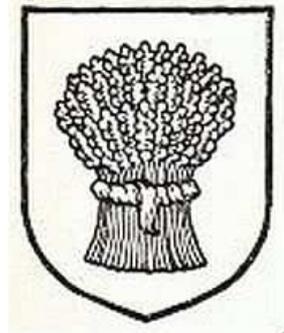


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HALLGARTEN + COMPANY

Portfolio Strategy

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Model Resources Portfolio: Rebirth of the Godzilla of Nickel

Performance Review – March 2023

Model Resources Portfolio

Rebirth of the Godzilla of Nickel

- + Gold took off and managed to break the \$2,000 per oz mark, not on inflation or war, but on the failure of a tech-oriented bank in California
- + Silver followed on its coattails are period of relative turpitude in 2023, so far
- + The Tin price started heading higher again as yet another Chinese bear-attack was beaten off by fundamentals
- + The US-first policy as embodied by the bizarrely-named Inflation Reduction Act has focused minds all over on what the future EV industry will look like and who will own the means of production
- + The oil price has resumed an upward trajectory
- ✗ The fall in the Cobalt price, seemingly another Chinese manipulation, claimed a victim in the form of Jervois Global mothballing its Idaho project on the eve of completion
- ✗ Lithium has continued its trajectory downwards as Chinese speculators were taken to the cleaners
- ✗ The interest rate rises continue as the inflation beast still roams the world. Are Central Bankers all Millennials and cannot remember the 70s and 80s?

Son of Vale

In less than twenty years the Canadian government has allowed the decapitation of the Canadian mining sector. Whither (wither?) Inco, Inmet, Falconbridge, Noranda et al? Sherritt has been allowed to be a football for the scum of the earth, otherwise known as the Battista apologists of Miami and thereabouts. Only in recent months has the government found religion on defending national assets and only as far as keeping critical metals out of Chinese hands is concerned.,

The biggest loss was undoubtedly Inco, for it was not just a loss for Canada but for Nickel investors internationally. On Oct. 6, 2006, Vale purchased Inco in a CAD\$19.4bn bid. The New York Times said at the time that the sale “further undermines Canada’s status as a force in the mining industry”.

Truly a global champion of Nickel was lost and submerged into the iron ore-centric maw of Vale, a Brazilian entity that has been ruining the day it ever decided to diversify. So, with an essentially unsympathetic owner, grappling with a metal it did not feel much sympathy for, we have all been witnesses to a flailing beast for 17 years now.

Let’s put the base metals division into perspective, Vale had around US\$55bn in revenue in 2021. Of this amount, Nickel & Copper accounted for only about 14%, with around 80% deriving from its iron ore segment.

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At various moments (usually highs or lows in the Nickel price) the idea of has resurfaced of somehow setting the captive free but has fell afoul of internal machinations in Brazil. A demerger back onto the TSX (and the BOVESPA) would have been pretty easy to achieve, except that the requisite grey cells were seemingly lacking. In time the stock on the BOVESPA would have migrated back to Toronto and New York and, bingo (!), a Nickel champion would have been (re)created.

As sure as night follows day, the idea has resurfaced in recent months, now dressed up as a battery metal story, as if Nickel needs that garb to justify itself as a metal of interest. In December of last year Vale S.A. announced plans to separate the base metal operations into a distinct entity from its main iron ore business sometime in mid-2023. The working title for this is an unimaginative, Vale Base Metals.

Executives cast the announcement to ensure that its base metal operations “were fully valued and can access capital”. These are admirable goals and could have been stated at any point since 2006. It does not need an EV boom to make them pertinent. Bringing in outside investors was claimed to be necessary to ensure that the base metals operations received appropriate investment and didn’t have to play second fiddle to Vale’s much larger iron ore business.

The asset mix of Vale’s base metals consists of Indonesian joint ventures, the Onca Puma Nickel mine and the Salobo copper project in Brazil, with the Canadian assets including Nickel mines and plants in Sudbury, Ontario, Thompson, Manitoba and Voisey’s Bay, NL.

As a first step, the base metal assets will sit in a separate entity, with a sale mooted of 10% to an outsider during 2023. This entity will be governed by its own board, which will include Vale’s chief executive as well as “other professionals with expertise in electric vehicles”. Why the preference would not be for experts in mining & processing is puzzling. What can EV experts bring to a base metal mining and processing company?

At the time, Gustavo Pimenta, chief financial officer of Vale, said: “This initial transaction allows us to keep all the optionality to do other deals down the road. To grow the business, go public, do different things”. With typical Vale indecision, he described the move as the first step in a years-long process and left open the idea that the entity could eventually go public.

We had to laugh at the Pimenta’s comment that Vale would look for a minority partner to help shoulder the billions of dollars in capital investments needed to optimize those assets. We wish this minority shareholder, *mazel tov!*

One almost gets the impression that Vale execs are afraid that a spin-out will be too successful and thus an indictment of their “dead hand” on the business. And they would not be wrong.... (for once).

Vale estimates that its Nickel production might reach 230,000 mtpa -245,000 mtpa in the mid-term. This capacity is expected to exceed 300,000 mtpa by 2030. It also expects, by the end of this decade, that Copper production is expected to triple to 900,000 mtpa from existing levels.

It is estimated this production expansion would require an investment of around \$20bn. But as we all

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know Nickel mega-projects are notorious for cost blowouts of titanic proportions. Do they mean \$30bn or \$40bn??

General Motors or ...?

In November of 2022, Vale announced a deal with General Motors (NYSE: GM) for the long-term supply of battery grade nickel sulphate from Vale's proposed plant at Bécancour, Québec. This would secure for GM a supply of nickel sulphate to support its escalating EV production needs in North America.

It is notable that this was announced before the base metal spin-out announcement and yet in the mind of investors/commentators it has somehow become conflated into GM being the buyer of 10% of the spin-out, which is just not true. Moreover, we do not see GM having the funds to throw at this "stake" unless it is of the order of \$2bn or less.

Under the deal, Vale will supply battery-grade Nickel sulphate, equivalent to 25,000 metric tons per year of contained Nickel, for use in GM's Ultium battery cathodes, which will power a broad portfolio of electric vehicles. The amount of contained Nickel is sufficient to supply approximately 350,000 EVs annually. Deliveries are targeted to commence in the second half of 2026.

Investment Thesis

We see the potential for another South32 situation here, where setting free a captive business that is underinvested, undercapitalized, underappreciated and, frankly, without vision can create a big new (old) player with a life of its own (and that puts the former owner to shame). Of course, Latin *machismo* comes into play here with the Vale management maybe fearing that the spinout will show them up. After all, there really is little sound rationale as to why the Inco acquisition should have been such a massive underperformer, except for Vale's management not being up to the task. That it has only taken 17 years to realise it, is a case of more of the same.

Then again, who wants to have 10% of a venture that is 90% owned by Vale, a company not sympathetic to the metals that the "new" venture will produce?

Argentina – The Presidential Field Narrows

There are primaries due in the middle of this year and then presidential elections in October of 2023. It is felt that the opposition stands a strong chance but, as yet, does not have a candidate.

The decision of former darling of the centre-right, Mauricio Macri, to not run was a chronicle of a political death foretold. Such was the disappointment with his former one-term reign as president that we were surprised he even felt he had a chance. That he did so, was probably the result of looking around and seeing what he thought was a similarly weak or weaker field of opposition candidates to the ruling K-Ascendancy in the country. Now he is fortunately history.

This has left the field open for Horacio Larreta (the Mayor of Buenos Aires) and Patricia Bullrich (the

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former Minister of Security under President Mauricio Macri).

Larreta, if he gets momentum, would be the third mayor of Buenos Aires to get to the Casa Rosada in recent times (the others being the disastrous Fernando de la Rúa in late 90s and lame-duck Macri in the middle of last decade).

Decline & Fall of K?

Despite the fact that the country's president is Alberto Fernandez, he is widely regarded as a creature of his vice president, Cristina Kirchner. The Kirchner grouping has largely ruled the country for twenty years, excepting the short centre-right interregnum mid-last decade. To put it tactfully, the Kirchnerite political style is not everyone's cup of tea.

The Fernandez/Kirchner Administration faces deep dissatisfaction from the public at this point due to the eternally-troubled economy, falling living standards and romping inflation. It is also not clear whether Fernandez will be trotted out by the Kirchnerites (or go it alone), but it looks highly unlikely that he will be on the Kirchnerite ticket again. Cristina herself has a whole world of legal problems besetting her.

In any case there is rather a *fin de siècle* feel about the administration at the moment. This alone should be a **BUY** signal for any asset class in the country.

Bullrich – the Dark Horse

Focus of the chattering classes is now turning towards Patricia Bullrich (66), whose current political status is as the chairwoman of Republican Proposal (*Propuesta Republicana*). In a country where politicians are frequently Peronists of many different hues competing against each other (showing what a catch-all Juan Domingo's policy offering was) Bullrich also started off her career involved with the Peronist Youth. After the return of democracy in the mid-1980s, she became Organisation Secretary of the Partido Justicialista (the Peronist Party) of Buenos Aires and was elected as a Peronist deputy in 1993. In 1995, she was named the Legislator of the Year, though in Argentina this can be a dubious distinction indeed.

Following the election of Mauricio Macri to the presidency on 22 November 2015, it was announced that Bullrich had been nominated the Minister of Security.

She became disillusioned with the Peronist cause (though the Peronist cause is so amorphous that it boggled even the mind of Peron himself) and left Congress in 1997. She then popped up, in 2001, as a cabinet minister, as Secretary of Labour, Employment & Human Resources (and later that year as Secretary of Social Security) in the ill-fated government of the aforementioned De La Rúa.

After years in the political wilderness (following De la Rúa's implosion), she managed to clamber back into Congress as a deputy, from whence, upon the election of Macri to the presidency in November of 2015, she became the Minister of Security. A role in which Bullrich became one of the few bright spots

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of the Macri years creating a good impression as a tough and competent operator (both internally and internationally).

Argentina has become accustomed to female presidents and candidates, so Bullrich is not an exception. She may just be what the doctor ordered to fix the malaise. Having been a deputy under Menem (the *Wunderpraesident* of the 1990s), then minister under De La Rúa's Radical-led clown-car and more recently shining in the distinctly dull Macri crowd, she has seen it all and knows the highways and by-ways of dealing with that notorious snake-pit, otherwise known as Argentina's Chamber of Deputies.

If she pulls it off, then fasten your economic seatbelts for an almost vertical rally in all things Argentine.

Jervois Global– Faint Hearted?

It was not one of our most auspicious moments when, as a panelist at the Mining Journal Select conference in London in late March, verily as we were citing Jervois (ASX: JRV, TSX-V: JRV, OTC: JRVMF) as the only serious Cobalt developer emanating from the boomlets of the last twenty years, on the other side of the world it was pulling the plug on its Idaho efforts if only temporarily.

The announcement was that Jervois was suspending final construction at Idaho Cobalt Operations (ICO) due to continuing low Cobalt prices and US inflationary impacts on construction costs. This was despite pundits claiming that the Fed was conquering inflation. The object of this move was "to prudently preserve the value of ICO's ore body", which is somewhat curious way of protecting its virtue.

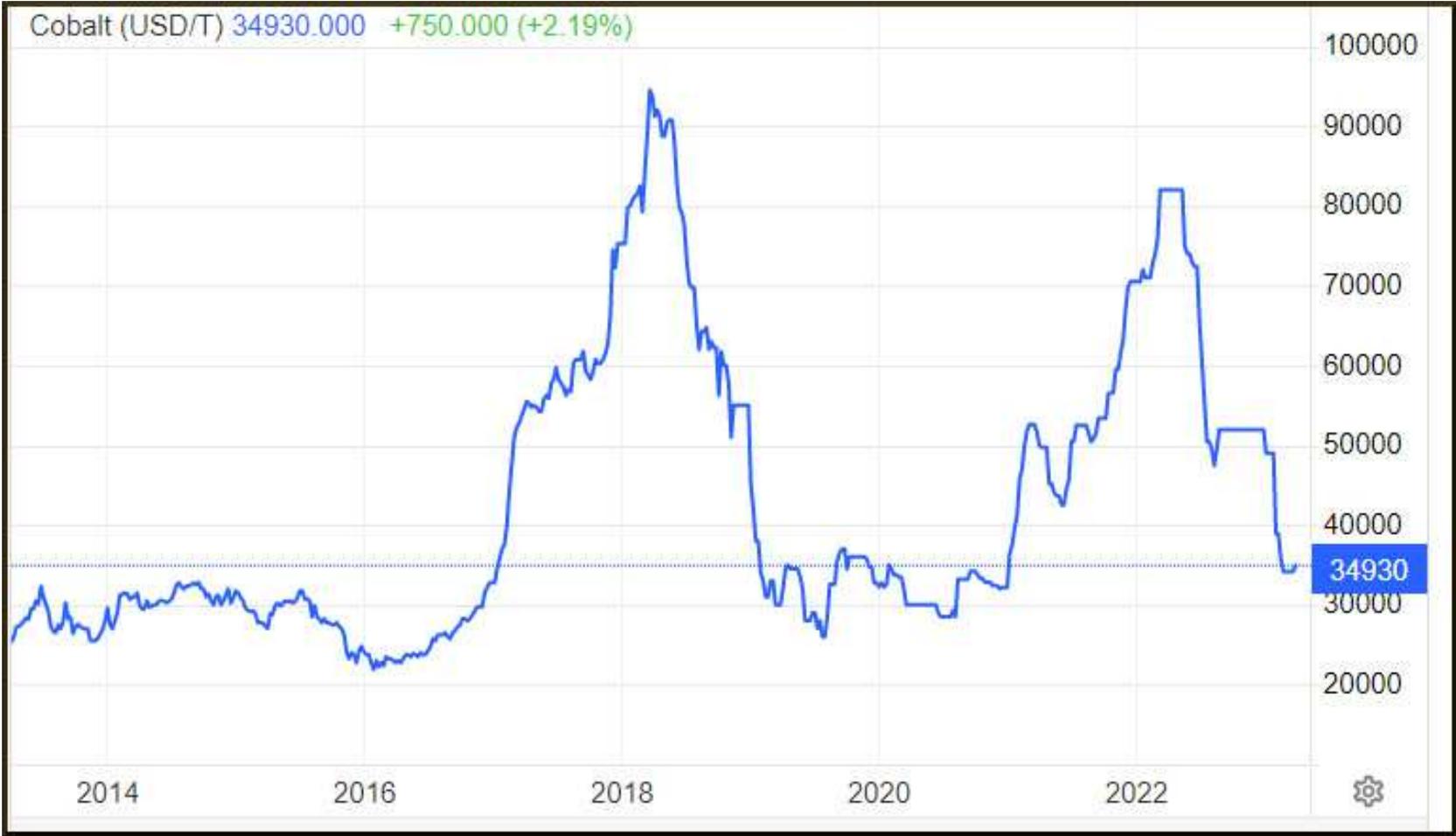
Bizarrely, Jervois management claimed that they expect Cobalt prices (shown on the following page) to recover over the medium term. It sees the influences of the energy transition (EVs etc) and cited an expectation that Cobalt purchasers in the West will increasingly prefer to buy from sources with Western ESG credentials, such as its ICO.

Still on Track?

Jervois's management had determined that not mining ICO Cobalt at cyclically low prices, "will preserve the optionality and inherent strategic value of ICO for shareholders and key stakeholders including local communities and the State of Idaho" Such thoughtfulness..... In an ironic twist, it also claimed that "not mining ICO at current prices is consistent with U.S. Government critical mineral policy objectives".

The company expects to complete construction of, and commission, ICO when Cobalt prices recover, which it also expects will align with Cobalt refining capacity in the U.S. brought into operation by Jervois and/or third parties.

Strategically, it's worth mentioning that mineral resource and reserve at Jervois's Idaho project is the largest- and highest-grade confirmed Cobalt orebody in the US. When commissioned the facility will represent the country's only primary Cobalt mine supply.



Source: Trading Economics

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Price Outlook

Here we come with our conspiracy theories again, but its hard not to “*cherchez le smoking gun*” and said gun usually has someone Chinese at the other end. Is it a surprise that Cobalt’s fall from grace tracked that of the Lithium price? But by an order of magnitude... However, Lithium rose more, and fell more, and was definitely not a machination of Peking, but a folly of Chinese speculators.

Cobalt’s dive, though, appears rather more sinister. As the leading non-Chinese Cobalt development of the last ten years (and the only primary Cobalt development in many decades) the Idaho project looks like a “must be stopped” target for those wanting to keep the DRC-China nexus sacrosanct. If one wanted to stymie the development of gigafactories in North America, then Cobalt is the mineral to go after rather than Lithium (where China’s grip of primary production has never been dominant).

We suspect that pretty soon the price will turn around and we would expect the price per lb to end the year above US\$25 compared to its current levels around \$16.

Jervois management claims to be confident regarding the medium- and longer-term future of Cobalt. It sees a “trajectory of structurally higher prices” driven by impacts such as rising Cobalt demand from the energy transition and an expectation that Cobalt purchasers in the Western economies will increasingly prefer Cobalt from sources “with Western ESG credentials”, particularly given the concentration of supply from the Democratic Republic of Congo going to China. Our view of Western ESG credentials is well-known, so we would prefer to posit something simpler, i.e. that Western companies will buy Jervois product because they wont be able to get it elsewhere.

Rattling the Cup of the Zeitgeist

In a case of fishing while the salmon are running, Jervois has applied for grant monies from the US government to accelerate drilling aimed at increasing ICO mineral resource and reserve, and for studies to assess construction of a Cobalt refinery in the US. Management claims that both pursuits can proceed as planned despite ICO’s suspension. We could be really provocative here and suggest Jervois takes over Sherritt (S.to) or vice versa.

The company claims to be optimistic that it can benefit from recently announced US government programs to financially support the development of supply chains in the US of critical minerals, including Cobalt, even though they are driving in reverse away from production.

The U.S. Department of Defense (DOD) has advised that it intends to award Jervois an immediate need for Defense Production Act Title III with US\$15mn of funding, through a Not to Exceed Technology Investment Agreement. The DOD award would be subject to Jervois successfully completing required documentary steps, including agreement to terms and conditions of the award.

Investment Thesis

Besides our battered ego, miners disappoint, so what else is new? What we cannot fathom is that

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Jervois seem surprised that the Cobalt price tanked though one glance at the 10-year chart we included above makes such an occurrence almost to be expected. If our chart went back further, it would include also the massive spike and dump of 2006-7. How can Jervois have been blindsided? We suspect the rationale is really that the company had overspent on its mine build (inflation or poor cost management or both?) rather than anything to do with Cobalt pricing. It might also be seen as an indictment of operating costs in the US.



The hidden hand appears to be at work here. So pretty soon, the price will turn around Jervois will look rather foolish. As noted earlier we would expect the price per lb to end the year above US\$25 compared to its current levels around \$16.

Where to go now with this story? Is the situation terminal? It does not appear so, but the company has not given a timeline for restart, only a vague “when Cobalt recovers”, whatever that means... Recovers to what level? We have lowered our twelve-month target price to AUD\$0.35 on the presumption it will survive and maintain our **LONG** in the Model Resources Portfolio for now.

Portfolio Changes

There were no changes to the Model Resources Portfolio during March.

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Putting Lipstick on a Nebraskan Pig

As is well-known we love Niocorp (NB.to, Nasdaq: NIOBW) so much we have had a **SHORT** on it for years now. Despite management's least efforts it is nowhere nearer to production than when we first thought it unworthy of being a **LONG**.

In an effort to pull on the fishnet stockings and tout its wares on some corner of Wall Street, in March of 2023, the company engineered a merger between NioCorp and GX Acquisition Corp. II (GXII). This deal had been announced in late September of 2022. Presumably this long hiatus was to test the old chestnut of how to keep an idiot in suspense.

After the consummation of this deal the company has listings on the Toronto Stock Exchange and the Nasdaq. The number of common shares issued and outstanding was reduced from 282,466,201 to approximately 28,246,620 common shares. These consolidated shares commenced trading in late March 2023 and the stock promptly plunged from around \$15 to around \$8.50.

We accordingly adjusted out 12-month price target on the **SHORT** in the Model Resources Portfolio to CAD\$4.00.



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Vanadium Resources (VR8.ax) – On the Move?

This company has been sitting in the Model Resources Portfolio for a few years now and has been a stealth performer in the last year rising 33% YoY. A serendipitous encounter with the company at the Mining Journal Select conference in London in the last days of March showed us that we were not mistaken in our perception.

The stock seems stuck in a sea of disinterest on the ASX for the Steelpoortdrift project, essentially a South African production story. With a relatively low start-up CapEx of US\$211mn, which it expects to fund 65% with debt and 35% equity, seems like a rather low bar to achieve. Being up close and personal with Traxys and RAB Capital's founder is also useful. A cross-listing on the London Stock Exchange would seem an overdue move to get the stock in front of more serious Africa hands than the ASX offers.

The economic model uses \$9.50 per lb for Vanadium Pentoxide, when the price is currently \$9.40, so it is in the ballpark.

We reiterate our **LONG** status for this name and our twelve-month target price of AUD\$0.22.

Parting Shot

We all know who the 1% are (indeed most of this note's readers would qualify) but what of the rest?

While mining investors are amongst the first (with farmers) to emphasise the centrality of their activity to the larger economic equation, many also tend to live in a bubble imagining prices of metals (particularly the precious ones) should go higher because they deserve to. The latest fallacy is that EV sales will rise at the pace set by consultants irrespective of consumer demand. "We think it so it must be so.....". We can all play this game.

In which case, so shall we... but our focus will be upon percentages and some truisms, emanating from our perceptions of the new economic paradigms. Beyond the 1%, we see three other groupings:

- The 70%.... this is the part of the adult population that by 2030 will not be able to own a car
- The nigh 100% part of the adult population under 30 who will not be able to acquire their own accommodation (no matter how large the mortgage) by the year 2030, except if they are Sam Bankman-Fried
- The 70% of the adult population under 40 that will not be able to acquire their own housing in the year 2040

We would concede though that a truly tantalizing opportunity will open up for consumers, they can either buy an EV early on and never own a house, or save up to buy a hovel in their mid-life and walk or rely on public transport for the rest of their days. What a choice..... Millennials in the UK have already

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arrived at this “sweet spot”.

We are tempted to be cruel at this point and let you work out for yourselves why this should be the case. We will give you a clue, if EVs are costing tens of thousands more, of whatever currency (not Italian liras), then how are the under-30s going to afford to buy them..... and considering that second-hand EVs will be as rare as hen’s teeth due to the resale market being ravaged by the consideration that the battery life is eight years in a most optimistic scenario....

We could go on.... without a wholesale collapse of the housing market (in which case the Bank of Mum & Dad will be as bust as SVB) then how can the under-30s and under-40s enter the property ladder? If they have splurged their putative deposit on an EV (because Greta told me to) then they will have an EV and no driveway to park it in... Never mind, for rents will go crazy (as they are doing in the UK and Australia currently) and then you wont be able to afford to rent, to buy or to drive.... Enjoy....

Recent & Upcoming

In the last month we published our Initiation of coverage on Sheffield Resources and an Update on Alphamin.

In coming weeks, there is scheduled a Initiations on Century Lithium, Southern Hemisphere Minerals and African Gold. There is also potentially a round-up on Argentina, an update on Aspermont and an Initiation on Boron One.

MODEL RESOURCES PORTFOLIO @ END MARCH							
Security	Ticker	Currency	Price	Change		12-mth Target	
LONG EQUITIES							
				last 12 mths	last mth		
Diversified Large/Mid-Cap	Hochschild	HOC.L	GBP	0.845	-35%	30%	£1.00
	Sherritt International	S.to	CAD	0.56	-23%	6%	\$0.95
Uranium	Sprott Physical Uranium	U.UN.to	CAD	15.8	-16%	-7%	\$20.00
	GoviEx	GXU.v	CAD	0.22	-50%	0%	\$0.45
Zinc/Lead Plays	WisdomTree Zinc ETF	ZINC.L	USD	9.55	-27%	-2%	\$14.00
	Luca Mining	LUCA.v	CAD	0.39	11%	0%	\$0.70
Silver Explorer	Southern Silver Exploration	SSV.v	CAD	0.21	-24%	31%	\$0.40
Silver ETF	IShares Silver ETF	SLV	USD	22.12	-3%	15%	\$24.00
Gold Producer	Soma Gold	SOMA.v	CAD	0.5	61%	25%	\$0.85
	Asante Gold	ASE.cn	CAD	1.67	439%	-1%	\$2.40
	Orvana Minerals	ORV.to	CAD	0.21	-32%	17%	\$0.60
Gold/Antimony Developer	Perpetua Resources	PPTA.to	CAD	6.02	16%	23%	\$7.50
Metallurgical Coal	Colonial Coal	CAD.v	CAD	1.65	-23%	11%	\$2.45
Royalties	Elemental Altus Royalties	ELE.v	CAD	1.37	-10%	5%	\$1.52
Copper Explorers	Panoro Minerals	PML.v	CAD	0.13	-32%	18%	\$0.30
	Phoenix Copper	PXC.L	GBP	0.21	-63%	-41%	£0.54
	Aldebaran Resources	ALDE.v	CAD	0.93	3%	1%	\$1.32
	C3 Metals	CCCM.v	CAD	0.06	-40%	0%	\$0.20
Tungsten Producer	Almonty Industries	AII.v	CAD	0.63	-36%	-15%	\$0.95
Graphite Developer	Blencowe Resources	BRES.L	GBP	0.0401	-14%	-23%	£0.09
Cobalt	Jervois Global	JRV.ax	AUD	0.07	-91%	-63%	\$0.35
Vanadium Developer	Vanadium Resources	VR8.ax	AUD	0.08	-20%	33%	\$0.22

MODEL RESOURCES PORTFOLIO @ END MARCH							
Security	Ticker	Currency	Price	Change		12-mth	
				last 12 mths	last mth	Target	
LONG EQUITIES							
Lithium	Neometals	NMT.ax	AUD	0.6	-69%	-27%	\$1.50
	Lithium Power Intl	LPI.ax	AUD	0.35	-62%	-5%	\$0.80
Cesium/Lithium	Essential Metals	EXX.ax	AUD	0.49	-16%	-2%	\$0.55
Scandium Developer	Scandium International	SCY.to	CAD	0.05	-64%	-17%	\$0.15
Gold Explorer	Cabral Gold	CBR.v	CAD	0.12	-72%	0%	\$0.60
	Gunpoint Exploration	GUN.v	CAD	0.68	5%	24%	\$0.75
	Desert Gold	DAU.v	CAD	0.06	-50%	0%	\$0.32
	MetalsTech	MTC.ax	AUD	0.37	3%	-23%	\$0.68
Rare Earths	Rainbow Rare Earths	RBW.L	GBP	0.086	-45%	-21%	£0.30
	Neo Performance Materials	NEO.to	CAD	9.28	-39%	-10%	\$24.00
Tin Miners	Alphamin	AFM.v	CAD	0.87	-26%	-6%	\$1.35
	Metals X	MLX.ax	AUD	0.33	-51%	6%	\$0.38
Mineral Sands	Sheffield Resources	SFX.ax	AUD	0.52	-15%	6%	\$0.72
Helium	Desert Mountain Energy	DME.v	CAD	1.68	-53%	-31%	\$3.70
Oil & Gas	Shell	SHEL.L	EURO	23.23	10%	-9%	£24.00
SHORT EQUITIES							
Shorts	NioCorp	NB.to	CAD	8.57	-21%	-31%	\$4.00
	Golconda Gold (ex-Galane Gold)	GG.v	CAD	0.30	-57%	7%	\$0.25
	Cleantech Lithium	CTL.L	GBP	0.515	54%	-28%	£0.25
	Texas Mineral Resources	TMRC	USD	1.23	-43%	-2%	\$0.30

Important disclosures

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