



## Silver prize better than gold

Thomson Resources is an emerging mineral explorer whose potential company-maker is the New England Fold Belt Silver Projects, a series of silver-rich deposits in the New England Fold Belt of northern NSW and southern Queensland. Thomson is targeting 100 million ounces of silver equivalent from these projects and is working towards JORC 2012 resource definitions. We see Thomson benefiting from the improved silver prices that have prevailed since mid-2020 and the scale economies of the combined projects. A number of Thomson's earlier-stage projects, including Bygoo (tin) and Harry Smith and Yalgogrin (gold) have shown good drill results, and the Chillagoe (gold) and Cannington (silver) projects are promising.

### A rapidly expanding silver flagship project suite

Each of the New England Fold Belt Silver Projects has been the subject of a mineral resource estimate in the past. The aggregation of these projects suggested economies of scale in a 'hub and spoke' mineral processing model, with early metallurgical testwork suggesting that the flowsheet for the 'hub' need not be complicated. The fact that some of the Fold Belt projects are polymetallic is also attractive in terms of the potential tin, zinc and copper credits. As well as resource definition and expansion Thomson is in the early stages of working out how the hub and spoke model would work.

### A potential tin and gold player

We see the most potential in the Bygoo Tin Project and the Harry Smith and Yalgogrin Gold Projects, all located near Ardlethan in southern NSW, as having strong potential. Bygoo has potential to help resurrect the tin mining operation that was last worked at Ardlethan in 1986, at a time when tin prices are looking good for the first time in a while. The Harry Smith Gold Project and Yalgogrin Gold Project have yielded good exploration results, with both projects covering historic gold mines from the late 19th century.

### Valuation range of \$0.19–0.31 per share

We value Thomson resources at \$0.19 per share base case and \$0.31 optimistic case based on EV/Resource ounce for comparable precious metal project developers. Key risks that we see are (1) commodity price risk; (2) disappointment on New England Fold Belt resource size; and (3) funding risk.

Share Price: \$0.105

ASX: TMZ

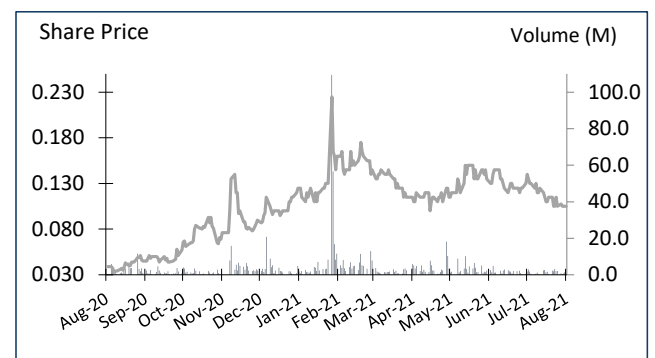
Sector: Materials

11 August 2021

Market Cap. (A\$ m)	48.6
# shares outstanding (m)	463.3
# shares fully diluted (m)	626.2
Market Cap Ful. Dil. (A\$ m)	65.7
Free Float	87%
52-week high/low (A\$)	0.225 / 0.033
Avg. 12M daily volume (mill)	3.4
Website	thomsonresources.com.au

Source: Company, Pitt Street Research

### Share price (A\$) and avg. daily volume (k, r.h.s.)



Source: Pitt Street Research

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## Introducing Thomson Resources, ASX: TMZ

**Thomson Resources is an emerging mineral explorer with a promising flagship in the New England Fold Belt Silver Projects.** Thomson Resources has been an ASX-listed mineral explorer since its late 2010 IPO. The company began to assume its current form in July 2019 when the Queensland-based mining entrepreneur David Williams joined as Chairman. In 2020 and 2021, under Williams's leadership, Thomson put together what it thinks is a 'company maker' in the form of the New England Fold Belt Silver Projects, which cover a range of silver-rich mineral deposits in the New England Fold Belt of northern NSW and southern Queensland. Thomson sees potential for the New England Fold Belt Silver Projects to host a collective resource of 100 million ounces of silver equivalent. Elsewhere in Queensland and New South Wales Thomson has various projects focused on silver, tin and gold.

**Why are the New England Fold Belt Silver Projects potentially company-making?** Each one of the New England Fold Belt Silver Projects – Texas, Silver Spur, Conrad, Webbs and Mt Carrington – had been the subject of a mineral resource estimate in the past, and Silver Spur is well known as a historic silver producer with around 2 million ounces of output. However until 2020 silver price had generally been too low to warrant further development of various projects. The sudden re-rating of silver in mid-2020 changed all that. More importantly, the aggregation of these projects suggested economies of scale in a 'hub and spoke' mineral processing model, with early metallurgical testwork suggesting that the flowsheet for the 'hub' need not be complicated. The fact that some of the Fold Belt projects are polymetallic is also attractive in terms of the potential zinc and copper credits.

**What is the current state of development for the New England Fold Belt Silver Projects?** Currently Thomson's main focus with the New England Fold Belt Silver Projects is JORC 2012 resource definition and expansion, targeting the 100 million ounces of silver equivalent we mentioned above. The company is also in the early stages of working out a potential hub and spoke model for development. We expect that once the 100 million ounce target has been achieved, over the next twelve months, the company can move to a Pre-Feasibility Study.

**What other promising projects are at an earlier stage of development?** Under Williams's leadership Thomson has added two very-well located Queensland projects, the Cannington Silver Project and the Chillagoe Gold Project. As the name suggests, the Cannington Project covers a number of permits very close to the Cannington Silver Mine of South32 (ASX: S32) in western Queensland. The Chillagoe project, around 200 km west of Cairns, lies near the Mungana, Red Dome and King Vol mines that have all been solid producers historically. Of the Thomson projects that preceded Williams, we see the most potential in the Bygoo Tin Project and the Harry Smith and Yalgogrin Gold Projects, all located near Ardlethan in southern NSW. Bygoo has potential to help resurrect the tin mining operation that was last worked at Ardlethan in 1986, at a time when tin prices are looking good for the first time in a while. The Harry Smith Gold Project and Yalgogrin Gold Project have yielded good exploration results, with both projects covering historic gold

*Thomson is targeting 100 million ounces of silver equivalent with its New England Fold Belt Silver Projects*



mines from the late 19<sup>th</sup> Century. Wilga Downs<sup>1</sup>, Wilgaroon<sup>2</sup>, Havilah<sup>3</sup> and Mt Paynter<sup>4</sup> are minor projects that at the right time can be prioritised.

**If Thomson Resources is so good why is the company currently trading at only a \$48.6m market capitalisation?** We think the main reason for this company's apparent undervaluation is the fact that the New England Fold Belt Projects are relatively new. The existing resources in many instances need to be taken up to JORC 2012 and expanded via further drilling. Also, it is early days in terms of working out the right format for production. However with silver continuing to stay strong, having returned to more like the historic relationship with gold, Thomson now has a window to move the New England Fold Belt Projects quickly into feasibility work, and that progress is likely to attract a re-rating, particularly if the grades in drilling in the area are strong.

## Ten Reasons to look at Thomson Resources

1. **The New England Fold Belt Silver Projects are looking good for silver**, with existing resource estimates in place for all five projects, and Thomson confident that its drilling work can prove up an aggregate JORC 2012 resource of 100 million ounces of silver equivalent.
2. **The price of silver is favourable for the development of the Fold Belt projects.** From the March 2020 low, where silver traded under US\$13 an ounce, silver re-rated suddenly, almost reaching US\$30 an ounce in August 2020 as the precious metal returned to more like its historic relationship with gold. Since August 2020 the precious metal has traded in a US\$22-29 an ounce band that has been helpful to would-be producers of silver such as Thomson.
3. **The hub and spokes model for the New England Fold Belt Projects is promising**, with early metallurgical testwork suggesting that the flowsheet for the operation would be fairly straightforward.
4. **The polymetallism of the New England Fold Belt Projects notionally lowers their risk**, with copper, lead, tin, zinc and gold credits likely to be favourable to the overall cost position as the projects develop.
5. **There is plenty of exploration excitement across the New England Fold Belt Project areas still to come**, with multiple drill targets having been identified that previous operators have never evaluated. This is likely to be good for news flow.
6. **Bygoo is looking good for tin.** Multiple drillholes since 2015 at both Bygoo North and Bygoo South have returned good intersections. This has suggested the potential for Bygoo to restart tin mining at Ardlethan in an environment where tin prices are solid once again.
7. **Thomson has two interesting Lachlan Fold Belt Gold Projects.** The Harry Smith and Yalgogrin Gold Projects have both generated good results in recent drilling. We like the potential for open-pit gold in both projects, where there are historic workings.
8. **Thomson may have promising ground very near the Cannington Silver Mine**, with its ground lying in-trend from the deposit that

*The polymetallism of the New England Fold Belt Projects notionally lowers their risk*

<sup>1</sup> A gold and base metal project in the Cobar Basin of NSW covered by EL8136. DevEx (ASX: DEV) farmed in in September 2020. Good drill results were announced in February 2021. A large off-hole DHEM conductor was identified in April 2021.

<sup>2</sup> A tin-tungsten project in NSW located in the Cobar Basin of western NSW covered by EL8011. A drill rig mobilised to this project in May 2021.

<sup>3</sup> A zinc-lead-gold-silver project around 20 km southeast of Mudgee and covered by EL7391. This project has been with Thomson Resources since April 2014 and is subject of farm-in by Silver Mines Limited (ASX: SVL).

<sup>4</sup> A tin/tungsten resource at Mt Paynter in southern NSW. The company applied for the project in May 2015 and EL8392 was granted in late 2015.



South32 is mining, and sharing similar geology. The area has attracted exploration interest in recent years from Sandfire Resources (ASX: SFR).

9. **Thomson Resources has solid management.** Executive Chairman David Williams has a strong track record of success over many years in developing early-stage resources companies. Technical Director Eoin Rothery brings exploration smarts and Richard Willson brings corporate and capital market expertise.
10. **Thomson Resources is undervalued on our numbers.** We value Thomson Resources at \$0.19 per share base case and \$0.31 per share optimistic case. We see Thomson re-rating to more like our valuation range on the back of new resource estimates in the New England Fold Belt and good exploration work in the other projects.

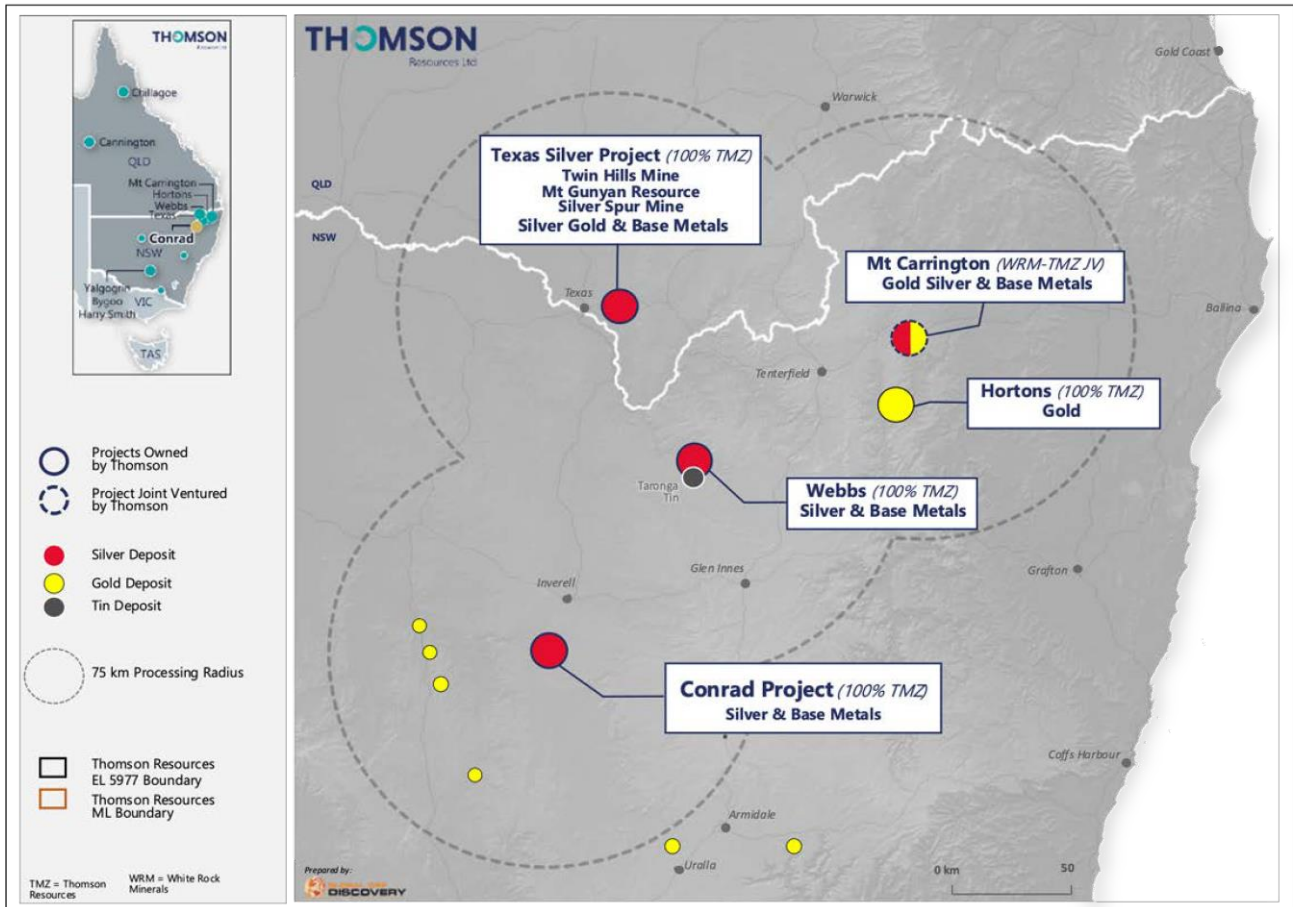
Figure 1: Silver re-rated sharply in mid-2020, not long after its Corona Crash low



Source: ASX



Figure 2: The New England Fold Belt Projects<sup>5</sup>



Source: Company

### Potentially 100 million ounces of silver equivalent in the New England Fold Belt Silver Projects

Thomson Resources has brought together five potential silver deposits for its new flagship. In 2020 and 2021 Thomson Resource brought together five separate silver projects in the upper part of the New England Fold Belt which we are collectively calling the New England Fold Belt Silver Projects. The five projects are Texas, Silver Spur, Webbs, Conrad and Mt Carrington. The acquisition of Webbs and Conrad from Silver Mines (ASX: SVL) was announced in November 2020 and completed in March 2021. A farm-in at Mt Carrington was announced in February 2021, followed quickly by the acquisition of Texas in March 2021 and Silver Spur in May 2021. Thomson is targeting a resource of 100 million ounces of silver equivalent across this suite of projects.

#### Silver re-rated sharply in 2020

Two factors motivated the assemblage of the New England Fold Belt Projects, namely, the re-rating of silver, and the proximity of the deposits. In mid-2020 the price of silver rose sharply, returning to more like its historic relationship with gold after a period where silver had been low by comparison with gold. In this environment Thomson management saw an opportunity to

<sup>55</sup> Hortons is a gold project that Thomson currently considers non-core due to its proximity to the Timbarra Gold Mine, which is no longer in production and remains controversial in the Tenterfield area. In the 1990s the Tenterfield community was divided over Timbarra because its operator, Ross Mining, had planned to use a cyanide extraction program that some considered environmentally deleterious. That controversy attracted national attention at the time.



aggregate a number of silver-based projects that were relatively close to each other in northern NSW and southern Queensland. The rough epicentre of the New England Fold Belt Projects is the town of Emmaville, in the New England region of northeast NSW<sup>6</sup>. The Webbs Project is just 10 km north of Emmaville. Texas, Qld is 110 km north. Drake, NSW, near the Mt Carrington Project, is 139 km northeast of Emmaville. And Howell, NSW, near the Conrad Project, is 133 km southwest.

**Thomson is contemplated a hub and spokes model to develop the New England Fold Belt projects.** Thomson believes the five New England Fold Belt Silver Projects can be the basis of a 'hub and spoke' model for central processing of ore, which would see zinc and copper produced first, followed by silver and gold. Obviously the hub need not be situated at Emmaville since the roads in the area are all sealed, making trucking of ore or concentrate relatively easy anywhere in the New England Fold Belt Project area. A tentative flow sheet has been worked out based on some early and favourable metallurgical testwork from ore at the Texas Projects and Silver Spur, although it must be stressed that it is early days for the project. We expect that as the New England Fold Belt Projects progress towards a Pre-Feasibility Study this hub and spokes model will be more thorough investigated.

**The New England Fold Belt flowsheet looks good.** Thomson Resource envisages that it could initially develop the gold potential of Mt Carrington on its own as carbon-in-leach project, which is what White Rock Minerals (ASX: WRM), original developer of Mt Carrington, models in its PFS. Later on it could transition to the hub and spoke model where all five mines feed concentrate into the central processing facility. Downstream circuits would produce zinc and copper via some kind of leaching process, and gold and silver via carbon-in-leach. Arsenic and stibnite would be waste products<sup>7</sup>.

**The five projects all have resources.** An important aspect of the New England Fold Belt Silver Projects is that they all come with established deposits where resources have been estimated. While these estimates are at various stages of maturity, the opportunity for Thomson Resources is to prove up each resource to comply with JORC 2012, and then to expand each resource.

The next steps for the New England Fold Belt Projects. We see the following activities taking place over the next twelve months:

- Publication of new resource estimates for all five projects;
- Drilling to extend resources;
- More metallurgical testwork;
- Moves towards a Scoping Study and Pre-Feasibility Study for the combined projects.

<sup>6</sup> Emmaville, postcode 2371, lies in the Glen Innes Severn Local Government Area, around 56 km north of the council seat of Glen Innes.

<sup>7</sup> A Brisbane-based mineral process engineering firm called Core Resources Pty Ltd (coreresources.com.au) has developed a hydrometallurgical process called 'Toowong' that allows over 90% arsenic and antimony removal from base metal concentrates. That technology may be useful to Thomson with the New England Fold Belt Projects.



**Combined, Thomson may be three-quarters of the way there.**

**We estimate 78 million ounces of silver equivalent across the five projects.** We looked at the published estimates for all projects. There are obvious limitations to these estimates since

- some were not done to the JORC 2012 standard;
- in some cases there was no allowance for the associated base metals;
- others had no assumptions published as to commodity prices used or mill and smelter recovery estimates which would then allow ‘silver equivalent’ estimates.

We expect that Thomson Resources will provide more reliable and consistent numbers over the next twelve months or so as its team recalculates the resource estimates. What the numbers suggest, however is, that Thomson may have acquired 78 million ounces of silver equivalent since late 2020.

**Figure 3: Thomson Resources may have 78 million ounces of silver in aggregate resources**

Project	% Adj.	AgEq (m oz)	Ore (mt)	g/t AgEq	AgEq (m oz)	JORC
Texas	100%	24.7	14.0	55	24.7	2012
Silver Spur	100%	8.3	0.8	318	8.3	2004
Webbs	100%	16.5	1.5	344	16.5	2004
Conrad	100%	17.5	2.7	205	17.5	2004
Mt Carrington	70%	11.4	19.3	92	16.3	2004/2012
<b>Total</b>		<b>78.4</b>	<b>38.2</b>	<b>68</b>	<b>83.3</b>	

Source: Pitt Street Research

**The Texas Projects – Picking up where Moreton Resources left off**

**A 20 million ounce resource complements the Receivers.** The town of Texas, Qld is located in the Goondiwindi Region only 2 km from the border between Queensland and New South Wales. Thomson is focused here on two deposits, one called Twin Hills 8 km east of the town and the other called Mt Gunyan, a further 4.5 km northeast of Twin Hills. A company called Moreton Resources<sup>8</sup> established JORC 2012 resource estimates for these two deposits totalling in excess of 20 million ounces of silver in 2016. That company was placed in Receivership in June 2020 and Thomson acquired the Texas Projects from the Receivers in March 2021<sup>9</sup> for just \$2.5m.

**There have been several attempts to get this project to work since the early 2000s.** Twin Hills and Mt Gunyan were discovered by a company called Macmin in the mid-1990s during regional exploration to locate further silver mineralisation next to the famous Silver Spur mine. As with that mine, Twin Hills and Mt Gunyan sit within the Early Permian Silver Spur Basin in a formation called the Silver Spur beds. Macmin, which became Macmin Silver in 2002, brought Twin Hills into production in 2008 with ore processed via a heap leach circuit. Macmin Silver struck difficulties during the Global Financial Crisis and went into Voluntary Administration, allowing it to be re-capitalised,

*Twin Hills was once the company-maker for Macmin*

<sup>8</sup> ASX: MRV.

<sup>9</sup> Jadar Resources, ASX: JDR, had been an early bidder but pulled out.





re-named Alcyone Resources and re-listed in 2009. Twin Hills restarted in 2011 but Alcyone was landed in administration in 2014 as a result of low silver prices. Around 1.4 million ounces of silver was produced by Macmin/Alcyone over the 2008-2014 period. Moreton Resources, which was primarily a coal project developer, picked up the Twin Hills and Mt Gunyan projects in early 2016<sup>10</sup>. It attempted a brief restart of the heap leach operation but did little else with the projects prior to the Receivership.

**Substantial silver resources are available, as well as plant and equipment.** Moreton Resources estimated 13.7 million ounces of silver for Twin Hills<sup>11</sup> and 6.5 million ounces for Mt Gunyan<sup>12</sup> and in 2017 it also estimated the small silver resources left on the heap leach pad<sup>13</sup>. Thomson will now work on its own JORC 2012 resource estimate and will evaluate whether better recoveries from the heap leach pads can be achieved with a different approach.

**Extensions to the resource potentially coming.** Thomson believes there are substantial extensions that can be made to both resources given new targets it has identified. The company has filed ELAs over 518 sq km in the district in order to pursue these, which will add considerably to the 207 sq km in licences acquired from the Receivers.

### **A small resource at the Silver Spur, but potential to expand it**

**2 million ounces of historic production from the best known Texas mine.** The Silver Spur mine near Texas historically produced over 2 million ounces of silver, mainly in the period 1892 to 1925, although there have been three brief revivals since then. In its heyday the silver grade was in excess of 800 g/t Ag, and there was also substantial lead, zinc and copper credits. The mine had been owned by Macmin/Alcyone but was not developed by that company, which chose instead to focus on Twin Hills. When Alcyone went into administration Silver Spur went to a private company which sold it to Thomson Resources in May 2021.

**A resource may be increase coming.** In 2004 Macmin Silver<sup>14</sup> estimated a resource at Silver Spur of only 11.5 million ounces of silver equivalent, which included the slag dump<sup>15</sup>. That company basically neglected Silver Spur in favour of Twin Hills, which had a much bigger resource. However Thomson believes there are potentially depth extensions to Silver Spur and will develop a drilling plan to evaluate this. In the meantime it will work to produce its own JORC 2012 resource.

<sup>10</sup> See the Moreton Resources market release dated 5 February 2016 and headlined 'MRV Metals acquires highly prospective tenements'.

<sup>11</sup> See the Moreton Resources market release dated 19 September 2016 and headlined 'MRV Metals Pty Ltd confirms significant resources in Twin Hills mine'.

<sup>12</sup> See the Moreton Resources market release dated 5 October 2016 and headlined 'MRV Metals Pty Ltd confirms JORC resource – Mt Gunyan'.

<sup>13</sup> See the Moreton Resources market release dated 21 April 2017 and headlined 'MRV Metals Pty Ltd re-release of heap leach stock piles data'.

<sup>14</sup> ASX: MMN. This company became Alcyone Resources, ASX: AYN, in 2012 but was placed in Administration in 2014.

<sup>15</sup> See the Macmin Silver market release dated 14 July 2004 and headlined 'Texas Project resource base increased to 56m oz of silver equivalent with the addition of historic Silver Spur Mining Leases.'



*Conrad was seriously explored  
by Malachite Resources*

### The Conrad Project – Bringing another old mine back to life

**Conrad was last worked in the 1950s.** The Conrad Project is located near the village of Howell<sup>16</sup>, which is 29 km south of Inverell. From 1891 to 1912 the old Conrad mine was a major source of silver and also produced lead, zinc, copper and tin. It was briefly revived in the mid-1950s before a collapse in lead prices shut that effort down. Several decades later Conrad was to have been the company-maker for Malachite Resources<sup>17</sup>, which drilled in excess of 25,000 metres, most of it with diamond rigs, but the project passed to Silver Mines in 2015<sup>18</sup>.

**There is a decent resource at Conrad.** In this part of the New England Fold Belt intrusions from the Gilgai Granite into the Tingha Adamellite helped lay down both high-grade massive sulphides rich in silver but also lower grade disseminated and stockworked vein polymetallic mineralisation. Malachite Resources focused on three areas of interest – the Conrad Lode, King Conrad Lode, and an area called the Greisen zone hosting disseminated and veinlet bulk tonnage style mineralisation. That company published a resource estimate in late 2008 of 19.2 million ounce<sup>19</sup>. Thomson Resources announced in June 2021 that it was doing further exploration work in this project, with the intent to establishing a new resource estimate.

**Thomson will now upgrade the Conrad resource,** which was JORC 2004. The company noted that exploration has more or less only focused on the Conrad line of lode, leaving plenty of other potential targets not in that vicinity to be identified from the magnetics and soil and rock chip sampling work.

### The Webbs Project – One of the highest grade undeveloped silver projects in Australia

**A project 14 years in the making.** The Webbs Project, as we noted above, is located just north of Emmaville. Silver Mines, the project vendor, had been working on Webbs since 2006, focused on the potential of the old Webbs Silver Mine, worked from 1884 until 1901 and then briefly again in the mid-1960s. The shafts on the mine made it down to 223 metres. Webbs was a polymetallic mine with lead, zinc and copper credits. The silver mineralisation at Webbs resulted from Permian-aged sedimentary rocks being intruded by the Early Triassic Mole Granite. The historic Webbs workings only cover a narrow 2 km north-trending zone that worked various three lines of polymetallic vein lodes. Given the extent of the Mole Granite, Silver Mines saw potential to identify other metasediment-hosted targets in the area, and Thomson will likely follow up on these leads in due course.

**A 16.5 million ounce silver equivalent resource.** Silver Mines drilled around 30,000 metres over more than 300 holes during its tenure on the project and established a resource for Webbs in 2012 which came in at 1.49 million tonnes at 345 g/t Ag Eq for 16.5 million ounces of silver equivalent<sup>20</sup>. That resource was JORC 2004 and Thomson is now working to convert it to JORC 2012. Further drilling will likely build out this resource since there are several down-plunge extensions to the resource that Silver Mines had yet to drill before it sold the project to Thomson.

<sup>16</sup> Postcode 2360.

<sup>17</sup> ASX: MAR. This company became Pacific Nickel Mines, ASX: PNM, in 2020.

<sup>18</sup> See the Silver Mines market release dated 11 May 2015 and headlined 'Silver Mines enters Memorandum of Understanding to acquire Conrad Silver Project'.

<sup>19</sup> See the Malachite Resources market release dated 16 December 2008 and headlined 'Conrad Silver Project: resource upgrade to form basis of new scoping study'.

<sup>20</sup> See the Silver Mines market release dated 27 February 2012 and headlined 'Indicated and Measured JORC resource at Webbs upgraded 400%'.



*A PFS was published for Mt Carrington 2017 and updated in 2020*

*Just as a gold play Mt Carrington is valuable*

### **A lot of the heavy lifting has already been done at Mt Carrington**

**White Rock Minerals has taken Mt Carrington to the PFS Stage.** The 180 sq km Mt Carrington Project, which is covered by EL6273, covers the historic Drake Goldfields, which were first worked in the 1880s and again, briefly, in the 1980s, albeit in both cases on a small scale. After about five years of modern development<sup>21</sup> Mt Carrington became the foundation project of White Rock Minerals when that company was spun out of Rex Minerals<sup>22</sup> (ASX: REX) in 2010. By late 2017 White Rock Minerals had completed a Pre-Feasibility Study (PFS), which was updated in August 2020 to evaluate Mt Carrington as a 'gold dominant' project. Under a February 2021 farm-in agreement Thomson Resources will now fund the next stage of development for Mt Carrington, and can earn 70%.

**An epithermal gold-silver play.** At Mt Carrington both precious and base mineralisation is hosted by the Permian Drake Volcanics where a low magnetic signature understood to be a collapsed caldera has allowed low-sulphidation epithermal mineralisation to form. Mt Carrington covers a number of shallow-lying epithermal gold and silver deposits that are well understood by White Rock Minerals. The Straus, Kylo, Guy Bell and Red Rock deposits are 'gold dominant', Lady Hampden has both gold and silver, and the White Rock, Silver King and White Rock North deposits are 'silver dominant'.

**Mt Carrington is almost 'shovel-ready'.** As at mid-2020 the JORC 2012 Mineral Resource Estimate is 352,000 ounces of gold and 23.2 million ounces of silver<sup>23</sup>. At Mt Carrington the gold pits are pre-stripped, there is considerable existing infrastructure including a tailings storage facility, and the Mining Leases are granted.

**A valuable project on the gold potential alone.** The August 2020 update to the 2017 PFS oriented Mt Carrington towards being a 'gold dominant' project because silver prices had been weak up until that time. White Rock Minerals modelled a five year operation producing 35,500 ounces p.a. at All-In Sustaining Cost (AISC) of A\$1,327 an ounce. Allowing a modest A\$39m in pre-production capital costs, and using a conservative A\$2,300 per ounce gold price, this yielded a pre-tax NPV of \$93.6m at a discount rate of 8%. Using A\$2,600 per ounce for the gold price boosted this NPV to A\$174m. The current gold price of ~US\$1,800 an ounce translates to A\$2,435 an ounce. White Rock Minerals's valuation included no contribution from the silver-dominant deposits, which together constituted more than 23 million ounces.

**Thomson is now funding the Definitive Feasibility Study and Environmental Impact Statement.** Under the February 2021 farm-in agreement White Rock Minerals is free-carried for at least 30%. Thomson will pay White Rock \$1.2m and fund the DFS and EIS to earn 30% in Mt Carrington. It can go to 51% by taking the project to a Final Investment Decision and to 70% by paying White Rock another \$12.5m for the final 19%. We expect that Thomson's DFS will evaluate Mt Carrington as both a silver and a gold play and be ready to publish in mid-2022.

**There may be more mineralisation beyond what White Rock Minerals has established.** Since 2020 White Rock has largely focused on mineralisation near the historic workings. Soil sampling work has suggested that many of the Mt Carrington deposits are part of a larger copper-gold system that has yet to

<sup>21</sup> Initially by Drake Resources, then, from 2008, by Rex Minerals.

<sup>22</sup> ASX: REX, rexminerals.com.au. Rex's flagship today is the Hillside Copper Project on the Yorke Peninsula of South Australia.

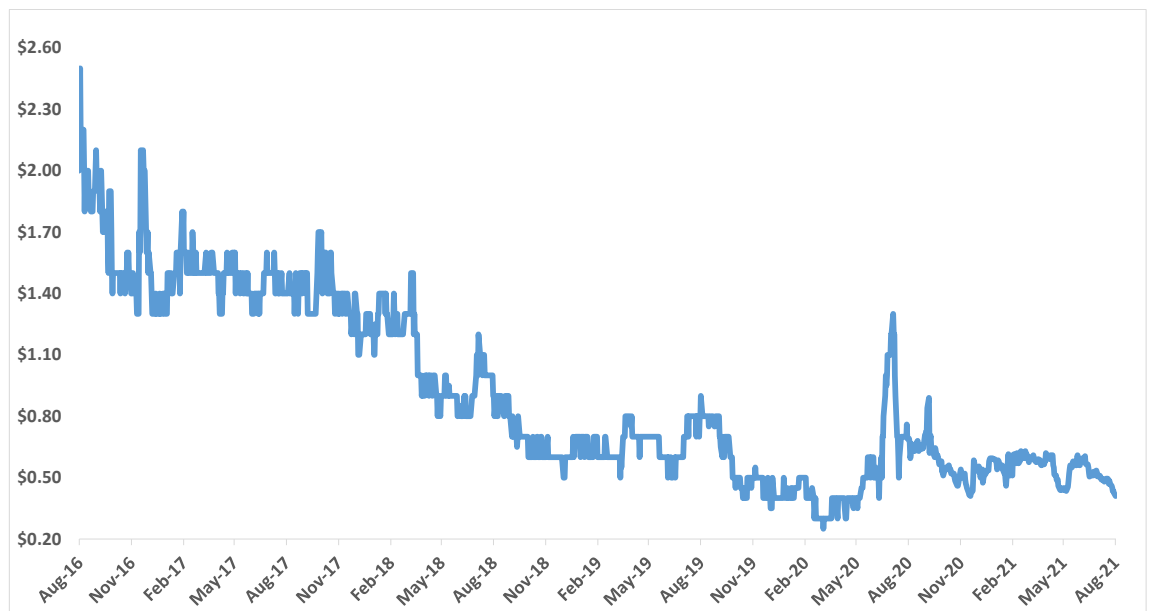
<sup>23</sup> This is only slightly different from the October 2017 estimates, which for gold was 341,000 ounces - see the White Rock Minerals market release dated 9 October 2017 and headlined 'Improved gold resources at White Rock's Mt Carrington gold-silver project'.



be fully explored. We anticipate further drilling during the DFS process may yield resource increases beyond what Thomson has farmed in to

**The other 30% of Mt Carrington may ultimately be available.** White Rock is currently merging with AuStar Gold (ASX: AUL) in an all-scrip deal that was first announced in February 2021, just prior to the Thomson farmin at Mt Carrington. AuStar Gold is the owner of the Woods Point-Walhalla Gold Mine in Victoria. White Rock has enjoyed some good exploration success in recent days with its Red Mountain Project in central Alaska, valuable for base metal targets as well as gold, where the Last Chance prospect is looking interesting. There is therefore potential for White Rock to vend the rest of Mt Carrington to Thomson Resources to focus on more rewarding projects.

**Figure 4: The market’s enthusiasm for White Rock Minerals’ ‘gold first’ PFS for Mt Carrington was brief, ending shortly after the PFS update was published in mid-2020**



Source: ASX

## Bygoo may help resurrect tin mining at Ardlethan

**Thomson’s Bygoo Tin Project sits close to the historic Ardlethan Tin Mine in NSW.** The small town of Ardlethan, population 519<sup>24</sup>, lies in Coolamon Shire of central NSW, around 500 km southwest of Sydney. Ardlethan, on the western edge of the Lachlan Fold Belt was, from 1912 until 1986, the host of a major tin mine working the largest of a series of tin deposits in the Wagga Tin Belt granites. In the last two decades of the mine’s life, a cumulative 25,000 tonnes or so of tin concentrate was mined. However the tin price crash of 1986 sealed the mine’s fate. Historically at Ardlethan there was the main Ardlethan mine, and then there was a series of smaller workings up to 10 km to the north sometimes called the ‘Bygoo’ group. Thomson has been working its Bygoo Tin Project since it acquired an EL of that name in April 2015<sup>25</sup>. The project currently covers two ELs. EL8260<sup>26</sup> surrounds the old mine leases at

<sup>24</sup> Source: ABS, 2016 census data.

<sup>25</sup> See the Thomson Resources market release dated 13 April 2015 and headlined ‘Thomson acquires advanced tin project’.

<sup>26</sup> Called ‘Bygoo’.



Ardlethan, but excludes the actual Ardlethan mine<sup>27</sup>. It extends up to the old Bygoo North workings in the Bygoo group, 7km north. EL9187, granted in June 2021 and called 'Kildary', was added to the project as an ELA in September 2020 and covers the old Kildary Gold Field.

**The Bygoo Tin Project has geology that is reasonably well understood.** The ore in the Ardlethan Tin Field historically came from tourmaline-rich breccia pipes hosted in granites and sediments adjacent to the highly fractionated Ardlethan Granite, believed to be the source of source rock of the mineralisation. The field had both small, structurally controlled tin lodes and buried disseminated mineralisation associated with intense silicification and greisenisation, with the mineralisation occurring at the margin of the granite. That model suggested that if you find the greisens you find more tin. Something like 200 individual workings cluster up against the Ardlethan Granite. That provides good clues for modern exploration, however prior Thomson's entry into the Ardlethan Field there had been very little of that, thanks mainly to the volatile price of tin.

*The drill results at Bygoo North have been solid*

**Bygoo North has the making of small but high grade tin deposit.** An initial drilling campaign at Bygoo North in 2015 focused on a magnetic anomaly similar to the main Ardlethan mine where a high was surrounded by a low. That drilling successfully confirmed historic drill intersections and outlined a wide tin-bearing greisen, with the discovery hole, BNRC10, logging 11m at 1.0% Sn from 66m<sup>28</sup>. The next hole, BNRC11, got 35m at 2.1% Sn from 44m while BNRC13 had 11m at 1.4% Sn from 88 metres<sup>29</sup>. Later on BNRC20 featured 11m at 1.4% Sn from 78 metres<sup>30</sup>, BNRC33 had 29m at 1.0% Sn from 58 metres<sup>31</sup> and BNRC40 gave 19m at 1.0% Sn from 49 metres<sup>32</sup>. What was apparent by mid-2017 was that Bygoo North had potential for a shallow, high grade (ie > 1% Sn, which is greater than 400 g/t Ag<sup>33</sup>) deposit made up of the tin oxide mineral cassiterite, with quartz and topaz, in an east-to-west trending greisen which Thomson now calls the 'Main Zone'. By 2018 Thomson's drilling had established that there was another important tin-bearing greisen at Bygoo North called Dumbrells, based on an old open pit mine of the same name wedged up against the Ardlethan Granite. Dumbrells crosses the Main Zone running north to south.

**Bygoo South has also shown promise.** This prospect, 400 metres away from Bygoo North, covers an old tin working called Smith last worked in 1946. Bygoo South's 2016 discovery hole, BNRC21, came back with an intersection of 8m at 1.3% Sn from 57m<sup>34</sup>. Other good holes followed including 20m at 0.9% Sn from 42m in BNRC31<sup>35</sup> and 7m at 1.3% Sn in BNRC35 from 22 metres<sup>36</sup>. Thomson's work at Bygoo South has established a sulphide-rich quartz-topaz greisen but continued success from Bygoo North means that Bygoo South is lower-priority.

<sup>27</sup> The privately held Australian Tin Resources Pty Ltd is working on development options for the mine – see atresources.com.au. Earlier, in 2001, a company called Marlborough Resources had attempted a revival in 2001 but by 2004 Marlborough had gone into administration.

<sup>28</sup> See the Thomson Resources market release dated 13 July 2015 and headlined 'Strong drilling results at Bygoo Tin Project'.

<sup>29</sup> See the Thomson Resources market release dated 21 October 2015 and headlined 'Outstanding results in second round of drilling at Bygoo Tin'.

<sup>30</sup> See Thomson Resource market releases dated 21 April 2016 headlined 'Further outstanding drill results at Bygoo Tin'.

<sup>31</sup> See Thomson Resource market releases dated 28 June 2017 headlined 'Further outstanding drill results at Bygoo Tin' (that's right – they used the same headline as the 21 April 2016 market release).

<sup>32</sup> See Thomson Resource market releases dated 31 August 2017 headlined 'Strong drill results at Bygoo Tin'.

<sup>33</sup> Assuming the price of tin and silver at US\$35,000 a tonne and US\$25 an ounce respectively, 1% Sn translates to a very healthy 435 g/t Ag.

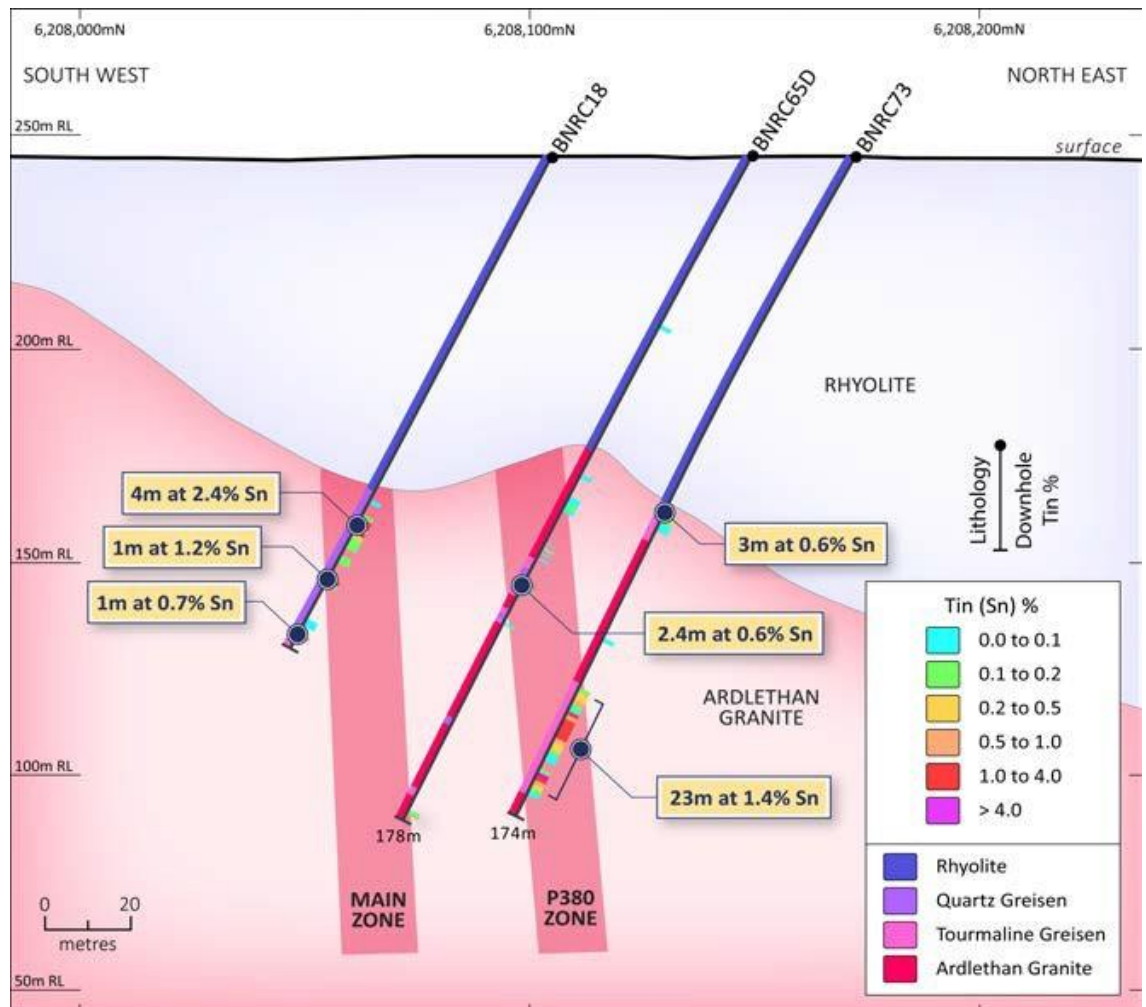
<sup>34</sup> See Thomson Resource market releases dated 21 April 2016 headlined 'Further outstanding drill results at Bygoo Tin'.

<sup>35</sup> See Thomson Resource market releases dated 28 June 2017 headlined 'Further outstanding drill results at Bygoo Tin'.

<sup>36</sup> See Thomson Resource market releases dated 31 August 2017 headlined 'Strong drill results at Bygoo Tin'.



Figure 5: Thomson Resources found a new tin-bearing greisen in its most recent drilling at Bygoo



Source: Company

*Thomson has decently identified a new greisen at Bygoo*

**The latest round of drilling has been very pleasing.** Drilling at Bygoo recommenced in mid-2021, after several years of relatively little work, with the aim of further extending the mineralised zone and establishing a maiden JORC Resource. This campaign saw 1,350 metres of RC drilling over 11 holes. The results, released in June 2021<sup>37</sup>, were impressive and included a massive 118m at 0.43% Sn from 57 metres in BNRC69, and 23 metres at 1.4% Sn from 141 metres in BNRC73. Each of these holes went into new greisens, the former 300 metres north of the Main Zone greisen and the latter 50 metres north. Importantly, all four greisens – Main Zone, Dumbrells, and the new, as yet unnamed discoveries – are open at depth. It’s fair to say that the June 2021 announcement was the most important yet for the Bygoo Tin Project.

**Thomson is now on the way to a JORC 2012 Mineral Resource Estimate.** In 2016 Thomson hypothesised that Bygoo North could host 0.9 million to 1.4 million tonnes of ore, grading 0.8% to 1.4% Sn. That would make Bygoo a small but high grade resource of 7,000 to 20,000 of tin - relatively easy to mine because of its being close to surface, and relatively uncomplicated to process given that Ardlethan cassiterite had been mined and shipped as concentrate

<sup>37</sup> See Thomson Resource market releases dated 21 June 2017 headlined 'Drilling at Bygoo Tin Project identifies multiple new tin discoveries'.



for decades. One minor downside of the June 2021 discoveries is that the work on resource definition has been deferred to allow more work on the new areas, potentially leading to the definition of a bigger deposit that had previously been thought possible. A nice problem to have, we think.

**The timing is right for Thomson at Bygoo because the commodity is attractive again.** The important thing about the last couple of discoveries for Thomson is that they come at a time when tin has come back into favour, after about a decade in which it generally trended backwards. In March 2020 tin was changing hands on LME at only US\$14,000 a tonne. It subsequently rallied and has not stopped for breath since, reaching US\$34,000 a tonne by July 2021. Tin is attractive as a commodity because of its increased use in electronics, and because of the decline of the Man Maw field in northern Burma.

## Harry Smith: Golden and silver sprays...and now bronze

**The Ardlethan area also has gold potential.** Thomson's Harry Smith Gold Project is located 30 km south of Ardlethan and 14km north of another small town called Grong Grong and covers historic open pit workings dating from between 1893 and 1941. Thomson applied for the area covering Harry Smith around September 2016<sup>38</sup> partly to capture some more tin potential<sup>39</sup>, but also to cover Harry Smith and another area of historic gold workings called Mallee Hen<sup>40</sup>. The Harry Smith license was granted in early 2017<sup>41</sup> as EL8531<sup>42</sup>. Another tenement called Four Mile (EL9067) was added to the project in September 2020 as an ELA, with the EL granted in February 2021. Four Mile was followed by the Barellan (EL7896) and Bolaro (EL9169) tenements in January 2021, the latter as an ELA where the EL was granted in May 2021. Harry Smith has generated some great drill results since 2018. Harry Smith allowed Thomson to have a gold play in the Lachlan Fold Belt, and the Harry Smith project area represented a good way to play this not just because previous drilling had outlined, albeit faintly, a gold-mineralised structure, but because the neighbourhood could potentially host intrusion-related and sulphide fault replacement gold lodes, not unlike those which created the incredible Fosterville gold deposit near Bendigo.

**There was little modern exploration at Harry Smith before Thomson,** but enough to get started. Harry Smith's total output from the 1890s to the 1940s was only about 3,500 ounces, and this may have deterred most modern exploration efforts other than a small programme initiated by Bolnisi Gold<sup>43</sup> in the mid-1990s. That said, the Harry Smith workings only went down to 75 metres, so the potential is high for a large, open-pittable mine based on an intrusion-style deposit related to the nearby Grong Grong Granite. When Bolnisi held the ground the best intersection here was 25 metres at 2.2 g/t gold from 16 metres and where the mineralisation was open down dip and along strike. The potential of the project is that the Harry Smith line of lode is based on two distinct quartz reefs, called by Thomson 'Golden Spray' and

*Thomson did the first drilling at Harry Smith since the mid-1990s*

<sup>38</sup> See the Thomson Resource market release dated 16 September 2016 and headlined 'Thomson applies for new tin and gold project'.

<sup>39</sup> At the bottom of the Ardlethan Granite lies the historic Frews tin workings.

<sup>40</sup> Mallee Hen is located about 17 km from Ardlethan and historically produced 5,000 ounces up to 1917, having been worked on four levels down to about 50 metres below surface. There had been no modern exploration drilling done until Thomson arrived on the scene. A 7 hole RC drilling programme in 2021 tested the area around the historic workings and came back with intersections like 1.1m at 1/1 g/t gold from 70 metres, but the results were generally considered weak – see the Thomson Resources market release dated 22 June 2021 and headlined 'Update on Mallee Hen gold, Cobar tin/tungsten drilling and Texas silver acquisition'.

<sup>41</sup> See the March 2017 Quarterly Activities Report, dated 28 April 2017.

<sup>42</sup> Called 'Frying Pan' in the Schedule of Tenements

<sup>43</sup> Acquired in 2007 by Coeur for A\$930m, for its huge Palmarejo silver-gold project in Mexico.



*The quartz reefs that make up Harry Smith are growing in importance*

'Silver Spray'<sup>44</sup>, of about 200-400 metres length. What was known about the two reefs made it easy to choose the early drill targets. In effect, Thomson picked up where Bolnisi left off.

**There have been strong drill results at Harry Smith since 2018.** The first drilling at Harry Smith took place in early 2018 and helped the Thomson geologists establish which way the Golden Spray reef was dipping at its northern end. The drilling, which suggested multiple vein sets, yielded one particularly good intersection of 54m at 1 g/t gold from only 8m in HSRC004<sup>45</sup>. A second campaign in late 2018 at Silver Spray was also encouraging, with HSRC009 coming back with 17m at 5.2 g.t gold from 38m<sup>46</sup>. By early 2021 drilling had effectively connected up the Golden Spray and Silver Spray lodes, and shown mineralisation in Golden Spray to remain open towards the northwest. Intersections in this campaign included 7m at 4.4 g/t from 23m HSRC18<sup>47</sup>. The most recent campaign potentially identified a third reef, which is being tentatively called 'Bronze Spray' and showed 7m at 1.5 g/t from 4.2 g/t from 51m in HSRC38. There were also multiple wide intersections on Golden Spray and Silver Spray, including 7m at 4.2 g/t from 56m in HSRC27 on Silver Spray and 10m at 1.2 g/t from 44m in HSRC34<sup>48</sup>.

**What's next for Harry Smith?** The expansion of the Harry Smith project area increases the scope for regional exploration as well as more focused work on Harry Smith itself. We see potential for the combined Golden/Silver/Bronze Sprays to evolve into a large, open cuttable deposit over the next few drilling campaigns.

## Yalgogrin: Resurrecting another historic Lachlan Fold Belt gold field

**An ounce to the tonne field.** Thomson's Yalgogrin Gold Project is 90 km north of the Harry Smith project with the closest town, West Wyalong in Bland Shire, lying 40 km to the east. The project covers the old Yalgogrin Gold Field, which produced around 15,000 ounces between 1893 and 1954, with much of that at grades of over an ounce to the ton. The initial project area, acquired by Thomson in October 2019, comprised EL 8648<sup>49</sup> and another Exploration License granted shortly after the acquisition called EL8946, the latter of which brought the historic Gibsonvale tin deposits. Grellman (EL9083) and Buggajool (EL9112) were added to the project in September 2020<sup>50</sup>, as was Buddigower (EL9208)<sup>51</sup>, the last of which covers the old Buddigower tin deposits.

**A favourable geological environment.** The Lake Cowal Gold Mine of Evolution Mining (ASX: EVN), which as at December 2020 had a resource of 9.7 million ounces, is only 40 km from Yalgogrin. In this part of the Riverina, the Gilmore Fault Zone has contributed to a large gold endowment where structurally-controlled, low-sulphide gold mineralisation shows up in Ordovician to Devonian units. At Yalgogrin the mineralisation occurred along the contacts between intrusions from the Yalgogrin Granite and metasedimentary country rock from the Gilmore. Even though the geology of

<sup>44</sup> The reefs were worked historically using various names.

<sup>45</sup> See the Thomson Resource market release dated 26 March 2018 and headlined 'Promising gold intersections at Harry Smith prospect'.

<sup>46</sup> See the Thomson Resource market release dated 16 January 2019 and headlined 'High grade gold intersections at Harry Smith prospect'.

<sup>47</sup> See the Thomson Resource market release dated 21 January 2021 and headlined 'Large gold system confirmed at Harry Smith'.

<sup>48</sup> See the Thomson Resource market release dated 28 April 2021 and headlined 'Further wide gold intercepts at Harry Smith'.

<sup>49</sup> See the Thomson Resources market release dated 15 October 2019 and headlined 'New gold project for Thomson'.

<sup>50</sup> See the Thomson Resources market release dated 21 September 2020 and headlined 'Expansion of exploration land in IRG-prospective Lachlan Fold Belt'.

<sup>51</sup> See the Thomson Resources market release dated 28 September 2020 and headlined 'New gold-silver-tin prospect in the Lachlan Fold Belt'.



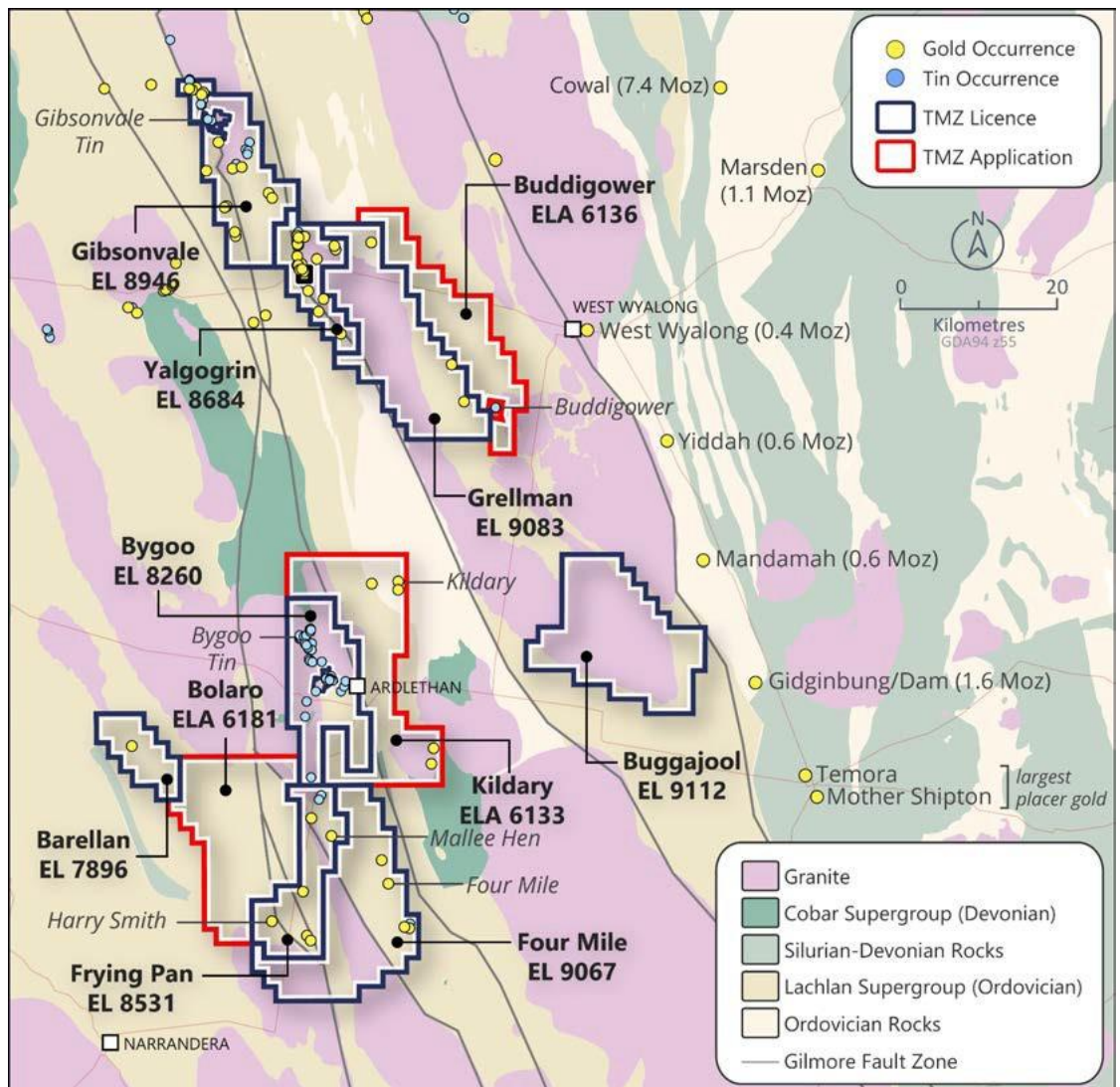


The Busted Boulder prospect at Yalgogrin is looking good

the Yalgogrin field is well understood from the historical workings, relatively little modern exploration work had been done prior to Thomson’s 2019 arrival, with the last RC drilling campaign taking place in 1987.

There has been some early drill results at Yalgogrin. Thomson’s initial drilling programme was guided by rock chip and soil sampling work undertaken just prior to the acquisition, which in some cases had assayed up to four ounces to the tonne. The initial RC drill programme in mid-2020 targeted four prospects - Shellys, Bursted Boulder, Bottrells and Cherry Tree – around old workings that sat along the boundary between the granite and the sediments. The most notable intersections from this campaign were 5m at 10.3 g/t Au from 92m at Bursted Boulder in TGRC06 and 2m at 7.5 g/t Au from 34m at Shellys in TGRC08<sup>52</sup>. A second six-hole campaign from late 2020 yielded further good intersections at Bursted Boulder including 2m at 5.2 g/t from 80m in TGRC14, and 3m at 6.9 g/t from 73m in TGRC17<sup>53</sup>.

Figure 6: Thomson’s Lachlan Fold Belt Projects could develop via a hub and spokes model



Source: Company

<sup>52</sup> See the Thomson Resources market release dated 18 August 2020 and headlined 'Yalgogrin gold results'.

<sup>53</sup> See the Thomson Resources market release dated 19 January 2021 and headlined 'Yalgogrin phase-2 drilling delivers strong gold results'.



**An area with growing exploration interest.** With Bursted Boulder still open in all directions we see strong potential for the next round of drilling to further extend this lode, particularly since the high grade zones so far have lined up in a single plane. Thomson has flagged further drilling later in 2021. Thomson's 2020 expansion of its project area combined with the November 2020 entry of a Canadian company called AIS Resources<sup>54</sup> (TSX-V: AIS) into the district bodes well for Yalgogrin. AIS recently did diamond drilling under the old Asia-Wyalong mine which had an historical average Au grade of 37 g/t and favourable results here may promote further interest in Thomson's adjacent project.

**A second hub-and-spoke model?** The propinquity of Yalgogrin and Harry Smith suggests a gold development opportunity in the Lachlan Fold Belt along the lines of the hub-and-spokes model being pursued in the New England Fold Belt for silver. We expect that Thomson will talk about that some more once the first resource estimates are able to be made for these projects.

## Chillagoe – An underexplored area close to Mungana and King Vol

**A counter-seasonal project to the Lachlan Fold Belt, starting to deliver.** Thomson's Chillagoe Gold Project is located 30 km west of the town of Chillagoe, population 251<sup>55</sup>, in Mareeba Shire of Far North Queensland, around 200 km west of Cairns. Thomson's project is prospective for a number of metals, lying as it does in an area with a mining history dating from the 19<sup>th</sup> Century and near the prolific Red Dome/Mungana/King Vol complex, which has produced significant amounts of copper, gold, lead, zinc and silver<sup>56</sup>. Thomson is targeting the area's gold potential in the first instance. An advantage this project has for Thomson is that it is counter-seasonal to its Lachlan Fold Belt projects, where drilling programmes are periodically hampered by spring rains followed by winter harvests. Thomson initially announced the acquisition of its Chillagoe project in March 2019 and a revised deal that allowed the acquisition of 90% was signed in August 2020<sup>57</sup>. The project currently comprises six EPMs covering 593 sq km.

**Does Thomson have the Next Big Thing in the Chillagoe district?** King Vol lies just to the northeast of Thomson's project area while Mungana is just to the east. Relatively little drilling has taken place in Thomson's project area over the years but recent but rock chip sampling has pointed to over a dozen prospects of interest, including Borderline, Laverock, Salt Creek, Arizona and Loretta. Mungana and other large gold deposits in north Queensland such as Kidston and Mt Leyshon are the result of Carboniferous intrusions and breccias from the Palmerville Fault, and Thomson believes that its project area is also prospective for this kind of intrusion-related gold in skarns, with various structures related to the Palmerville sitting in an interesting place between various granites, metamorphic and volcanics on one side and the limestones on the other.

**Auger drilling has helped in target selection.** Thomson commenced its work on the project with an auger drilling programme in late 2020 to help pick the best possible prospects to target with RC work. In November 2020 the

*Visible azurite in auger samples at Chillagoe is promising*

<sup>54</sup> aisresources.com.

<sup>55</sup> Source: ABS, 2016 Census data.

<sup>56</sup> All three mines are currently owned by Consolidated Tin Mines (csdtin.com.au), an unlisted company which announced their acquisition in February 2020. Consolidated Tin Mines was delisted in March 2021. The mines were developed in the early 2000s by Kagara Ltd, which entered voluntary administration in 2012, killed by low base metal prices.

<sup>57</sup> This changed the consideration from cash to shares.



company reported that at the Laverock prospect the augers had turned up visible azurite<sup>58</sup>. That mineral, which has a deep-blue tinge, is produced by weathering of copper ore. The fact that it showed up near surface bodes well for the presence of copper-gold at depth. Analysis of the auger programme in February 2021 showed at least four prospects of strong interest including Laverock<sup>59</sup>. RC drilling is planned for the next dry season.

## Cannington – Right next door to South32

**Thomson has taken some ground around Cannington.** Thomson Resources' Cannington Silver Project covers 111.5 sq km around the Cannington Silver Mine of South32 (ASX: S32) in western Queensland. An initial 22 sq km block, EPM27742, was pegged in late 2020<sup>60</sup> and shortly thereafter a nearby tenement was acquired<sup>61</sup>.

**Cannington is a huge silver producer for South32.** Cannington is located near the town of McKinlay, around 230 km southeast of Mt Isa. The Cannington lead-zinc-silver deposit was discovered by BHP in 1990 and that company brought the mine into production in 1997 after A\$450m in capex. The mine passed to South32 in the mid-2015 demerger from BHP and remains wholly-owned by South32. Cannington is an underground mine producing a silver-lead-zinc concentrate which ships to overseas smelters via the Port of Townsville. In the year to June 2020 the mine processed 2.7 million tonnes of ore, yielding 11.8 million ounces of silver, alongside 60,700 tonnes of zinc and 11,800 tonnes of lead.

**Thomson will conduct grass roots exploration work at Cannington.** EPM 27742, is located only 10 km from the Cannington mine. Early work on this permit will target a magnetic high at a prospect called Brumby, where previous drilling has recorded interesting copper and gold intersections such as 16 metres at 1.8% copper and 0.5 g/t gold from a 2009 Barrick hole called BRNQ12. Thomson's second permit, EPM25730, actually borders the mine and has trends related to Cannington running through the permit area. Thomson is evaluating the available data looking for targets which would for Broken Hill Type deposits<sup>62</sup> (like Cannington itself) or IOGC deposits<sup>63</sup>.

**We see potential for good things from Thomson's first drill work at Brumby.** It's worthwhile remembering that the Cannington mine and was discovered as result of a 1989 aeromagnetic survey which identified a sharp magnetic high not associated with any gossanous material. When that high was drilled in June 1990, the discovery hole intersected 20m at a massive 870 g/t silver, 12.1% lead and 0.6% zinc.

**Thomson Resources sees potential to aggregate other silver resources in the Cannington area** as part of its push to be primarily known as a player in silver, and also to take advantage of the lack of regional exploration in the area around Cannington in recent years. Sandfire Resources (ASX: SFR) has been a significant explorer in the Cannington area.

*All it took to discover  
Cannington was a single  
magnetic high.*

<sup>58</sup> See the Thomson Resources market release dated 18 November 2020 and headlined 'Visible copper oxide azurite at surface at Chillagoe auger programme'.

<sup>59</sup> See the Thomson Resources market release dated 17 February 2021 and headlined 'Chillagoe auger drilling produces strong gold, silver and copper targets'.

<sup>60</sup> See the Thomson Resources market release dated 4 November 2020 and headlined 'New land pegged 10km from Cannington Silver Mine'.

<sup>61</sup> See the Thomson Resources market release dated 4 December 2020 and headlined 'Completion of Cannington Silver tenement acquisition'.

<sup>62</sup> Broken Hill Types are stratiform, sediment hosted lead-zinc mineral deposits, usually associated with volcanism.

<sup>63</sup> Iron Oxide Copper-Gold deposits are, as the name implies, rich in iron oxide where that mineral has been deposited alongside copper-and-gold-bearing sulphides.



## Valuing Thomson Resources

We valued Thomson using an EV / resource ounce approach, where the Enterprise Value of various other precious metal project developers is compared to that company's estimated mineral resources.

Thomson is currently trading at around 54 cents per resource ounce:

Figure 7: Thomson Resources EV / resource ounce

TMZ market cap (A\$m)	48.6
Cash (A\$m)	6.7
EV (A\$m)	41.9
Ag Eq ounces (million)	78.4
EV/Resource ounce	\$0.54

Source: Pitt Street Research

Figure 8: Silver Mines and Investigator Resources EV / resource ounce

SVL market cap (A\$m)	266.2	IVR market cap (A\$m)	87.4
Cash (A\$m)	31.4	Cash (A\$m)	11.6
EV (A\$m)	234.8	EV (A\$m)	75.8
Ag Eq ounces (million)	275.1	Ag Eq ounces (million)	63.6
EV/Resource ounce (A\$)	\$0.85	EV/Resource ounce (A\$)	\$1.19

Source: Pitt Street Research

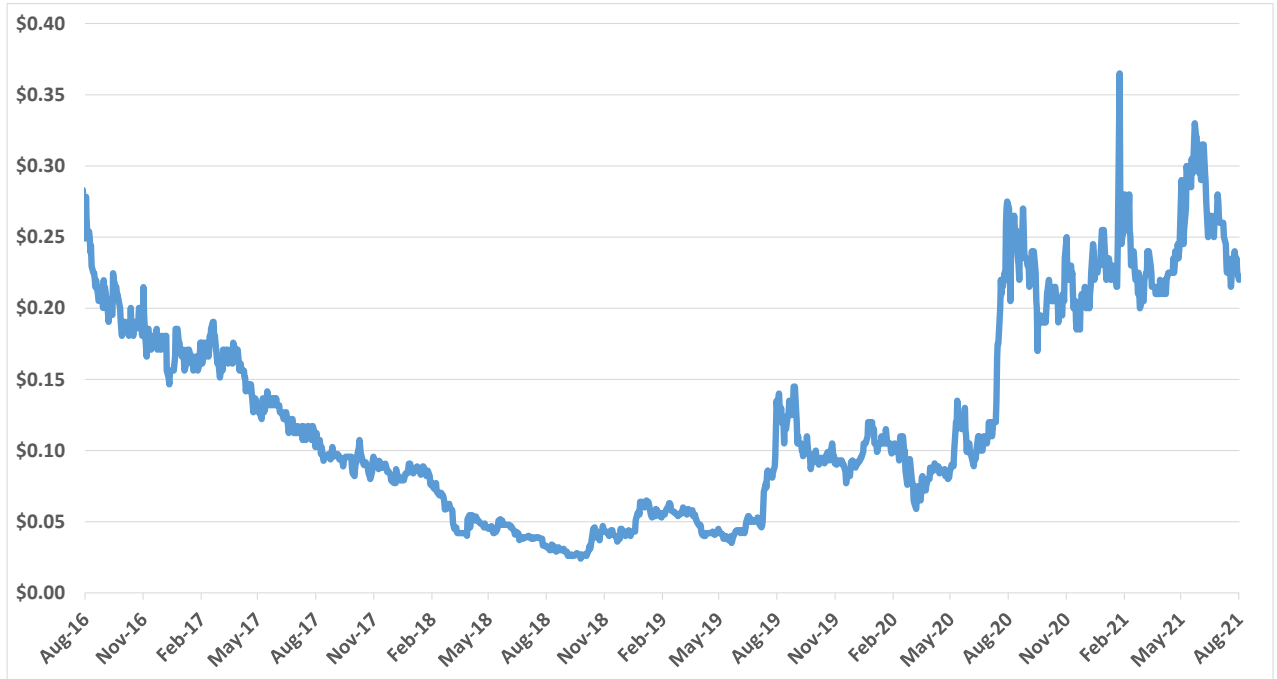
We believe Silver Mines (ASX: SVL) and Investigator Resources (ASX: IVR) provide a good base case valuation for Thomson.

- **Silver Mines**, which vended the Webbs and Conrad projects to Thomson earlier this year and is Thomson's largest shareholder, arguably helped put silver back on the map for many resources investors in Australia. This company's Bowdens Silver Project, in the Mudgee region of central NSW, is one of the largest undeveloped silver deposits in the world, at a JORC resource of 275 million ounces of silver equivalent. Silver Mines is currently trading north of 90 cents per resource ounce.
- **Investigator Resources** discovered the Paris silver deposit on South Australia's Eyre Peninsula in 2011. Paris is about 250 km south of Olympic Dam and 350 kilometres north of Adelaide. As at June 2021 the Paris Mineral Resource Estimate is 53 million ounce of silver, being 18.8 million tonnes at 88 g/t silver and 0.52% lead. We estimate that this resource is 105 g/t AgEq. Investigator expects to complete a PFS on Paris later in 2021.

*Silver Mines is trading at more than 80 cents per resource ounce*

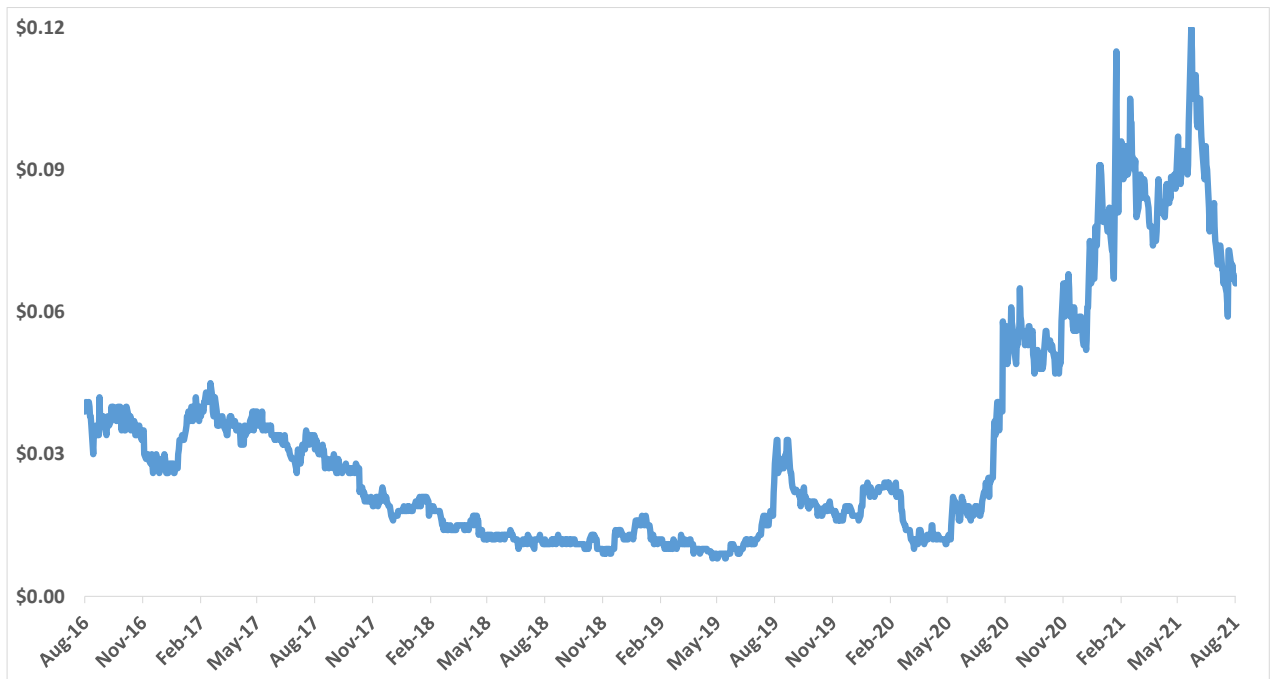


Figure 9: Silver Mines (ASX: SVL) re-rated with the 2020 silver price rebound on optimism for its Bowdens Silver Project near Mudgee in central NSW.



Source: Yahoo! Finance

Figure 10: Investigator Resources is back to 2020 share prices



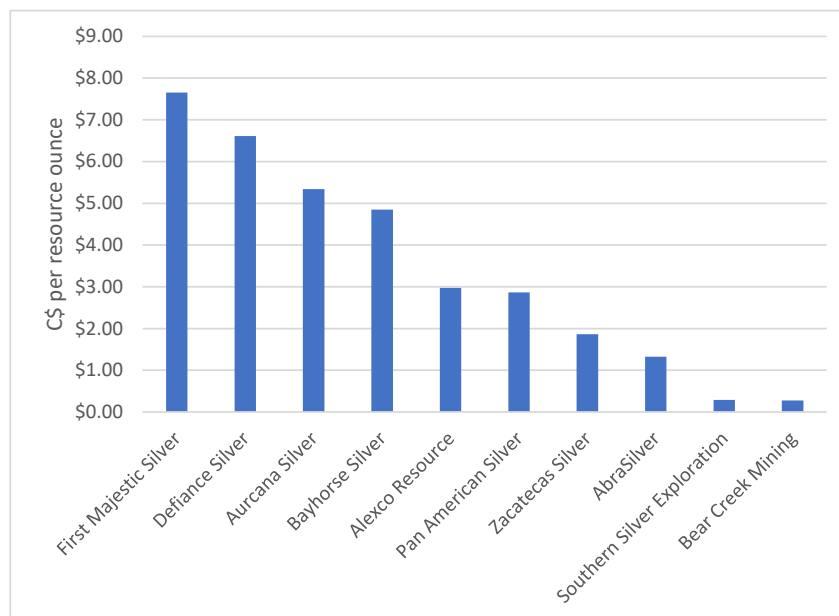
Source: Pitt Street Research



**There is considerable upside once Thomson starts to make progress with its New England Fold Belt Silver Projects.** The Canadian exchanges have in recent days provided good leadership on silver project valuations, with a large number of silver-focused companies. This reflects the fact that the Americas have traditionally had the richest silver mines in the world, from the Silver Belt of the Coeur d'Alene District in Idaho down to the Mexican mines and beyond. Mexico in particular is proving attractive today for Canadian investors. We took a cross section of Canadian silver stocks and estimated EV / Resource ounces. This suggests a wide range of valuations, however we think that Zacatecas Silver and AbraSilver provide particularly good comparables, having undeveloped silver resources – Zacatecas in Mexico, AbraSilver in Argentina. The average of these two stocks in AUD terms is ~\$1.70 per resource ounce.

**Plugging in the EV / Resource ounce numbers allows a valuation range of \$0.19 to \$0.31 per share.** We see Thomson Resources moving to re-rate towards our valuation range as its estimates of the size of the Fold Belt Silver Projects is further refined, and as the metallurgy around the combined projects becomes better understood.

Figure 11: EV / resource ounce for selected Canadian silver plays



Source: Pitt Street Research



Figure 12: Our valuation for Thomson Resources

	Base case	Optimistic case
TMZ market cap (A\$m)	86.8	142.4
Cash (A\$m)	6.707	6.707
EV (A\$m)	80.1	135.7
Ag Eq ounces (million)	78.4	78.4
EV/Resource ounce (A\$)	\$1.02	\$1.73
TMZ target price	\$0.19	\$0.31

Source: Pitt Street Research

Figure 13: The price of silver is way below its 2011 peak



Source: Comex

## Silver is a 21<sup>st</sup> Century Metal, as well as an ‘investment’ metal

**Silver has long been an industrial metal as well as a currency.** Silver, chemical symbol Ag, atomic number 47, was one of the first five elements ever discovered. This soft and lustrous white metal has been used since antiquity as a currency and as an important element in jewellery and silverware, taking advantage of silver’s physical strength, brilliance, malleability and ductility. In more recent years it has been used in various industrial and technology applications. The world currently consumes around one billion ounces of



silver a year. While silver is sometimes mined on its own it is generally sourced as a by-product of gold, lead, zinc or copper mining.

**Silver was once used as currency.** In the United States, for example, the Coinage Act of 1792 established the silver-to-gold ratio in money at 15:1. This was raised to 16:1 by the Coinage Act of 1834. Silver was effectively legal tender in America for over eight decades until its demonetisation with the Coinage Act of 1873. That history means that silver and gold still tend to travel in lockstep, even though silver has multiple industrial uses and gold relatively few.

**Silver doesn't just trade on its good looks.** Probably the best known industrial use of silver in the 20th Century was in photographic media, although the advent of digital photography has caused that use to decline sharply. The jewellery and silverware uses have remained strong over time. Silver is also used as a coating for mirrors, and as a biocide in plastics and textile manufacture as well as in water treatment. The important thing to understand about silver is that it is very much a 21st Century metal. Silver is widely used in electronics. Silver's sensitivity to light has found fast-growing use in photovoltaic cells used to harness solar power. And silver demand is expected to rise given multiple uses in Electric Vehicles. All this is expected to further widen what is an ongoing deficit between mine supply and demand that up until now has generally filled by recycled metal.

**Mexico is the world's leading producer of silver.** Global mine production of silver in 2020 was ~25,500 tonnes. Mexico produced 5,500 tonnes, followed by China with 3,400 and Peru with 3,000 tonnes<sup>64</sup>. Consequently any major dislocation of the Mexican industry is likely to propel silver higher.

**Silver generally trended down from 2011 to 2020 before a dramatic comeback.** The world's premier traded market for silver is Comex, a unit of the CME Group<sup>65</sup>. Silver reached US\$48 an ounce on Comex in April 2011 but trended down to US\$14 by late 2015. It traded in a relatively range until mid-2020 when the metal suddenly bounded above US\$20 an ounce.

## What's the right price for silver?

**Historically gold and silver have tended to move in lockstep.** For decades after silver's 1873 demonetisation the clarion call of so-called 'bimetallists' who wanted both gold and silver in the currency was the '16 to 1' we noted above. That led to what we called the 'Special Relationship', with silver more or less keeping pace with gold after the price of the latter decontrolled in the mid-1970s. The Special Relationship was one of the reasons why the Hunt Brothers tried to corner silver in 1979. It was instrumental in taking silver from US\$9 an ounce to US\$48 an ounce between 2008 and 2011. And it remains an important consideration today, with perhaps a quarter of demand for physical silver being for investment purposes.

**Today the magic number for the Special Relationship is '66'**, that being the average for the period 1991 to 2021. Too far above the SR Number and silver is likely headed up. Too far below and it's headed down. But allow a fair degree of latitude because silver, unlike gold, is an industrial and technological metal, as we noted above. You could tell that silver was headed for hard times in June 2011 because at that time the SR Number was only 30 to 1. The silver bear market ended in 2016 with the ratio back around 64. By

*Silver was US\$45 an ounce  
back in 2011*

<sup>64</sup> Source: The Silver Institute.

<sup>65</sup> [cmegroup.com/markets/metals/precious/silver.html](https://cmegroup.com/markets/metals/precious/silver.html).

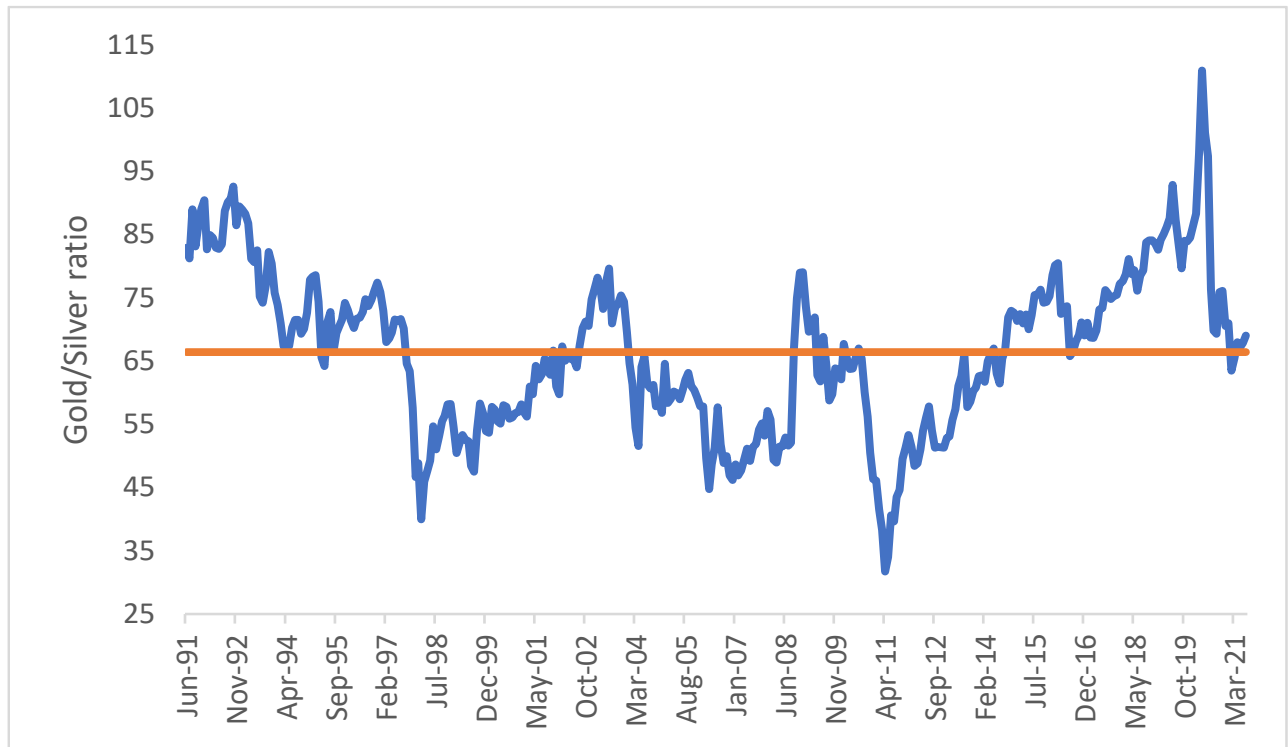




mid-2020 it was at the other extreme, close to 100. The 2020 snap-back followed shortly thereafter.

**Right now the ratio is 72**, being US\$1,800 for gold and US\$25 for silver. This suggests the metal is slightly undervalued.

Figure 14: The gold/silver ratio has averaged 66 since 1991



Source: Comex, Pitt Street Research

## The tide has turned for tin...finally

**Tin is an important industrial metal.** Tin, chemical symbol Sn, atomic number 50, is a malleable, silvery-white metal used most often in recent history in plating other metals to protect them from corrosion. Probably the best known example of this is the tin can, which is actually a steel can coated with tin. Tin has also been important to the glass industry where the 'float glass' in modern windows is often made by floating molten glass on a bed of molten tin. However tin's major use today, accounting for around half of global demand, is in the solder used in electronics<sup>66</sup>. Another important use in recent years has been in chemicals used in products such as PVC stabilizers and polymer catalysts. Bronze, which is mostly copper but is usually 12% tin, remains important in architecture for structural and design elements as well as in bearings because of its friction properties.

**Tin may become an important battery metal.** Tin has potential to be an important battery metal because of its ability to provide a more reliable alternative to graphite in the anode of lithium-ion batteries. In 2016 researchers at the University of California, Riverside in 2016 created a silicon-

<sup>66</sup> This is because of its low melting point (only 231.93 °C), and followed on from the banning of lead use in the EU by the Restriction of Hazardous Substances Directive of February 2003, which took effect in July 2006.



*Tin has performed well since  
March 2020*

tin nanocomposite anode that tripled the charge capacity offered by graphite and was extremely stable over many charge-discharge cycles<sup>67</sup>.

**China is the world's largest producer of tin.** Tin is mostly found in a mineral called cassiterite. Global production of refined tin fell 6% in 2019, to 334,400 tonnes<sup>68</sup>. China is by far and away the world's biggest producer, followed by Indonesia and Peru. These three countries typically account for about 80% of global mine supply. In the late 1980s and early 1990s Brazil briefly became a significant supplier because of the Bom Futuro discovery<sup>69</sup>, while today Myanmar has in recent years been an important producer because of the Man Maw discovery of 2013<sup>70</sup>.

**Tin generally trended down from 2011 to 2020.** Tin, which is one of the more volatile metals in terms of its price action, is traded on the LME<sup>71</sup>. After a bull run that began in late 2005 and was only briefly interrupted by the Global Financial Crisis tin reached an all-time high of US\$33,265 a tonne in April 2011. It rallied between mid-2015 and mid-2019 from around US\$13,500 to above US\$20,000 a tonne but by 2020 had given up those gains. In March 2020 tin was changing hands on LME at only US\$14,000 a tonne. The subsequent rally, however, has been spectacular. Tin reached US\$34,000 a tonne by July 2021, in recognition of the looming shortages because of the decline of the Man Maw field.

<sup>67</sup> See Zhong et. al., *Tin nanoparticles as an effective conductive additive in silicon anodes*. Sci Rep 6, 30952 (2016).

<sup>68</sup> See *Tin output down in 2019 but market needs more producer discipline* by Andy Home, Reuters, 1 March 2020.

<sup>69</sup> This deposit, in the Ariquemes district of the western state of Rondônia, was discovered in 1986 by a woodcutter and was then subject to widespread mining by garimpeiros from 1987. It briefly made Brazil the world's leading tin producer before lower prices and government action shut down the artisanal workings. See *Brazilian prospectors confront mining firms* by Julia Preston, Washington Post, 12 November 1991.

<sup>70</sup> This mining area, located in Shan State in northeastern Myanmar near the border with China, is in area control by rebels from the Wa ethnic group. See *How a rebel Myanmar tin mine may up-end a global supply chain* by Yimou Lee and Joel Schectman, Reuters, 29 November 2016.

<sup>71</sup> The current tin contract has only been around since June 1989. The LME had suspended trading in October 1985 when the International Tin Council collapsed. That body had tried to stabilize world prices by buying low and selling high and using a buffer stock of the metal. However it ran out of funds and caused a price crash that forced the LME trading halt.



## Risks related to Thomson Resources

**Risks specific to Thomson.** We see six major risks for Thomson Resources as a company and as a listed stock:

- **Timing risk.** There is the risk that the New England Fold Belt Projects may take longer than many expect to reach the DFS stage.
- **Environmental risk.** There is the risk that environmental regulators in NSW or Queensland may raise objections to the New England Fold Belt Projects.
- **Project scale risk.** There is the risk that the New England Fold Belt Projects may be smaller than the 100 million ounces of silver equivalent that Thomson Resources is aiming for.
- **Pricing risk.** There is the risk that silver, tin or other commodities may go through hard times in the future.
- **Metallurgical risk.** There is the risk that the ore represented by the New England Fold Belt Projects may prove difficult to treat.
- **Funding risk.** There is the risk of future capital raisings proving dilutive to existing shareholders.

## Appendix I – Capital Structure

	Shares	% of fully diluted	Note
Ordinary shares, ASX Code TMZ (million)	463.3	74.0%	
Listed options, ASX Code TMZO (million)	46.7	7.5%	Exercise price 3 cents, expiry date 30-Nov-2022
Unlisted options (million)	104.9	16.8%	Exercise price 14.1 cents, expiry date 13-Jan-2024
Performance shares	11.3	1.8%	
Fully diluted shares	626.2		
Current market cap:	A\$48.6 million (US\$37.5 million)		
Current share price	\$0.105		
Twelve month range	\$0.033-\$0.225		
Average turnover per day (last three months)	2.19 m		

## Appendix II – Major Shareholders

Thomson Resources has one major shareholder – Silver Mines (ASX: SVL), with 13% of the company.



### Appendix III – Analyst Qualifications

Stuart Roberts, lead analyst on this report, has been an equities analyst since 2002.

- Stuart obtained a Master of Applied Finance and Investment from the Securities Institute of Australia in 2002. Previously, from the Securities Institute of Australia, he obtained a Certificate of Financial Markets (1994) and a Graduate Diploma in Finance and Investment (1999).
- Stuart joined Southern Cross Equities as an equities analyst in April 2001. From February 2002 to July 2013, his research speciality at Southern Cross Equities and its acquirer, Bell Potter Securities, was Healthcare and Biotechnology. During this time, he covered a variety of established healthcare companies, such as CSL, Cochlear and Resmed, as well as numerous emerging companies. Stuart was a Healthcare and Biotechnology analyst at Baillieu Holst from October 2013 to January 2015.
- After 15 months over 2015–2016 doing Investor Relations for two ASX-listed cancer drug developers, Stuart founded NDF Research in May 2016 to provide issuer-sponsored equity research on ASX-listed Life Sciences companies.
- In July 2016, with Marc Kennis, Stuart co-founded Pitt Street Research Pty Ltd, which provides issuer-sponsored research on ASX-listed companies across the entire market, including Life Sciences companies.
- Since 2018, Stuart has led Pitt Street Research's Resources Sector franchise, spearheading research on both mining and energy companies.

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