WaveStone ESG Report
Quarter ending June 2023

ESG Quarterly: Resources Sector

ESG has become an increasingly important topic for the mining sector. The scale of many operations, especially in Australia given the dominance of 'bulk commodities' such as iron ore & coal, has naturally created a bias to focus on the environmental impact that mining can have. For example, emissions from the diesel used in trucks & trains, water usage, tailings dam safety and site remediation have all come under greater scrutiny in recent years.

This is understandable, in the context of mining often having an observable impact on its surrounding environment. Accidents have also focused attention on the sector, for example on tailings dam safety following the Brumadinho tailings dam failure in 2019. Government policy has also evolved since 2015 to focus on how economies can be 'Paris-aligned', which has had repercussions on the mining industry; in Australia, the mining & Oil & Gas sectors account for ~6% and ~10% of Australia's overall Scope 1 & 2 (direct & imported) emissions.

Post Rio Tinto's Juukan Gorge tragedy in 2020, the other elements of ESG – sustainability & governance – have increasingly come into focus. Juukan clearly has shown there is a more tangible correlation between financial impacts to 'S' and 'G' performance: for example, direct via fines/penalties, or indirectly via greater (perhaps much needed) legislation which effects change at the operational level (e.g. WA's updated Heritage Act), or a de-rating in valuation multiples relative to peers. More broadly, they contribute to a company's 'license to operate' and typically it is just as simple as doing the right thing by key stakeholders.

Renewed focus on Safety given recent fatalities across the Resources industry
Safety has shifted into focus over the last 6-9 months following a string of fatalities at Australian mining and oil & gas ('O&G') operations, as well as ASX-listed companies' operations overseas. Since mid-October 2022 there have been 12 fatalities at Australian sites / offshore sites operated by ASX-listed Resources companies (**Figure 1**): one fatality at each of Gold Fields, CMM, NCM, AngloGold, WDS and MIN and two fatalities at each of S32, BHP and MMG/Perenti.

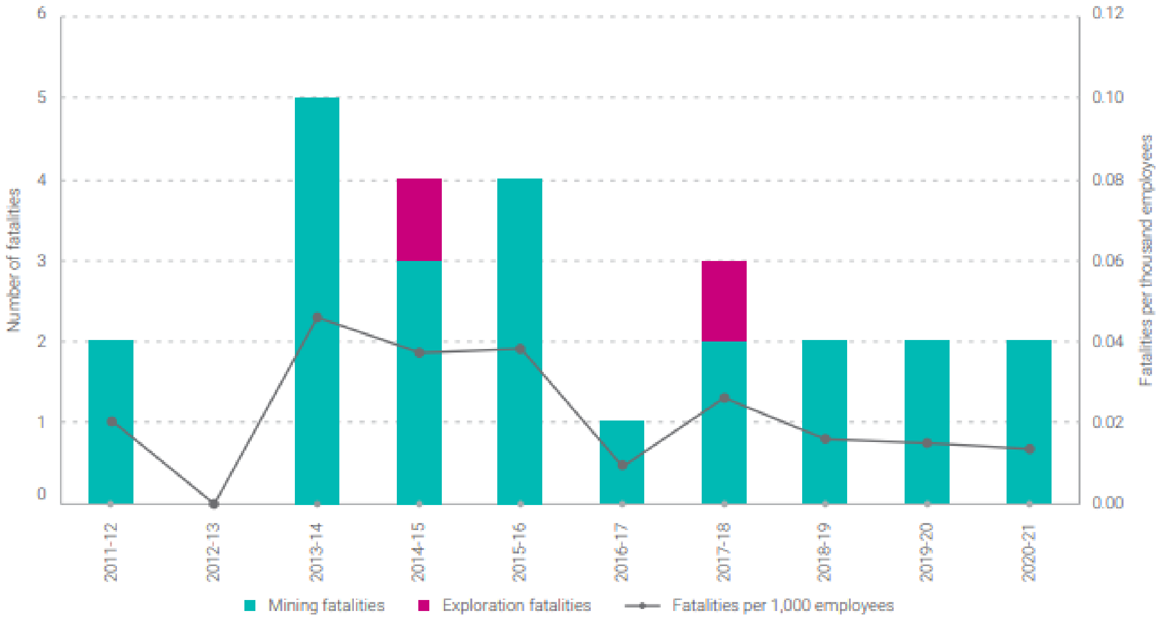
Figure 1: Table of known fatalities in Australia

Company	Date	Comment
Gold Fields	11-Oct-22	A worker was killed at Hamlet mine, a WA mine owned by South African resource giant Gold Fields
Capricorn Metals	13-Oct-22	A worker employed by mining contractor MACA was killed at the Capricorn Metals' Karlawinda project
Newcrest	22-Oct-22	A Newcrest Mining employee died at Brucejack mine in British Columbia
South32	7-Nov-22	Two employees at the South32 Mozal aluminium smelter in Mozambique were fatally injured
BHP	7-Feb-23	A BHP worker died in a rail accident at the Pilbara mine site
MMG / Perenti	16-Feb-23	Two contractors for Barminco (Perenti subsidiary) died at MMG's Dugald River Mine in northern Queensland
AngloGold	11-Apr-23	A worker died underground from 'medical event' at Sunrise Dam gold mine in WA's northern Goldfields
BHP	25-Apr-23	A 25-year-old man lost his life at BHP's Olympic Dam mine in SA
Woodside	2-Jun-23	Death of a contractor on Woodside Energy's North Rankin Complex off-shore Western Australia
Mineral Resources	13-Jun-23	A mining contractor has died at Mineral Resources' Onslow Iron project

Source: Jarden, Company reports.

It appears that this has broken a trend of declining fatalities in the Mining industry over the last decade (**Figure 2**). If we take WA as an example, WA Department of Mines data back to 2012 shows the trend of fatalities has pleasingly fallen since a peak in 2013/14 (five fatalities); there have already been four fatalities in 2023 YTD.

Figure 2: Fatal injury incidence rate, 2011/12 to 2020/21



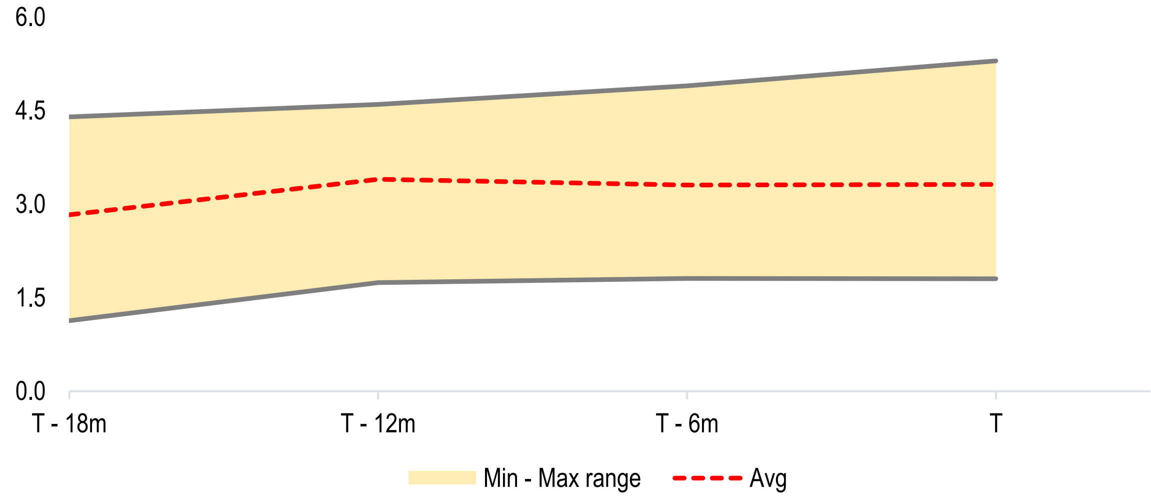
Source: Western Australian Department of Mines, Industry Regulation & Safety.

Trends in reported safety indicators appeared to already been deteriorating for those companies that have recently reported fatalities…but ultimately there are a multitude of factors affecting recent safety track record

Total Recordable Injury Frequency Rate ('TRIFR') is a commonly cited metric used by companies to indicate the occurrence of work-related injuries of illnesses, standardised for a common unit of hours worked (usually one million hours).

For ASX-listed Resources companies who have reported a fatality since Oct'22 (of which there are eight) we have assessed the trend in safety metrics – using TRIFR as a proxy – in the preceding 18mths before the fatality event. Whilst we acknowledge a small sample-set, TRIFR's did appear to be trending upwards (higher frequency of injuries) in the lead up to the fatalities (**Figure 3**). Of those that report half yearly data, only Mineral Resources had a declining TRIFR in the lead up to the fatality. We note that Capricorn Metals does not report TRIFR data.

Figure 3: TRIFR trend for ASX-listed companies in the lead-up to fatality event



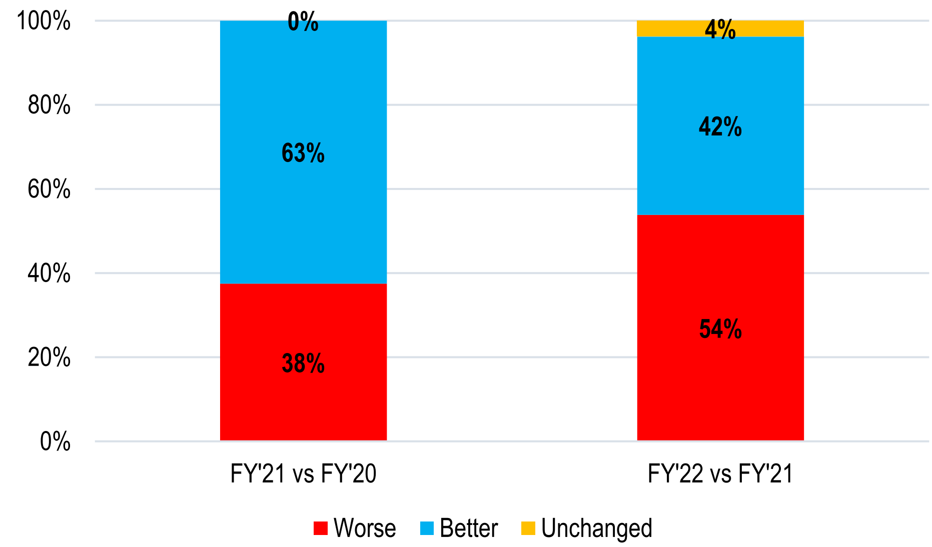
Source: WaveStone estimates, Company reports. Group-level TRIFR as reported by the company, 12mth rolling basis. Capricorn Metals does not report TRIFR.

We have analysed TRIFRs for 26 ASX-listed Resources companies (23 Mining / 3 O&G) covering approximately A$730bn of market capitalisation (as at COB 24th July; consolidated in the event of dual-listings).

Looking at the most recent financial years' data vs the *prior* financial year, 14 companies (54%) – BHP, Champion Iron, Gold Road Resources, IGO, Iluka, MinRes, Newcrest, Northern Star, Pilbara Minerals, RED 5, South32, Lynas, Woodside Energy & Beach Energy – experienced worsening TRIFR safety statistics (**Figure 4**). This represented a 16%-pt increase in companies with a worsening TRIFR since the last period (FY'22 vs FY'21).

Companies that have a newly worsening trend this period are BHP, Gold Road Resources, IGO, MinRes, Newcrest, Pilbara Minerals, Lynas and Beach Energy.

Figure 4: Trend in TRIFR of ASX-listed Resource companies



Source: WaveStone estimates, Company reports. TRIFR taken as last FY-end TRIFR as reported by the company. TRIFR as reported by company and may not adjust for M&A.

Figure 5: Trend in TRIFR of ASX-listed Resource companies

Mining Quarterlies*		TRIFR /mwhrs														
Company	Ticker	Sep-20	Dec-20	Mar-21	Jun-21	Sep-21	Dec-21	Mar-22	Jun-22	Sep-22	Dec-22	Mar-23	Jun-23	Trend	%Δ Dec-22 to Mar-23	%Δ March-22 to Mar-23
29Metals	29M.AX				9.8	12.1	12.1	13.3	12.1	10.2	9.8	8.1			-17%	-39%
Allkem	AKE.AX				2.9	3.2	3.6	3.4	2.6	1.9	1.9	1.7			-9%	-49%
BHP	BHP.AX		3.6		3.7		3.8		4.2		4.1					
Champion Iron	CIA.AX				2.9			2.9	3.2	3.0	1.9	2.4			28%	-18%
Evolution Mining	EVN.AX	7.1	7.9	8.6	9.7	9.4	9.4	10.2	10.7	10.2	9.3	8.9	8.6		-5%	-13%
Fortescue	FMG.AX	2.1	2.1	2.2	2.0	2.0	1.8	1.8	1.8	1.7	1.8	1.8			0%	0%
Gold Road Resources	GOR.AX		37.9				13.6				21.3					
IGO Ltd	IGO.AX	15.9	14.3	15.3	13.2	11.3	14.1	11.2	14.1	20.2	17.7	16.5			-7%	47%
Iluka Resources	ILU.AX		4.5				5.1		7.7		6.9					
Mineral Resources	MIN.AX	3.2	2.8	2.4	2.2	2.3	2.3	2.6	2.3	2.4	2.7	2.1			-22%	-18%
Newcrest Mining	NCM.AX	2.6	1.6	2.6	1.9	4.6	3.7	3.2	4.4	3.3	3.2	2.8			-15%	-14%
Northern Star	NST.AX			5.5	5.6	4.3	3.5	2.8	2.0	2.7	3.0	3.2	3.2		7%	14%
Pilbara Minerals	PLS.AX				3.6			3.5	4.4	4.2	3.5	4.9			40%	40%
Ramelius Resources	RMS.AX	15.8	16.5	16.2	15.0	16.8	14.9	15.0	11.9	10.2	12.0	10.6			-12%	-29%
RED 5	RED.AX	9.1	11.3	8.8	8.8	7.8	8.8	10.4	20.2	17.6	17.8	15.5			-13%	50%
Regis Resources**	RRL.AX	3.1	2.4	1.4	1.3	1.3	1.3	1.0	1.1	0.6	0.6	0.6			0%	-40%
Rio Tinto***	RIO.AX		1.9		2.0		2.0		1.8		2.0					
Sandfire Resources	SFR.AX	5.5	3.1	4.7	4.0	5.6	6.9	5.1	3.8	4.0	2.1	1.8			-14%	-65%
South32	S32.AX		4.4		4.3		4.9		5.3		6.0					
St Barbara	SBM.AX	3.1	3.3	3.7	3.9	3.6	2.7	2.8	3.4	4.6	4.7	4.3			-9%	54%
Whitehaven Coal	WHC.AX	4.7	5.4	5.9	5.9	5.9	6.1	5.3	5.4	4.5	5.2	4.0	4.7		-23%	-25%
Lynas Rare Earths	LYC.AX		1.3	1.7	2.1	3.5	2.3	1.8	3.3	3.7	3.2	2.9			-9%	66%
Perseus Mining	PRU.AX			1.6	1.8	1.9	1.5	1.5	1.3	1.2	1.4	1.2			-14%	-15%
Oil & gas coverage								TRIFR /mwhrs								
Company	Ticker	Sep-20	Dec-20	Mar-21	Jun-21	Sep-21	Dec-21	Mar-22	Jun-22	Sep-22	Dec-22	Mar-23	Jun-23	Trend	%Δ Dec-22 to Mar-23	%Δ March-22 to Mar-23
Woodside Energy	WDS.AX		0.9		1.1		1.7		1.8		1.8					
Santos Ltd	STO.AX		3.4				4.2				2.0					
Beach Energy	BPT.AX				2.1				4.4		3.4					

Mining Quarterlies*		TRIFR /mwhrs									
Company	Ticker	FY-16	FY-17	FY-18	FY-19	FY-20	FY-21	FY-22	FY-23	Trend	%Δ last FY
29Metals	29M.AX						12.1	9.8			-19%
Allkem	AKE.AX			5.5	5.4	5.3	2.9	2.6			-9%
BHP	BHP.AX			4.4	4.7	4.2	3.7	4.0			8%
Champion Iron	CIA.AX						2.9	4.3			46%
Evolution Mining	EVN.AX	9.7	8.0	5.5	8.3	6.8	9.6	10.7	8.6		-19%
Fortescue	FMG.AX	4.3	2.9	3.7	2.8	2.4	2.0	1.8			-10%
Gold Road Resources	GOR.AX	10.1	9.5	11.4	16.9	37.9	13.6	21.3			57%
IGO Ltd	IGO.AX	19.0	20.0	19.1	9.6	16.9	13.2	14.1			7%
Iluka Resources	ILU.AX	4.4	4.8	5.3	4.8	4.5	5.1	6.9			35%
Mineral Resources	MIN.AX	6.0	2.3	2.5	4.0	3.3	2.3	2.3			1%
Newcrest Mining	NCM.AX	3.7	3.3	2.4	2.3	2.6	2.3	3.9			70%
Northern Star	NST.AX	20.4	14.3	3.2	3.3	3.3	5.6	2.0	3.2		60%
Pilbara Minerals	PLS.AX			4.1	3.9	5.2	3.6	4.4			23%
Ramelius Resources	RMS.AX					18.6	15.0	11.9			-21%
RED 5	RED.AX					6.5	8.8	20.2			128%
Regis Resources**	RRL.AX					3.6	1.3	1.1			-15%
Rio Tinto***	RIO.AX	2.2	2.1	2.2	2.1	1.9	2.0	2.0			0%
Sandfire Resources	SFR.AX		5.0	7.1	6.2	5.8	4.0	3.8			-5%
South32	S32.AX	7.6	6.1	5.1	4.5	4.2	4.3	5.3			23%
St Barbara	SBM.AX	2.1	1.0	2.1	5.0	3.0	3.9	3.4			-13%
Whitehaven Coal	WHC.AX	10.6	7.4	6.9	6.2	4.1	5.9	5.4	4.7		-13%
Lynas Rare Earths	LYC.AX					3.5	2.1	3.3			55%
Perseus Mining	PRU.AX		3.7	2.3	2.2	1.4	1.8	1.3			-27%
Oil & gas coverage						TRIFR /mwhrs					
Company	Ticker	FY-16	FY-17	FY-18	FY-19	FY-20	FY-21	FY-22	FY-23	Trend	%Δ last FY
Woodside Energy	WDS.AX	1.6	1.3	1.3	0.9	0.9	1.7	1.8			3%
Santos Ltd	STO.AX	2.2	3.5	4.5	4.7	3.4	4.2	2.0			-52%
Beach Energy	BPT.AX	3.8	7.9	3.5	3.5	3.7	2.1	4.4			110%

Source: Jarden, WaveStone estimates, Company reports. Quarterly typically represents rolling 12mth average, although some companies do report periodic data (eg. BHP).

* FY in table is as per company stated FY-end

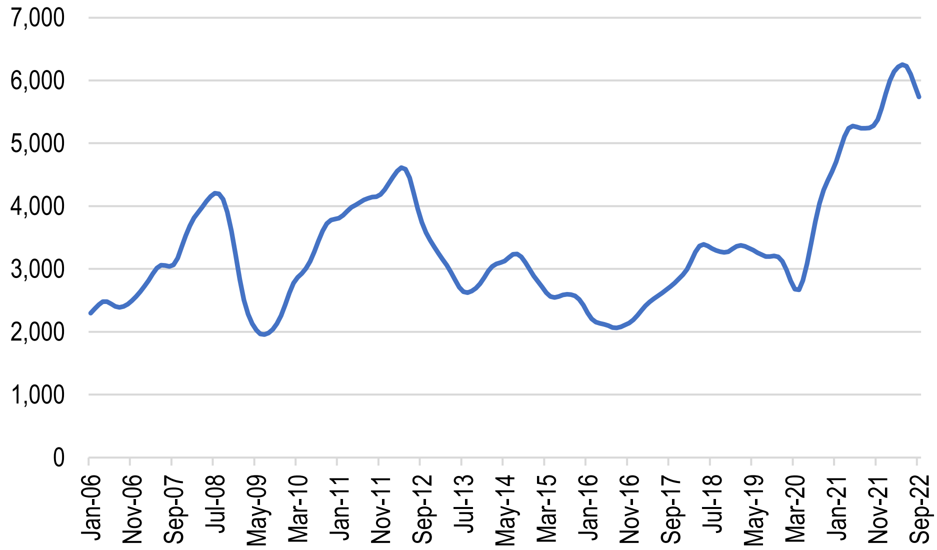
** Data represents Lost Time Injury Frequency Rate (LTIFR)

*** Rates adjusted x5 to reflect /mwhrs (raw data provided on /200,000whrs

Tight labour markets have likely been adding pressure for companies' Safety performance
Several large-scale development projects coinciding with legacy COVID policies which introduced frictions on the movement of labour *within* and *into* Australia has introduced significant labour tightness across the Australian Mining and O&G sector. In our recent conversations with Mining companies, attrition rates (defined as the number of employees who have left over a given period, as % average employees) have fallen from as high as 20-30% to c.10-15%, although we note this is still notably above historical levels of 6-8%.

The acute labour availability issues in the Mining sector appear to be reflected by job openings data. For example, Internet Vacancy Index (IVI) data for Technicians & Trade Workers in WA (proxy for semi-skilled mid-level job openings in a key Mining province) shows that postings reached an all-time high in mid-CY'22 (**Figure 6**).

Figure 6: Internet Vacancy Index (IVI), Technicians & Trade Workers in Western Australia



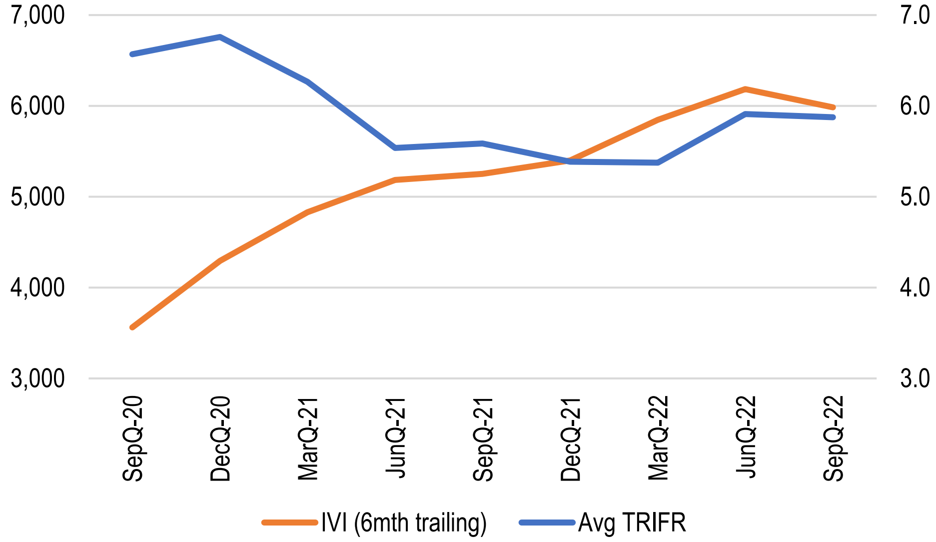
Source: 'Internet Vacancy Index', National Skills Commission. https://www.nationalskillscommission.gov.au/topics/internet-vacancy-index

Commentary from the major miners reinforced the acute issues facing labour availability:

- **Rio Tinto:** "…*we should expect further volatility with* <u>*constraints for skilled labour*</u> *and increases still to come in contracted costs, which are often lag to an index*" CFO Peter Cunningham, 2022 FY results (22-Feb-23)
- **Fortescue Metals:** "*Labour cost pressures [increased] reflecting* <u>*significant demand for skilled labour across the resources industry*</u>*.*" H1 FY'23 report
- **South32:** "*H1 FY23 production volumes impacted by the underperformance of temporary crushers and* <u>*labour availability*</u>." Mar'Q production referencing Cannington operation (24-Apr-23)
- **Northern Star:** "*…I mentioned before that we are experiencing and* <u>*will experience some higher costs in some parts of our business, so no doubt they will be -- whether it's labor or contractors*</u>*, we're forecasting probably some uplift in those…*" Q4 Fy'23 production call, referencing FY'24 cost guidance (18-Jul-23)

Limited historical datasets for reported TRIFR in the Mining industry makes drawing specific conclusions difficult. Using data for the 26 companies listed above & comparing to the rolling 6mth IVI shows historically there has been limited causation between labour tightness & the rate of injuries, but there does appear to be a weak positive relationship emerging since mid-2021 **(Figure 7)**.

Figure 7: Internet Vacancy Index (IVI) vs average TRIFR

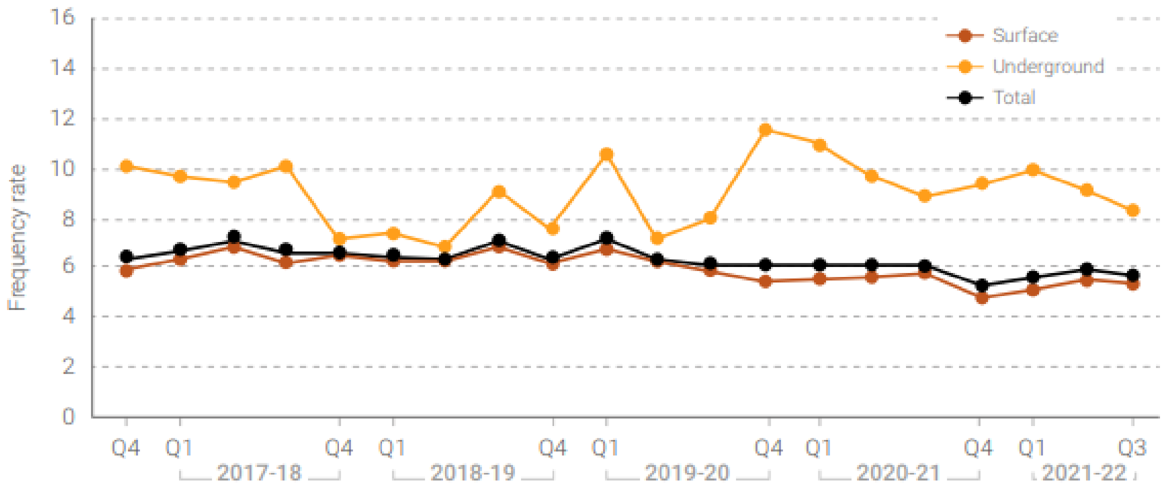


Source: WaveStone estimates, National Skills Commission, Company data. Average TRIFR calculated as simple average of 26 sample companies listed in Figure 5. IVI calculated as 6mth trailing average for WA Technicians & Trade Workers.

What we can surmise is that tightness in the labour market has clearly contributed to making hiring in the Resources sector more difficult. This has likely increased the reliance on contractors (who themselves face labour availability issues), lowered the average skill set of employees, and broadened the responsibility of these skilled employees (across both supervision & operations). These issues become more acute when operating in hazardous environments, such as large industrial mining and O&G operations.

COVID “fatigue” may also be contributing to employees overlooking simple safety protocol. We also identify an emerging risk in Safety that, given Mining companies are increasingly turning to underground operations (especially for gold and copper), this could naturally cause a mix effect of higher injury rates – this reflects the fact that the frequency of injuries in UG mines are c.30-50% higher than for surface operations (**Figure 8**).

Figure 8: Injury frequency rate across Western Australian Mining operations, 2017-2022



Source: ‘Quarterly Performance Snapshot’, WA Department of Mines, Industry Regulation & Safety. https://www.dmp.wa.gov.au/Documents/Safety/MSH_QSS_Jan-Mar22.pdf

Recent fatalities do not appear to have had a direct impact on the share price…
We have analysed the share price reaction of ASX-listed companies that have recorded a fatality since Oct'22, to assess whether there is a direct correlation to equity performance. We analyse this in two ways: 1) we compare the 1 day share price performance (COB on day of fatality vs prior COB close) relative to the ASX 200 Resources Index; and 2) look at the daily volumes on the day of the fatality vs the average 30 day trailing volume.

At a high level, news of a fatality appears to have little, if any, direct impact on share price for Resources companies; 5 out of 7 companies had share price moves <1%-pt vs benchmark and, of this sample, the volume was either in-line or below the avg 30 day volume (i.e. there was no elevated trading around the event). Of the pure-play Miners, we note Mineral Resources had the largest price reaction (1.7%-pt relative) which likely reflects idiosyncratic risks that the fatality – associated with the Onslow Iron Ore Project – could slow the ramp-up schedule and therefore added to perceived balance sheet risks at that point in time. Interestingly, Perenti – a mining services company – which recorded two fatalities at MMG's Dugald River, does appear to have had an outsized reaction in terms of share price (c.10%-pt negative relative) and volume (2x avg volume on the day).

Figure 9: Share price impact from news of a fatality

Company	Date of fatality	% Δ1D	Relative % Δ1D	1D vol vs 30D	Announcement or media
Capricorn Metals	13-Oct-22	0.3%	0.9%	0.3x	Media
Newcrest	22-Oct-22	0.0%	0.0%	0.7x	ASX announcement
South32	07-Nov-22	3.7%	0.2%	0.7x	Press release
BHP	07-Feb-23	-0.4%	-0.3%	0.6x	Press release
Perenti	16-Feb-23	-9.5%	-11.1%	2.0x	ASX announcement
BHP	25-Apr-23	0.0%	0.0%	1.0x	Media
Woodside	02-Jun-23	1.1%	-1.2%	0.9x	ASX announcement
Mineral Resources	13-Jun-23	-2.7%	-1.7%	1.0x	ASX announcement

Source: WaveStone estimates, Company reports, Bloomberg LLP data. Share price relative to S&P/ASX200 Resources Index except for Perenti which is relative to the S&P/ASX Small Ords.

There are various reasons for the generally muted response to share price. Most obvious is that the fatality as a discrete event may have limited, if any, financial repercussions to the overall business (eg BHP, S32, WDS); the converse is potentially true for a contractor such as Perenti, where a fatality could impact achieving hurdles in the contract (given they will often cite some safety metric) & could have longer term impacts around renewal of contract.

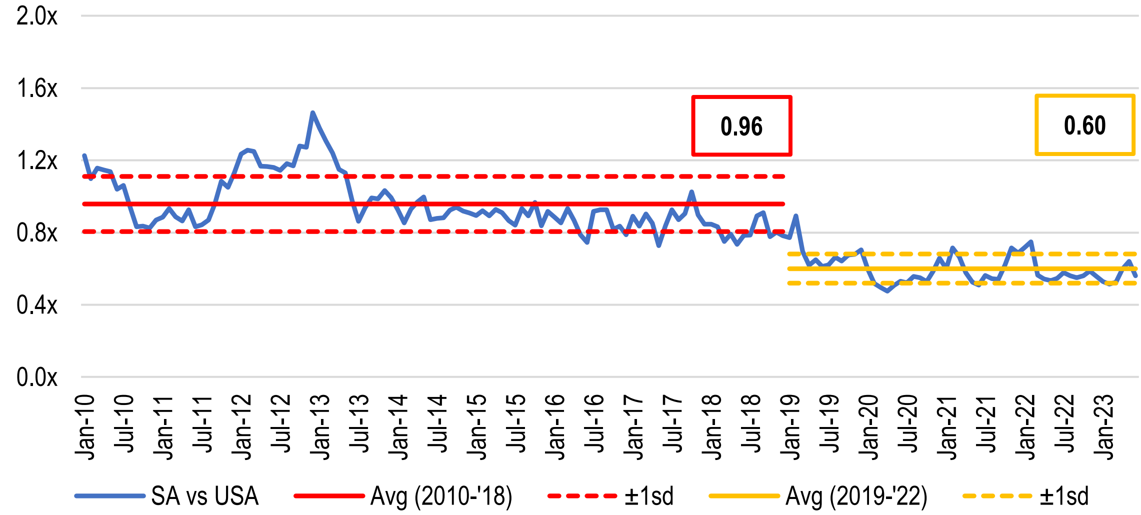
Other factors, such as the method of communicating a fatality event can mean the news can potentially take several days before the market is aware of the event. For example, the BHP fatality at Olympic Dam occurred on 25th April (and was reported in various media outlets) but was not added as a news article on the BHP website until 29th April.

…but there are likely longer-term indirect financial consequences as Safety becomes more ingrained in investing frameworks: a case study on South African gold

We believe an indirect financial impact from a poor Safety performance could be a de-rating of valuation multiples as investors capitalise earnings at a lower amount vs better-placed peers / offshore comps. To highlight, we have analysed the change in valuation multiples of South African gold & PGM miners vs North American peers over the last decade. South African miners typically have a skew to deeper & older mines and, at an industry level, there have been >2,000 fatalities over the 2005-'21 period vs. US' ~700.

Over the 2010-18 period, South African miners basically traded in-line with US peers (0.96x). But since 2019 – a period coinciding with greater focus on ESG credentials – the multiple has fallen by ~1/3 to 0.60x (**Figure 10**). We acknowledge there may also be other effects that have contributed to the de-rating, such as BEE entitlement, ESKOM power issues etc but asset quality – which incorporates mining Safety – will likely have played a part.

Figure 10: Valuation multiple of Sth African PGM / gold miners vs N. American peers, 2010-2023



Source: WaveStone estimates, Bloomberg LLP data. South African miners: Anglo Platinum, Sibanye, Impala, Northam, Gold Fields, AngloGold; North American miners: Newmont, Barrick, Agnico, Kinross, Newcrest.

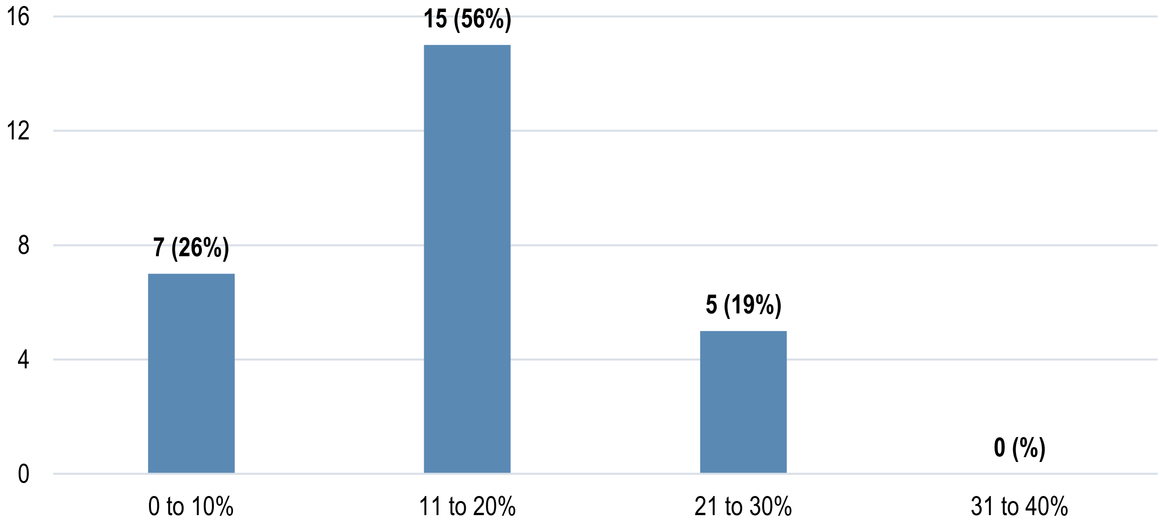
More broadly, the addition of specific Safety provisions could be included as conditions of operating licenses in the future. Currently, operations are bound by government legislation and the requirements of local safety watchdogs, such as WorkSafe in WA. This could make licensing (new/renewal/extension etc) more onerous in the event of specific companies' safety records. However, we note a complicating factor is the owner-operator/contractor model often employed across many mining & oil & gas operations.

Safety & Sustainability components almost unanimously included as factors of STI remuneration; gateways on Executive pay are less common

Within the collection of ASX-listed Resources companies we assessed previously, we find that Safety is included as a component of STI for >90% of the companies (**Figure 6**). In fact, only two did not have a specific Safety factor: Gold Road and Ramelius Resources (we note that Gold Road has a broader "ESG" factor citing ESG ratings, which could therefore indirectly reflect Safety).

For c.55% of companies analysed, we find that Safety accounts for 11-20% of STI (**Figure 11**); 0 to 10% of STI for c25% of companies and 21 to 30% for ~20% of companies. The five companies with the highest Safety component are: 29M (25%), BHP (25%), Evolution (30%; this includes share of Safety within "strategic imperatives"), South32 (28%) and St. Barbara (24%, but there is also an unquantified share within 20% of STI for individual performance).

Figure 11: "Safety" component, as % STI renumeration for Resource company KMP



Source: WaveStone estimates, Jarden, Company reports.

Given the recent spike in fatalities, we have assessed each companies' policies for any safety/fatality "gate" on renumeration. We find most companies (~60%) have some form of gate in place that would trigger a reduction in STI, in the scenario of a Safety event. However, we note several companies do not quantify the potential impact ("Board discretion"), or the gateway only affects the Safety component in isolation (which, as highlighted above, is a fraction of overall STI renumeration).

Figure 6: Short-term incentives & safety component of ASX-listed Resources companies

Company	Ticker	STI Structure	Safety (y/n)	Safety Component	Threshold and targets for safety payment	Safety / Fatality Gateway?	Sustainability Component
Mining							
29Metals	29M.AX	Safety 25% (12.5% for completion of critical control verification actions and 12.5% completion of critical control audits), Production 30% (15% copper, 15% zinc), costs 30%, mineral resources 15% (7.5% growth, 7.5% conversion)	Y	25%	Not specified	STI awards are subject to 'gating' conditions such as serious safety or environmental incidents, the detail is not disclosed.	No
Allkem	AKE.AX	Sustainability 15% (reduce TRIFR by 10%,Olaroz sustainability targets, indigenous communities, renegotiate agreements with indigenous communities), prod & cost performance 30%, quality 10%, growth 25%, merger integration 10%, qualitative 10%	Y	15% but not exclusively safety	TRIFR target to reduce by 10%	No	Yes, 15%
BHP	BHP.AX	HSEC 25% (no significant - actual level 4- health, safety (including fatalities), environment or community events during the year), climate change, management of priority tailings storage facilities), 50% financial (ROCE), individual 25% (social value, people, performance, portfolio).	Y	Mixed 25%	HSEC of 100% or 0% for no sig HSEC events	Loss of safety portion if a significant event occurs	Yes, mixed 25%
Capricorn Metals	CMM.AX	Production 25%, costs 25%, safety, environment & heritage 10%, reserve growth 15%, company performance 25%	Y	Mixed 10%	Mention targets for stretch but do not outline them	No	Yes, mixed 10%
Champion Iron	CIA.AX	EBITDA 25%, FCF 20%, production 15%, total cash cost 5%, meet sustainable development objectives 10%, incident frequency (QIO) 7.5%, incident frequency (contractor) 7.5%	Y	15%	Threshold 50% = 3.25 Incident Freq. (QIO), Target 100% = 2.5, Stretch 150% = 2.13 Threshold 50% = 4 Incident Freq. (Contractor), Target 100% = 3, Stretch 150% = 2.5 Incident freq. is /200,000 hours	No	25%
Evolution Mining	EVN.AX	TRIF 15%, risk - critical & material risk actions 15%, group cash contribution 20%, group AISC 20%, strategic imperatives 30% (includes sustainability on net zero commitment, growth of key assets, business development)	Y	30%	TRIF Threshold 11.7, Target 10.75, Stretch 9.85 Risk - Critical and material risk actions, Threshold 50%, Target 100%, Stretch 150%. Related to analysis and extreme risk control implementation, review of actions, independent audits	No	Max 60%, mixed with asset growth and business development
Fortescue	FMG.AX	Safety 12% (TRIFR >1.8, -15% in injury risk profile, fatality hurdle), prod 12%, costs 12%, cashflow 12%, rev. 12%, people & culture 20% (via survey + Board assessment with participation rate >90%, net promoter score >+31, female employment rate >21%, TO>14%), 20% individual KPIs	Y	12%	TRIFR of not more than 1.8 for Stretch target	No award made for safety KPI in event of a fatality (12%)	32%
Gold Road Resources	GOR.AX	Exploration & growth 52.5% (67.5% at stretch), Gruyere 35% (40% at stretch), ESG 12.5% (17.5% at Stretch, ESG ratings assessment maintained in the 50th to 75th percentile, ESG performance improvement and implementation of ESG initiatives as approved by the Board)	N	Not specific on a safety component	Target: ESG ratings assessments maintained in 50th to 75th %-ile Target: ESG perf. improvement & implementation (no details) Details around stretch and threshold levels not outlined	No	13%
IGO Ltd	IGO.AX	Sustainability 20% (group overall injury frequency rate, critical control verification, Dow Jones sustainability rating, decarbonisation plan), culture 20%, operations 20%, financial performance 20%, transformation 20%	Y	Mixed 20%	Occupational Injury Freq Threshold = 14.9, Target = 13.1, Stretch = 12.2 (not the same as TRIFR) Critical Control Verification Threshold = 90%, Target = 95%, Stretch = 100% % of 20% Sustainability component of the STI achieved for the different target levels not stated	No	Mixed, 40%
Iluka Resources	ILU.AX	Financial 50%, production 10%, sustainability 15% (2.5% TRIFR reduction to 2.3, 2.5% critical control mgmt program implementation, 2.5% diversity & inclusion, 2.5% group closure index, 2.5% group env. level 3 or above incidents target ≤8, 2.5% climate change work), ind. measures 25%	Y	5%	TRIFR 2.5 Threshold (50%), 2.3 Target (100%), no Stretch performance metric outlined (150%)	No	Mixed, 15%
Mineral Resources	MIN.AX	Safety, governance & sustainability 20% (safety, TRIFR, mkt & investor relationships, sust. performance - emissions intensity, strategy development & implementation), strategic growth 30%, op. performance & fin measures 30%, culture 20% (eg retention of senior staff, cultural dev. & brand repositioning, leadership behaviour)	Y	Mixed 20%	Not specified	No	Mixed 40%
Newcrest Mining	NCM.AX	Business 60% [Safety 20% (10% TRIFR, 10% sig potential incidents action verification & investigation quality), sustainability 10% (GHG & water efficiency actions), earnings 25%, costs 20%, FCF 25%], personal measures 40% [Safe + sustainable 12.5%, grow profitability 35%, outstanding ops 35%, best ppl 7.5%, innovation + creativity 10%]	Y	17%	TRIFR target of 2.1 Target for SPI action verification of 90% and investigation quality of 87.5%	Board discretion on Personal Safety measure in event of fatality (inc zero award)	Mixed 30%
Northern Star	NST.AX	Employee ESG 30% (20% safety TRIFR, 5% employee culture survey benchmark, 5% nil materially adverse community, heritage or environmental incidents), production performance 40%, financial management 30% (AISC within guidance)	Y	20%	Threshold TRIFR <5.6 = 10%, Target <5.3=15%, Stretch <5 = 20%	No fatality gateway for STI & LTI safety metric. Board discretion on LTI in event of fatality	30%
Pilbara Minerals	PLS.AX	Safety systems 20% (TRIFR 10%, one or more interactions per 1000 hours worked that satisfy the required quality standards for interactions as monitored by the safety interactions quality assurance system 10%), sustainability 15%, sales tonnes achieved 15%, unit cost 25%, individual and role specific 25%	Y	20%	TRIFR target with a threshold target of 3.5 (50% payout), target of 2.9 (75% payout) and stretch target of 2.4 (100% payout)	No	35%
Ramelius Resources	RMS.AX	Applicable to the MD/CEO are: net profit after tax relative to budget 30%, gold production relative to budget 20%, AISC relative to budget 20%, discovery/addition to mine plan 30%	N	0% but stated to be introduced in FY23, and safety gateway already in place	Not specified but all STI is subject to safety gates	For any STI, must achieve 1) no loss of life at any site, 2) no serious environ., heritage or comm. breach	Not specified
RED 5	RED.AX	Financial 30%, gold production 20%, safety 20% (TRIFR and no fatalities), cost management 20%, individual effectiveness 10%	Y	20%	TRIFR threshold 6.36, target 6.04, stretch 5.72 [percentages associated with each level not specified]	Overall gateway of 90% of budgeted gold production to be achieved before any STI awarded	20%
Regis Resources**	RRL.AX	CEO: Safety targets 20% (AIFR reduction, LTIFR below the industry benchmark), All in sustaining costs relative to guidance 15%, Production relative to guidance 15%, Environmental targets 20% (no significant environmental incidents, no significant compliance issues, development of carbon emission and water use targets), Resource growth 20%, Individual performance targets 10%	Y	20% safety targets with AIFR and LTIFR	AIFR reduction and LTIFR below industry benchmark (2.2 for gold in FY22)	No fatality and no catastrophic environmental incident gateway applies to 100% of KMP STI	40%
Rio Tinto***	RIO.AX	Executive Committee and Managing Directors: Financial 50%, ESG (safety) 12%, ESG (fatality) 8%, ESG (other) 15%, Individual = 15%	Y	20%	Not specified	8% of STI related to fatality	35%
Sandfire Resources	SFR.AX	Group 50% / Individual KPIs 50%. Group KPIs (Group KPI: Production 10%, Costs 7.5%, Safety 2.5%, ESG 5%, MATSA KPI areas: Production 12.5%, Cost of production 7.5%, Safety 5%). CEO KPIs: Execute project delivery 15%, Build sustainable prod pipeline 12.5%, Accelerate discovery 7.5%, Align & empower people 7.5%, Optimise capital strategy & engagement 7.5%	Y	8%	50% Threshold, 75% Target, 100% Stretch. Group 2.5% Safety TRIFR <7 threshold, <5.5 target, <4.5 stretch. MATSA TRIFR <8 threshold, <6 target, <4.5 stretch	STI gateway to achieve threshold level of ind. performance & Group performance	20%
South32	S32.AX	Sustainability 28.3% (safety, health, risk management and community), Financial 56.6%, Strategic Priorities 15%) x Business Modifier (considers factors that are not specifically contemplated in the Business Scorecard x Individual outcome = STI	Y	28.3% but not separated from general sustainability	Achieve 20% reduction in TRIFR compared to the adjusted FY21 baseline(1). Complete the FY22 safety improvement program milestones	Board took discretion post fatality to reduce CEO & COO STI outcome 20% with Business Modifier	28%
St Barbara	SBM.AX	80% Group performance (Group AISC 30%, Safety 30%, Gold production 40%), 20% Individual performance (which includes safety and people)	Y	24% + unquantified ind. component (safety & people)	Performance gateway of no fatalities, 11 recordable injuries target (50%). Not specified what level of recordable injuries qualifies for threshold (25%) and stretch (100%)	Safety portion subject to a no fatalities gateway	24% + an unquantified individual performance component which includes safety and people
Whitehaven Coal	WHC.AX	Group 80% [HSE 40% (Safety 20%: TRIFR 10%, hazard reporting 10%; Environmental enforcement 20%: Compliance 10%, critical controls 10%), Financial measures 40% (EBITDA 25%, FOB unit cost 15%), Production measures 20% (ROM production 20%)], 20% individual [quantitative & qualitative measures]	Y	20%	TRIFR: 50% gateway, 5.6 target, 5.3 stretch Potential L4&5 hazards reported & actions completed: 66 gateway, 132 target, 198 stretch	No	40%
Lynas Rare Earths	LYC.AX	Financial 60% [(1) EBITDA Target 20%; (2) NdPr Production 20%; and (3) NdPr unit costs 20%], Sustainability 40% [(1) Safety/COVID mgmt, (2) ESG, (3) Regulatory - individual weightings not given]	Y	Non-financial 40%, but Safety not split-out	ESG performance measured wrt improvements in ESG performance & reporting during period. Specific targets not provided	No STI Plan awards will be made if there is a fatality during the performance period	40%
Perseus Mining	PRU.AX	Group 80% [Production volume 10%, production costs 10%, Sustainability 15% (close-out actions, TRIFR, fatalities, community events, environmental events, government compliance - individual weightings not given), Growth 15%, Financial performance 15%, Shareholder value 15%], Personal 20%	Y	Sustainability 15%, but Safety no split-out	TRIFR threshold 1.4, target 1.3, stretch 1.2 Fatalities threshold 0, target 0, stretch 0	Yes: zero fatality gateway in order to achieve Sustainability KPI (15% of STI)	15%
Oil & Gas							
Woodside Energy	WDS.AX	20% EBITDA, 20% Operating Expenditure, 20% Production, 20% Material Sustainability Issues (include personal and process safety, environment, emissions reductions, and social licence to operate), 20% Deliver Business Priorities	Y	Mixed 20%: TRIR and Process safety performance target	Target TRIR of 1.0. Process safety performance target zero tier 1 and tier 2 process safety event. Score of 5 for an outcome at target and a maximum score of 10 for each measure	No	20% + 20% in Deliver Business Priorities
Santos Ltd	STO.AX	Sustainability 25% (10% Health, Safety & Environment, 5% People & Culture, 5% Landholder. Community and Traditional Owner Relationships, 5% Emissions Intensity Reduction 5%); Production 25%; Financial 25%; Growth 25% (includes 10% Decarbonisation and Clean Fuels Projects)	Y	5% Health & Safety	Threshold on the health and safety component requires there to be no severe harm incidents. Target performance required 2021 International Oil and Gas Producers Lost Time Injury Rate (IOGP LTIR) at the top quartile and Moderate Harm Rate better than previous years	Yes: Threshold HSE component for no severe incident; Thres. on Env for no incident with consequence of moderate harm or greater	25% Sustainability +10% Decarb & Clean Fuels Projects
Beach Energy	BPT.AX	Company KPIs 75%: Production 15%, Underlying NPAT 15%, Reserves replacement 15%, Field operating cost/boe 15%, Personal safety 5%, Process safety 5%, Environment 5%. Individual KPIs 25%.	Y	10% Personal safety (TRIFR) & Process safety	Board sets KPI measures at threshold, target and stretch levels. Unclear what these actually are set at. (NB in FY22 TRIFR was 4.4 = threshold not met)	Two-tiered hurdle test for STI to be paid	15% - Personal safety + Process safety + Environment

Source: Jarden, Company reports.

Conclusion

The recent spike in Resource sector fatalities in Australia, and for ASX-listed companies' offshore operations, is alarming and breaks a trend for what has typically been a declining rate over the last decade. But, Safety metrics for ASX-listed companies – including those that reported fatalities since Oct'22 – appear to have already been showing a worsening trend over the last 12-18mths, when looking at the frequency of injuries (TRIFR).

The tightness in the labour market has likely contributed to the deterioration in certain Safety metrics. This has likely increased the reliance on contractors, lowered the average skill of employees, and broadened the responsibility of skilled employees. COVID "fatigue" may also be playing a part in complacency at certain operations.

Our analysis does not indicate the markets apply a direct penalty to 'offending' companies despite fatalities representing an extreme outcome of a failure in Safety at a mining or O&G operation. Of the companies that reported a fatality event since Oct'22, 5 out of 7 companies had share price moves <1%-pt following the day of the event, and with volumes either in-line or below their avg 30 day volume. Limited financial repercussions (as % overall earnings) and the way the fatality was communicated to the market could explain the muted share price reaction. However, we note there are potential indirect effects from poor Safety; we draw parallels with the South African gold & PGM sector which historically has a poorer operating track-record vs international peers, and whose valuation multiples now trade at a c.30-40% discount vs. parity a decade ago.

Going forward, we expect Safety will become an increasing focus of senior management & Boards, given the relevance to a multitude of stakeholders including workers, local communities & investors. Pleasingly, the majority (>90%) of Resource companies we analysed include some form of Safety metric as a component of management STI remuneration. Furthermore, most companies (~60%) have some form of 'gate' that would trigger a reduction in STI in the event of a safety event, including a fatality. However, this gate often only applies to the Safety component which itself is often <30% of total STI. As such, we believe greater consistency in quantifying the financial impact, and potentially a more onerous impact on STI over & above the Safety component could be considered by Boards in the future.

Carbon Emission and Intensity Tracker:

WaveStone – Australian Share Fund (WASF)	Carbon Emissions Scope (tonnes CO2e)		
	Portfolio	**Benchmark**	**Difference**
Carbon Emissions Scope 1+2 (tonnes CO2e/$M invested)	88.2	123.3	-28.5%
Carbon Intensity Scope 1+2 (tonnes CO2e/sales)	128.0	176.2	-27.4%

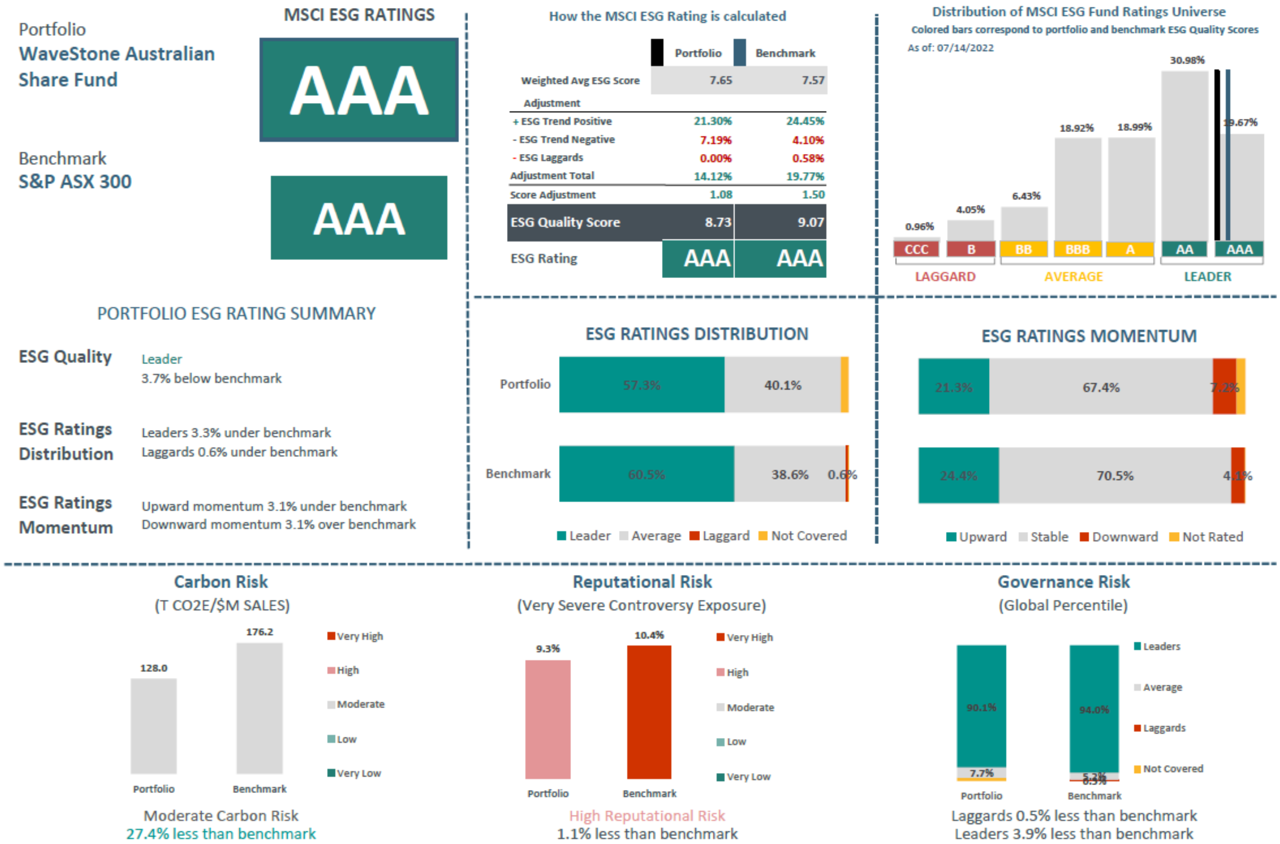
Source: MSCI ESG (as at 30/06/2023)
Benchmark is the S&P ASX 300 Accumulation Index

Engagement

ESG-related Engagements during the Quarter

Company	ESG Category	Topics
QAL	Governance	Governance, risk parameters for loans
CSL	Environment Governance	ESG in REM – could it be included somehow in LTI, management transition and succession within the business and culture, BOD competition, Vifor
NEC	Governance	Candidates for new Chair
PLS	Governance General	Key management hires including new CFO (dual-role), renumeration, culture
ASX	Governance	Governance around CHESS rebuild, disclosure and ASIC investigation
EDV	Governance	Gaming regulation and industry trends
TWE	Governance	Updated remuneration report
XRO	Governance	15% reduction in workforce, culture and staff
CWY	Governance	Governance on Board succession and management
DMP	Governance Social	Headcount reduction and store closures – impact on staff and morale
LIC	Social	Policies for social housing
NAB	Governance	CEO succession, M&A, cyber, mortgage competition and surplus capital
WDS	Environment	Climate Strategy, decarbonisation targets and how they plan to get there, Scope 3, use of offsets, advocacy and industry associations
MQG	Governance	Upcoming AGM, remuneration, meeting new Board member Susan Lloyd-Hurwitz
CKF	Governance Social	Solar panels installation & waste diversion. Staff equity incentive program
ASX	Governance	CHESS rebuild governance and disclosure. ASIC investigation.
ALL	Social Governance	Regulation (land based, iGaming &digital). Cashless gaming, capital allocation, succession planning

MSCI ESG Ratings*



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Memberships and initiatives

- Principles of Responsible Investment (PRI)
- Climate Action 100+
- 40:40 Vision

Links to WaveStone Policies

- ESG Policy: **WaveStone ESG Policy**
- ESG Activity Report: **WaveStone ESG Activity Reports**
- Proxy Voting Policy: **WaveStone Proxy Voting Policy**
- Proxy Voting Records: **WaveStone Proxy Voting Records**
- Engagement Policy: **WaveStone Engagement Policy**
- **WaveStone PRI Transparency Report 2020**
- **WaveStone PRI Assessment Report 2020**

Want more information?

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