%
PER	na	na	na	3.03
Price/Book	3.28	2.24	2.53	1.38
Book value A$/sh	0.13	0.19	0.16	0.30
VALUATION (NPV)	FY21F	FY22F	FY23F	FY24F
Sorby Hills 2020 PFS	121.1	145.3	244.5	280.8
Corporate Overhead	-7.8	-7.6	-7.3	-7.0
Cash on hand	12.6	16.0	20.2	29.5
Debt	0.0	0.0	-100.	-80.0
Net Working Capital	0.2	-2.7	-11.0	4.7
Valuation A$M	126.0	151.1	146.5	228.0
Valuation A$/sh	0.828	0.644	0.624	0.971
Discount Rate	10.5%			

OPERATING DATA (100% basis BML 75%)	FY21F	FY22F	FY23F	FY24F
Ore Processed Kt	0	0	0	1400
Lead Grade %	0.0%	0.0%	0.0%	5.5%
Silver Grade g/t	0.0	0.0	0.0	51.6
Lead Contained Kt	0	0	0	77
Silver Contained Koz	0	0	0	2323
Lead Recovery	0.0%	0.0%	0.0%	90.5%
Silver Recovery	0.0%	0.0%	0.0%	81.8%
Recovered Lead Kt	0.0	0.0	0.0	69.7
Recovered Silver Koz	0	0	0	1900
Conc Grade Lead	0.0%	0.0%	0.0%	62.0%
Conc Grade Silver	0	0	0	526
Concentrate Prodn Kt (dry)	0.00	0.00	0.00	112.42
Sales				
Concentrate Sold Kt	0	0	0	106
Lead Contained Kt	0.0	0.0	0.0	65.8
Silver Contained Koz	0	0	0	1776
Lead Payable Mlb	0.0	0.0	0.0	141.4
Silver Payable Moz	0.00	0.00	0.00	1.76
Lead Revenue A$M	0.0	0.0	0.0	188.0
Silver Revenue A$M	0.0	0.0	0.0	46.1
Treatment Charges A$M	0.0	0.0	0.0	-29.0
Net Revenue A$M	0.0	0.0	0.0	205.1

CASH FLOW YE June	FY21F	FY22F	FY23F	FY24F
Receipts from customers	0.2	0.0	0.0	150.9
Payments to Suppliers	-3.7	1.4	5.0	-84.2
Interest (Paid) / Received	0.0	0.1	-3.8	-7.1
Tax (Paid)	0.0	0.0	0.0	0.0
Operating cashflow	-5.0	-13.5	1.1	59.6
Capital expenditure	0.0	-23.3	-96.9	-28.3
Asset Sales				
Acquisitions				
Divestments				
Other Investing				
Investing cashflow	0.0	-23.3	-96.9	-30.4
Free Cash Flow	-5.0	-36.7	-95.8	29.2
Net Equity Raisings	15.4	40.2	0.0	0.0
Proceeds from Pre Sales	0.0	0.0	0.0	0.0
Shares Repurchased				
Net Borrowing	0.0	0.0	100.0	-20.0
Ordinary Dividends paid	0.0	0.0	0.0	0.0
Other	-0.8	0.0	0.0	0.0
Financing cashflow	14.6	40.2	100.0	-20.0
Exchange rate adjustment	0.0	0.0	0.0	0.0
Net change in cash	9.6	3.5	4.2	9.2
BALANCE SHEET YE June	FY21F	FY22F	FY23F	FY24F
Cash	12.6	16.0	20.2	29.5
Receivables	0.0	0.0	0.0	2.9
Inventories	0.5	0.0	0.0	12.7
Total Current Assets	13.1	16.1	20.3	45.1
PP&E	0.0	23.3	120.2	119.1
Intangibles				
Expln & Mine Devt	5.3	5.3	5.3	7.3
Deferred Tax Asset	1.8	2.2	4.4	4.4
Total Non Current Assets	7.1	30.8	129.9	130.8
Total Assets	20.2	46.8	150.1	176.0
Trade Payables	0.3	2.7	11.0	10.9
Prepaid Revenue	0.0	0.0	0.0	0.0
Borrowings	0.0	0.0	100.0	80.0
Leveraged Leases				
Current Tax Liabilities	0.0	0.0	0.0	13.8
Deferred Tax Liabilities	0.2	0.2	0.2	0.2
Provisions	0.4	0.4	0.4	0.4
Total Liabilities	0.9	3.3	111.6	105.3
Net Assets	19.3	43.5	38.5	70.6
Issued Capital	48.4	88.6	88.6	88.6
Reserves	1.6	1.6	1.6	1.6
Retained Profits	-29.0	-30.0	-35.0	-2.9
Shareholder Equity	20.9	60.2	55.2	87.3
ASSUMPTIONS	FY21F	FY22F	FY23F	FY24F
Lead Price US$/lb	0.00	0.93	0.94	0.95
Silver Price US$/oz	0.00	18.23	18.41	18.60
AUSUSD	0.00	0.71	0.71	0.71
Cost Inflation	0.0%	1.0%	1.0%	1.0%
Unit Costs				
Mining A$/lb Lead				0.23
Processing G&A A$/lb				0.25
Selling Costs A$/lb				0.33
Byproduct A$/lb				-0.29
C1 costs A$/lb				0.52
Sustaining Capex A$/lb				0.02
AISC A$/lb				0.54

Boab is the most leveraged to lead Reserves of all ASX listings

Table 1 Boab most leveraged in terms of lead reserves per $ of Enterprise Value (last column)

		Reserve Kt Lead	Issued Shares M	Share Price A$/sh	Mkt Cap A$M	Cash A$M	Debt A$M	EV A$M	Pb lb/$ EV
Boab Metals	BML	371	152	0.42	63.9	4.1	0.0	59.9	13.6
Galena Mining	G1A	752	462	0.34	156.9	33.9	8.6	131.7	12.6
Ironbark Zinc	IBG	107	1072	0.03	26.8	2.6	0.0	24.2	9.7
Red River	RVR	21	518	0.23	119.1	7.1	1.0	112.9	0.4
Subtotal		1251			366.7			328.7	8.4

Source: Company releases

Boab has 13.6 pounds of lead per $1 of Enterprise Value (2205lb to 1 metric tonne), and we believe this will grow in the next six months. The next two most leveraged to Reserves are Galena (12.6lb/$ EV) and Ironbark (9.7lb/$EV). What this means is that Boab is the cheapest way to purchase share price leverage to lead Reserves in the Australian market at this time, with 8% more leverage than the next best exposure, Galena Mining. We believe that the current exploration program being undertaken by Boab will increases Resources and Reserves, so that leverage will increase significantly.

Note that the total market capitalization of these four companies in only A$366M (Table 1), so there is likely to be a shortage of scrip in the event that lead prices rise and investors want exposure. The situation is not improved much if exposure to companies which only have Resources is included (Table 2), with the equity pool growing to A$443.6M.

There is a larger set of companies that have Resources. In that comparison, Boab is second behind Galena, and we expect this will improve with the increase in Resources that is likely from the recent and upcoming drilling programs. It is also important to note that the conversion of underground Resources into Reserves is generally less than open pit Resources. Boab's Sorby Hills project is open pit, while Galena's Abra project is underground, as is Ironbark and Red River, and the conversion rate should be a consideration for investors.

Table 2 Leverage to lead based on Resources – Boab's Resource is expected to grow

		Resource Kt Lead	Issued Shares M	Share Price A$/sh	Mkt Cap A$M	Cash A$M	Debt A$M	EV A$M	Lead lb/$ EV
Galena Mining	G1A	3000	462	0.340	156.9	33.9	8.6	131.7	50.2
Boab Metals	BML	1094	152	0.420	63.9	4.1	0.0	59.9	40.3
Ironbark Zinc	IBG	354	1072	0.025	26.8	2.6	0.0	24.2	32.3
Peel Mining	PEX	342	149	0.260	38.7	15.0	0.0	23.8	31.7
Odin Metals	ODM	43	205	0.025	5.1	1.9	0.0	3.3	29.3
Zinc of Ireland	ZMI	109	295	0.055	16.2	0.2	0.0	16.0	15.0
Red River	RVR	760	518	0.230	119.1	7.1	1.0	112.9	14.8
Godolphin	GRL	99	84	0.200	16.8	6.9	0.0	9.9	22.0
Total		5801			443.5			381.7	33.5

Source: Company releases

There are other lead exposures, but the relative exposure in terms of pounds of lead/$ EV is very small.

Lead is likely to perform strongly in the short to medium term

With the market strongly positive on battery metals including lithium, nickel graphite, high purity alumina, cobalt, and others, the metal that seems to be forgotten is lead, and it is the mainstay component of the lead acid battery found in every conventional Internal Combustion Engine (ICE) powered vehicle today, and is currently the battery of choice for a number of stationary applications like Uninterruptable Power Supplies (UPS). Lead Acid Batteries are currently used in Battery Electric Vehicles (BEV) to run all the low voltage functions like unlocking doors, powering lights, computer etc.

Very positive short to medium term outlook (i.e. next three years)

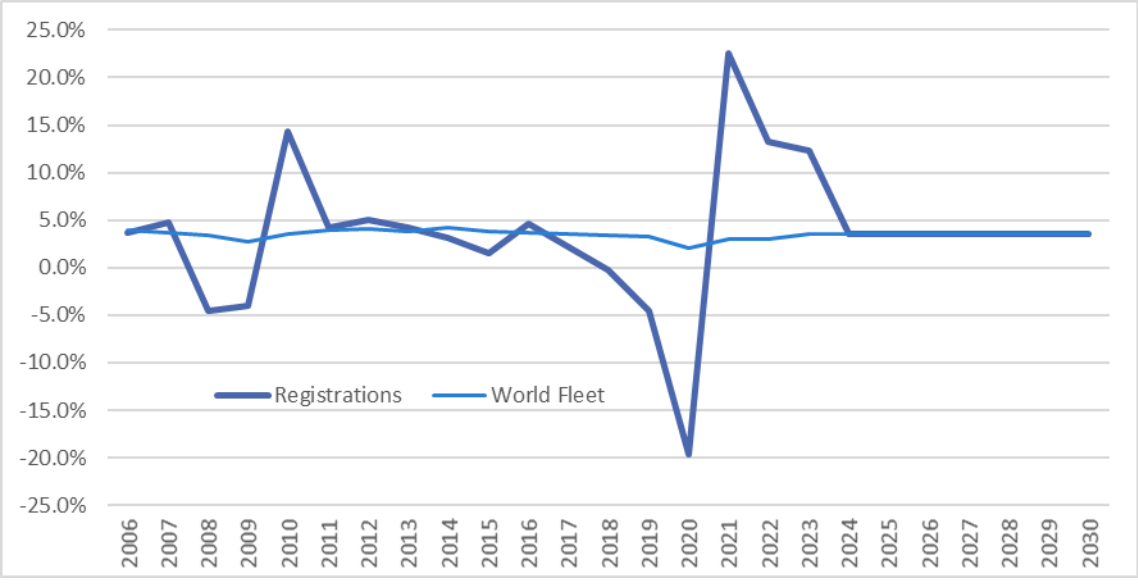
Whatever the long-term outlook for Lead Acid Batteries, the short term is particularly positive, because of the very strong recovery in motor vehicle sales expected in 2021 and 2022. Given the lead price held up in 2020, in a year when vehicle production is estimated to have fallen 20%, the increase in demand for vehicles and the refilling of the supply chain in 2021-2023 is likely to result in very strong growth in mined lead.

The change in the world vehicle fleet has been very stable over the 2005 to 2019 period at between 2.8%pa to 4.1%pa. the growth in 2020 looks like a very low 2%pa. The change in vehicle registrations has been much more volatile, with two years of declines at -5% in 2008 and 2009 before rebounding strongly in 2010 at 15%.

In 2018-2020, the vehicle industry has seen an even more severe downturn, and to catch up to the trend growth in total vehicle fleet, a much stronger growth phase is required. Because of the recovery in H2 2020, 2021 is virtually guaranteed to be over 20% growth (Figures 2,3), after which we would expect to see a number of very strong years, with growth rates over 10%pa.

Supply chain issues appear to be limiting vehicle production in the March 2020 quarter, but as those difficulties are resolved, we would expect additional positive demand sentiment to flow into the market.

Figure 1 Yearly change in Global Vehicle Fleet and Vehicle Registrations



Source: OICA, Rawson Lewis estimates

Such a strong rebound should be supported by guidance commentary from the major auto companies.

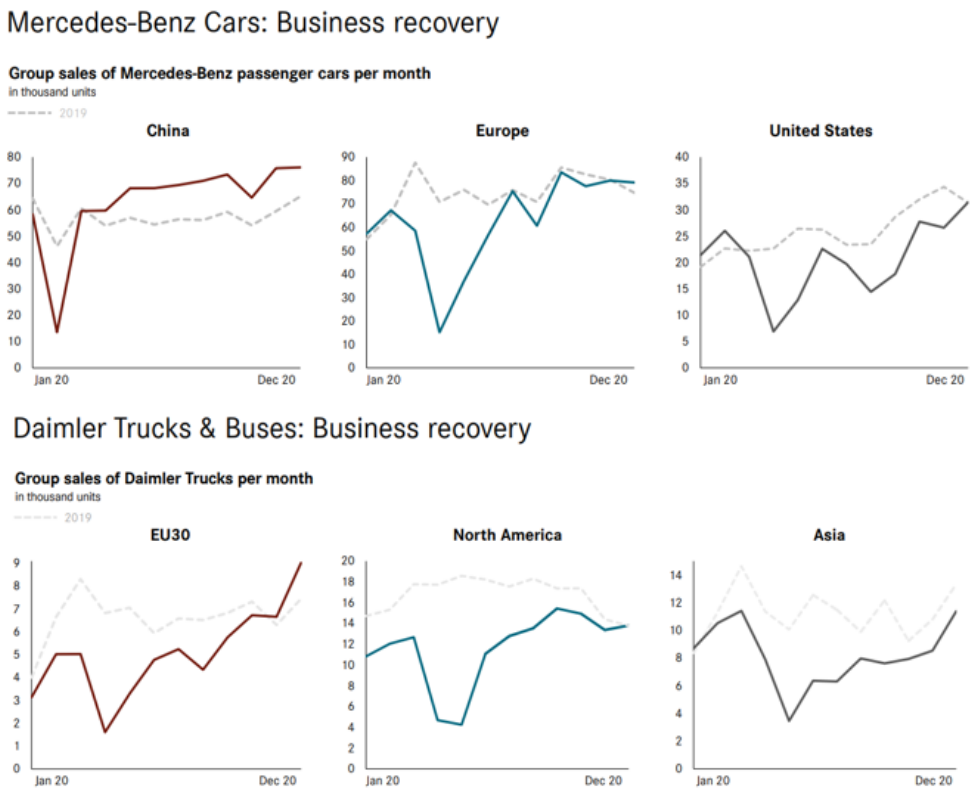
In general, vehicle makers have seen a recovery in the second half of 2020, and are providing positive guidance about direction, but saying nothing specific about magnitude of the recovery, other than the recovery in 2021 is expected to be "significant". We get a hint that the recovery will be big in the comments on margin. Higher margin implies better capacity utilization (i.e. unit costs down) and pricing power (i.e. not losing the benefit of lower unit costs to market share warfare). Pricing power suggests the rise in demand is big enough to absorb all current capacity and allow manufacturers to benefit from lower unit costs and possibly reduce discounts/raise list prices.

Daimler – https://www.daimler.com/investors/share/outlook/

"Daimler assumes that the global economy will recover strongly in 2021. Based on the expected market development and the current assessments of the divisions, Daimler anticipates Group sales, revenues and EBIT in 2021 to be significantly above the prior-year's level. Although bottlenecks in the semiconductor industry will impact sales mainly in the first quarter it is currently anticipated that lost production volume can be compensated for by the end of the year. The divisions expect the following adjusted returns in the year 2021:

- *Mercedes-Benz Cars & Vans: adjusted return on sales of 8 – 10% (vs 2020 6.9%)*
- *Daimler Trucks & Buses: adjusted return on sales of 6 – 7% (vs 2020 1.9%)*
- *Daimler Mobility: adjusted return on equity of 12 – 13%."*

Figure 2 A strong statistical recovery is locked in for 2021, given the recovery that occurred in H2



Source: Daimler 2020 annual result presentation
https://www.daimler.com/dokumente/investoren/berichte/geschaeftsberichte/daimler/daimler-ir-capitalmarketpresentation-fy-2020.pdf

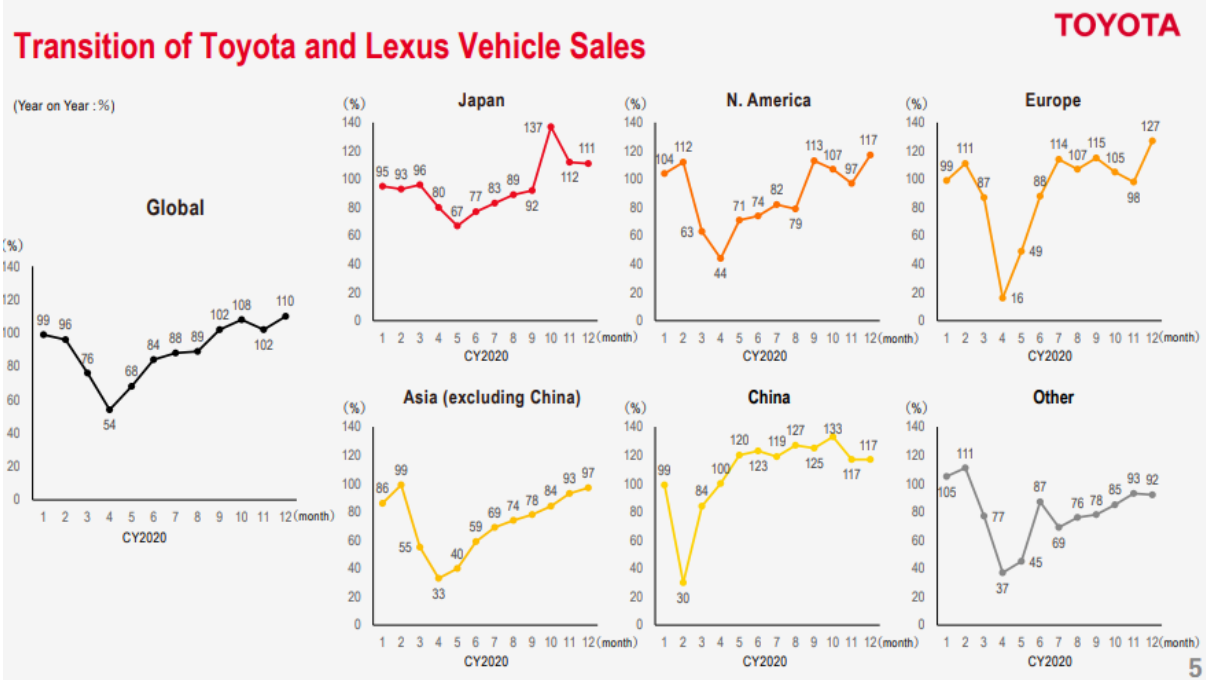
Toyota - https://global.toyota/en/ir/financial-results/archives/

Toyota has a March year end, and only forecasts for the current year. The JFY2020 total retail vehicles sold was 10.46M vehicles, and the forecast vehicle sales and margin respectively for JFY21 ending March 2021 was:

- *May 2020 Guidance - 8.9M units and 2.1% margin*
- *August 2020 Guidance: 9.1M units and 2.1% margin*
- *November 2020 Guidance: 9.42M units and 5.0% margin*
- *February 2020 Guidance – 9.73M units and 7.5% margin*

The progressive improvement in margin guidance is a particularly positive sign for the future.

Figure 3 Toyota's vehicle sales history is similar in pattern to Daimler



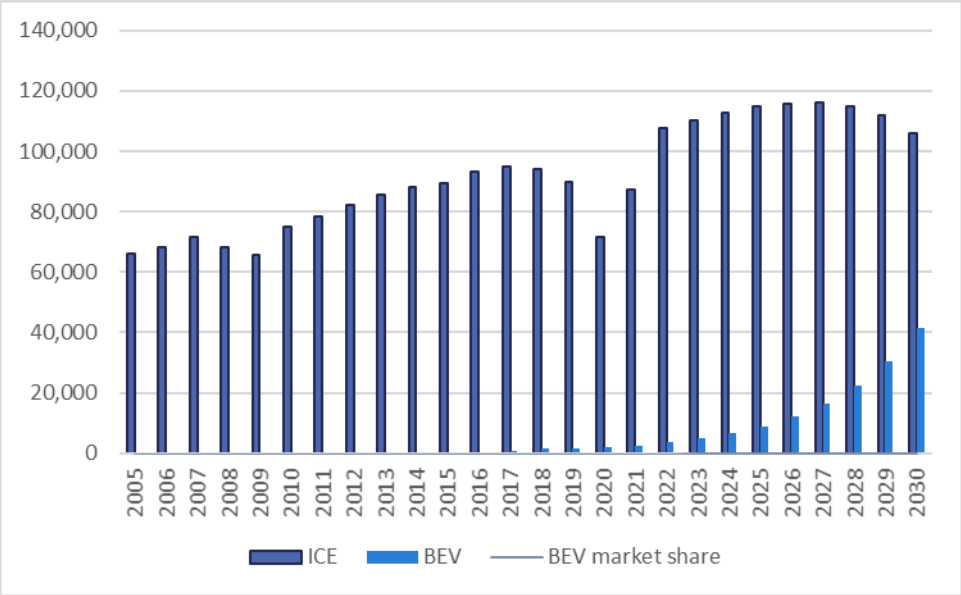
Source: Toyota Dec 2020 Quarter financial result release
https://global.toyota/pages/global_toyota/ir/financial-results/2021_3q_presentation_en.pdf

Both companies are global suppliers to all markets, and provide a good perspective on the global situation of the industry. Other manufacturers are not highlighted here but show a similar pattern.

Looking at new vehicle registrations in Figure 4, split into Internal Combustion Engine and Battery Electric Vehicles, the return of registrations to its growth trend after the 2008-2009 downturn is clear, and we expect the same return to trend following the current downturn, but this time with a greater contribution from Battery Electric Vehicles. None the less, the required recovery in ICE Vehicles is likely to be very strong, and that strength is likely to be impacting the lead pricing now.

Based on EIA forecasts, we assume 36% pa growth in new Battery Electric Vehicle, registrations, rising to 28% of new registrations in 2030, taking the BEV fleet to 140m vehicles by 2030, or 6.6% of the total vehicle fleet. This may appear to be a surprisingly low number to some, but is consensus.

Figure 4 New vehicle registrations showing ICE (Internal Combustion Engine) vehicles and BEV (Battery Electrical Vehicle) registrations separately. BEV registrations grow to 28% of total by 2030

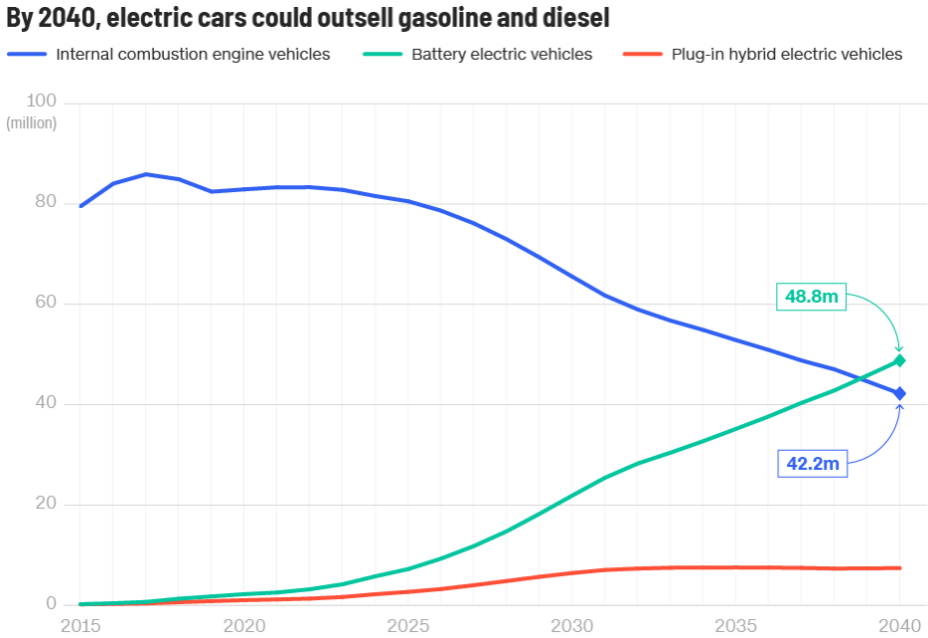


Source: History to 2020 from OICA, forecasts by Rawson Lewis

There have been a number of vehicle makers that have announced they are going to be selling only Electric Vehicles by a target date in the medium term. A big driver is the EU emissions restrictions which be hard for ICE vehicle to comply with.

EU Emissions: https://ec.europa.eu/clima/policies/transport/vehicles/cars_en

Figure 5 Our forecast is very much consensus



Source: Bloomberg New Energy Finance from
https://edition.cnn.com/interactive/2019/08/business/electric-cars-audi-volkswagen-tesla/

Table 3 Vehicle markers Electric Vehicle Sales Targets

			EV share of sales				
	2017	Share	2020	2025	2030	2035	2030
Total	96,922,080	100%					
TOYOTA	10,466,051	11%			40%		4,186,420
VOLKSWAGEN	10,382,334	11%			40%		4,152,934
HYUNDAI	7,218,391	7%			10%		721,839
G.M.	6,856,880	7%				100%	6,856,880
FORD	6,386,818	7%			100%		6,386,818
HONDA	5,236,842	5%			66%		3,456,316
RENAULT	4,153,589	4%		35%			1,453,756
SAIC	2,866,913	3%	12%				1,433,457
DAIMLER AG	2,549,142	3%		20%			509,828
B.M.W.	2,505,741	3%			50%		1,252,871
		60%					52%

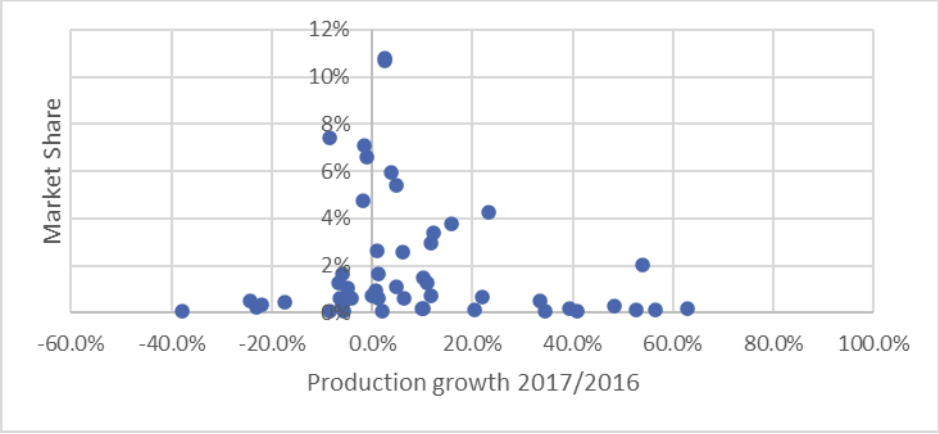
Source: OICA, various webpages. Rawson Lewis estimates

The consensus forecasts for EV of around 28% of total vehicle sales will appear to be a low estimate to many, and disappointing to those concerned about climate change. It is also low compared to the intentions of major vehicle makers summarised in the by 2025-2035 suggest that makers of 60% of the world's vehicles are planning for electric vehicle sales to account for around 50% of their total vehicle sales by 2030.

The vehicle makers not included in the table above include some who have indicated aggressive electrification targets, but most are avoiding targeting sales share, and are either silent, or targeting carbon neutrality, which includes hydrogen fuel cell technology.

It is also worth noting that the companies in the table above are the slower growing vehicle makers, and the smaller companies are generally the fastest growing. Amongst them is Tesla of course, but there are a lot of small ICE vehicle makers selling very cheap vehicles to lower income markets that are not investing in EV technology (Figure 6). Given the real driver of global growth in vehicles is in the lower income emerging markets, the electrification intentions of the big name brands selling into premium developed markets may be diluted by the strategies of the makers serving lower income markets. In this respect, the Hyundai target of 10% by 2030 may be a better indication.

Figure 6 Growth rates of smaller vehicle makers: 10% of vehicle makers grew over 20% 2017/2016



Source: OICA

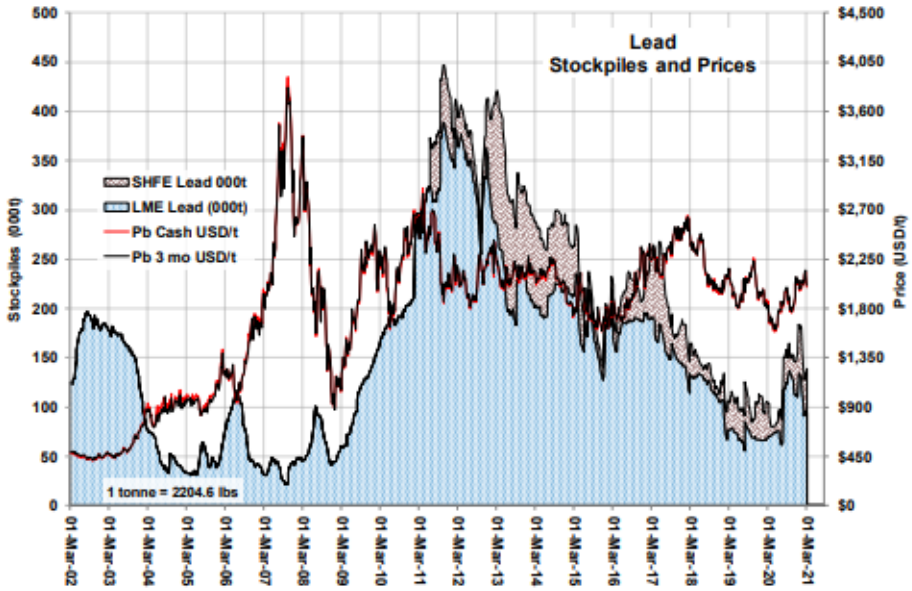
Finally, the vehicle maker's intentions are not necessarily going to be actual outcomes. Ford and GM intend to sell only Electric Vehicles from 2030 or 2035. Is it credible the vehicle buyers of the US will universally forgo their beloved V8 pickup trucks nine years from now? What would be the response of the Texas oil industry?

Current lead price action

This strong growth in lead demand for vehicles comes at a time when the lead market is in deficit. We have seen the inventories on the London Metals Exchange and the Shanghai Futures Exchange fall since late 2020.

We also have the comments by Boab management that when they talk to potential off-takers, the interest in securing new sources of supply is very high, pointing to current physical tightness.

Figure 7 The US$ lead price has been rising since the COVID 19 low in April 2020, and lead inventories at the commodity exchanges has been falling, suggesting a supply demand deficit at present



Source: Matau Advisory

The Chinese economy has been an important driver of lead demand over 2020, part of which was the production of Lead Acid Batteries for export. There has been some discussion by analysts that there was a surge in battery demand during the COVID 19 lockdowns at the end of the northern summer, which could be followed by a lull in demand.

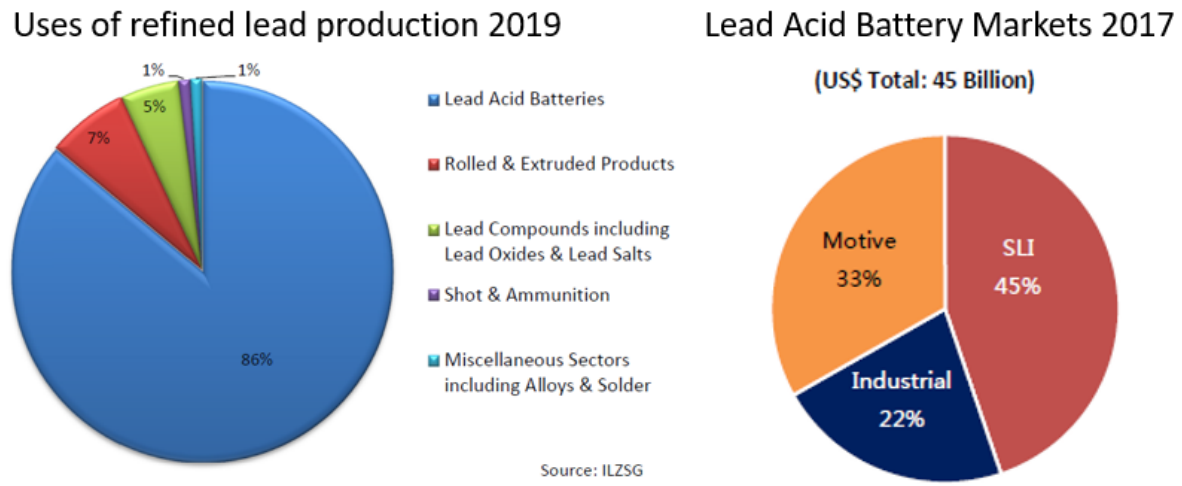
As it happens, the 2020-21 northern winter and been very cold in many places (e.g. Texas) and has contributed to a lot of battery replacement demand, and news reports from the Northern Hemisphere indicate the cold weather events are continuing. We believe the risk of an easing of lead demand is low because of the cold weather driving replacement demand, and the vehicle sales recovery driving new battery demand.

The market commentary from the Shanghai Metals Exchange is that Lead Acid Battery demand for lead recovery has started in China, driven by demand from E-bikes with as yet tepid demand from vehicles (i.e. autos and trucks). Lead Acid Battery capacity utilization at Chinese plants rose from 74.4% in January to 78.3% in mid-March 2021.

Lead demand applications

The dominant use of lead is in Lead Acid Batteries (Figure 8). In a world where batteries will be increasingly applied to store and supply energy as the world de-carbonizes, a major battery technology i.e. lead based batteries, is likely to remain as part of the story for the foreseeable future.

Figure 8 Uses of lead dominated by Lead Acid Batteries



Source: International Lead Zinc Study Group 2019 Lead Factbook

The uses for Lead Acid Batteries breaks down into:

1. SLI – Stands for Start/Lights/Ignition and refers to the battery in Internal Combustion Engine vehicles. It includes the traditional SLI battery, the use of which is in decline, and a newer variant called the Start/Stop battery, which has a higher lead content and is used in ICE vehicles which stop the motor when the vehicle is stationary. The battery must maintain the lights, air conditioning, and dashboard systems while the motor is stopped and the alternator is not generating electricity, and then be able to re-crank the engine. This must be done in all weather conditions, including extreme cold, which would be challenging for a Lithium battery. Demand for SLI plus Start Stop batteries is expected to grow by 2.7%pa (Grandview Research forecast quoted in ILZSG 2019 Lead Factbook
2. Motive – Lead Acid Batteries used to power drive trains in vehicle like Forklifts (51%), E-Bikes (44%) and other (5%). This use is driven the low cost of the Lead Acid Battery, and will be contested by lithium batteries as their cost falls.
3. Industrial – Applications for back-up power in systems must be reliable over the long term, and able to hold full charge for long periods. These systems rarely need to supply power, and are reserved for emergencies. Typical users include Telcos (51%), Uninterruptable Power Supplies (UPS 36%), and other (13%). Lithium batteries have yet to demonstrate the same degree of reliability over the long periods (i.e. 10yrs) required for such systems.

Long term outlook still likely to see continuing growth

While the lithium battery is the dominant source of power for Electric Vehicle power trains, Electric Vehicles currently have a Lead Acid Battery to supply power the door unlocking, lighting, air conditioning systems.

Clarios forecasts Lead Acid Battery demand growth of 2.5%pa to 2040

Battery maker Clarios produces of one third of the world's Lead Acid Batteries. At a conference on 11 January 2021, Craig Rigby, Clarios vice president, technology, forecast global demand for Lead Acid Batteries to increase by 236 million batteries by 2040, an increase of 63% in 20 years.

Clarios estimates most vehicles will require a 12V battery for essential, safety-critical functions, such as supporting peak energy loads for steering and braking systems, powering over-the-air updates when the vehicle is off and for electric or hybrid vehicles, supplying power to low-voltage systems if the primary battery fails.

Next-generation lead battery technology will unlock its full potential, pushing the boundaries of electro-chemistry performance, delivering significant improvement in charge acceptance to not only enable the latest vehicles features and usage, but ensure sustained performance over time for all-electric and eventually, autonomous vehicles.

https://www.clarios.com/news-views/news-detail

A risk to the forecast by Clarios is Tesla's announcement on 12 February 2021 that it is moving to replace the Lead Acid Battery in its Models S and X with a 12v lithium battery.

Reference: https://www.batteriesinternational.com/2021/02/12/tesla-announces-it-will-ditch-the-auxiliary-lead-battery-in-models-s-and-x/

However, the same article also noted that a recent survey by highly respected battery research group Avicenne Energy found that Lead Acid Batteries remained the product of choice for all vehicle makers, Telsa excepted, and preferred over Lithium Batteries because of:

1. Lower unit cost
2. Vehicle compatibility
3. Enhanced temperature performance
4. Flexibility in vehicle battery location
5. Standardization
6. Maturity of supply chains and
7. Recyclability

Vehicle demand driven by population growth and vehicle ownership intensity

Vehicle demand is expected to maintain its historical growth rate, and Lead Acid Battery demand in vehicles will be driven by the size of the global vehicle fleet and replacement demand, not just new vehicle registrations/sales.

Table 4 Growth in the global vehicle fleet from 2005 to 2015, and vehicle ownership intensity

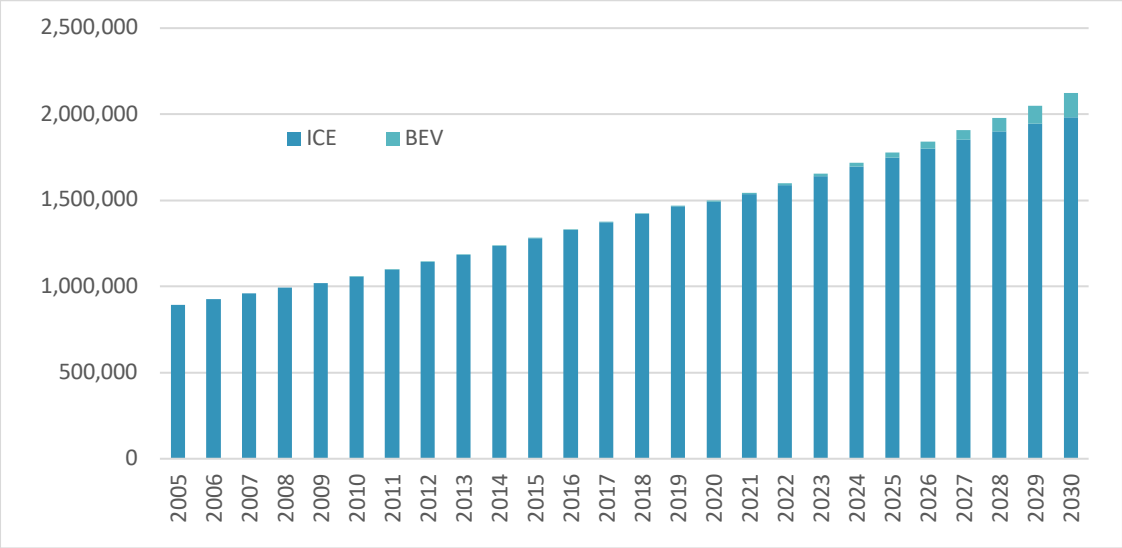
	Growth in vehicle fleet 2005-2015	Vehicles 1000 registered drivers
EU 28 countries + EFTA	1.2%	471
NAFTA	1.6%	670
Europe New EU Members	3.5%	500
All Countries	**3.7%**	**176**
Russia Turkey and other Europe	5.0%	281
Africa	5.7%	42
Central & South America	6.0%	176
Asia Oceania and Mid East	7.2%	105
China	17.8%	118
India	10.8%	22

Source: OICA,

With EU and NAFTA (North American Free Trade Agreement zone) vehicle intensity at 471-670 vehicles per registered driver, demand growth in those regions will be entirely driven by population growth, which is generally low, but still provides a background growth of 1.5%pa.

The real impetus is the developing economies where population's living standards are improving and in particular China and India, where vehicle intensity is low (China 118 vehicles/1000 drivers) to very low (India 22 vehicles per 1000 drivers). We expect these countries and others in Asia to maintain the growth in the global vehicle fleet at its 20-year trend average growth rate of 3.6%.

Figure 9 Global vehicle fleet in '000 units - Rising at 3.6%pa since 2005 to 1500M units in 2020



Source: OICA

Batteries are required for both new vehicles and as replacements for batteries in the existing fleet. As shown in the figure above, even at a spectacular annual growth rate of 36%pa, the share on Battery Electric vehicles in the total fleet in 2030 forecast to be only 6.7% or 140M Electric Vehicles vs 1982M Internal Combustion Engine Vehicles.

If you believe in sufficiently strong demand to generate high prices for lithium battery raw materials, then you have to believe that lead will also do very well

The critical requirement for high lithium battery commodity prices is that demand will be higher than supply is able to meet, hence the high prices. That implies a shortage, and in a world of shortage, why would vehicle manufacturers make the lithium shortage greater by switching from lead to lithium, if they do not have to?

Valuation base case 82.8cps on 10.5% WACC, 3yr average prices and Reserve +50%, however, with no Reserve increase and at spot prices is 73cps

The valuation of the company remains highly sensitive to the lead and silver prices and the AUDUSD rate assumed, as well as discount rate and exploration success.

We have chosen to use a Weighted Average Cost of Capital (WACC) of 10.5%, reflecting the higher project uncertainty, and we would expect the discount rate to move to 7% as the project ramps up.

We believe that over the next twelve months, the project will increase in size (i.e. life) due to Reserve addition, and our base case assumes a 50% increase in Reserves. We do not expect that the Sorby Hills Reserve will be increased by 50% in the next upgrade, but we do expect a substantial increase, and we expect the market will price in additional upgrades, generating our base case NPV of 82.8cps. At current spot prices and treatment charges (TCRC) the valuation is 73cps, with no Reserve increase.

If we were to value the company at 7x the average earnings of the first 5 years, we end up with a 59cps valuation at the 3-year average, or 85cps at spot prices as at 15 March 2021.

Table 5 Valuation before and after consolidation – A$M valuation unchanged

Valuations in A$/sh	Lead US$/lb	Silver A$/oz	AUD USD	NPV @ 10.3%	NPV @ 7%	5yr Ave EPS	EPS x 7
3yr Ave	0.92	18.03	0.71	0.479	0.697	0.085	0.594
3yr Ave + 50% reserve increase	0.92	18.03	0.71	0.828	1.230	0.085	0.594
Spot - no reserve increase	0.96	26.09	0.77	0.729	1.002	0.121	0.850

Source: Rawson Lewis estimates, spot prices 15 March 2021, Spot TRCRs US$90/t, 3yr Ave TCRCs US$140/t

Table 6 Sensitivity: Valuation in A$/sh at various A$ lead and silver prices

Lead Price A$/lb	1.20	1.40	1.60	1.80
Silver Price A$/oz				
25	0.310	0.682	1.055	1.427
35	0.570	0.942	1.314	1.687
45	0.830	1.202	1.574	1.947
Plus 50% Mine Extension				
25	0.626	1.060	1.494	1.928
35	0.910	1.344	1.779	2.213
45	1.195	1.629	2.063	2.497

Source: Rawson Lewis estimates, assuming unchanged TCRCs of US$140/t

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