One Size Does Not Fit All:

Rethinking Business Interruption Cover for Commodity-Driven Industries

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1.   Executive summary

In the era of volatility, business interruption cover must reflect the commercial realities of commodity-driven industries like traditional energy, renewables, and mining. These sectors are shaped not only by current external factors like supply chain disruption, geopolitical risk, and inflation – but also by their operational adaptability in response to insured events. Within this landscape, two significant limitations in the Industrial Special Risk (**ISR**) Mark IV method for calculating Loss of Gross Profit (the **Formula**) have become apparent.

First, the Formula relies on a fixed percentage measure of the insured's gross profit margin – known as a '**Rate of Gross Profit**'[1] – to calculate the insured's Loss of Gross Profit. This approach assumes a static rate of gross profit margin to sales and fails to reflect the variability inherent in commodity markets. As a result, it can produce materially different outcomes when prices and margins shift significantly - either over- or under-indemnifying the insured.

Second, the Formula fails to account for increased profits that arise from an insured's response to an insured event. For example, electing to process higher-grade ore that yields higher margins to mitigate lost production. The absence of a mechanism to distinguish between the prescribed Rate of Gross Profit applied to '*expected*' versus '*actual*' Turnover[2] means genuine improvements in profitability, arising from an insured event, may not be reflected in the calculation.

This misalignment – between the Formula, market volatility, and industry adaptability – highlights an important consideration: one size does not fit all.

The solution presented in this paper is intended to establish a pragmatic and practical starting point, rather than a complete solution. An alternative business interruption framework that recognises different Gross Profit margins and better accounts for variable costs, would more accurately reflect how businesses operate in practice, align with the principle of indemnity, and provide a more fit-for-purpose basis of settlement.

2.   Background

Business interruption cover plays a vital role in risk management by offering financial stability and operational continuity following an insured event.

The ISR Mark IV standard wording is widely adopted by the insurance industry for its comprehensive cover, flexibility, and cost-effectiveness. Its framework is the industry standard for calculating business interruption loss based on a specific methodology. A critical component is the Formula for calculating:

1. **Reduction in Turnover**, calculated by applying a single Rate of Gross Profit to the shortfall in Turnover arising from the insured event;[3] and

2. **Increase in Cost of Working**, which is additional expenditure incurred by the insured above normal operating costs to mitigate a Reduction in Turnover.[4]

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[1] ISR Mark IV standard wording: "*The rate of Gross Profit earned on turnover…*", where Gross Profit is defined as "*the amount by which the sum of: a. the Turnover and the amount of the Closing Stock and Work in Progress shall exceed; b. the amount of the Opening Stock and Work in Progress* and *the amount of the Uninsured Working Expenses as set out in the Schedule.*"

[2] ISR Mark IV standard wording: "*Turnover: the money (less discounts, if any allowed) paid or payable to the Insured for goods sold and delivered and for services rendered in the course of the Business at the Premises*"

[3] ISR Mark IV standard wording: "*The sum produced by applying the Rate of Gross Profit to the amount by which the Turnover during the Indemnity Period shall, in consequence of the Damage, fall short of the Standard Turnover.*"

[4] ISR Mark IV standard wording: "*The additional expenditure necessarily and reasonably incurred for the sole purpose of avoiding or diminishing the reduction in Turnover which, but for that expenditure, would have taken place during the Indemnity Period in consequence of the Damage, but not exceeding the sum produced by applying the Rate of Gross Profit to the amount of the reduction thereby avoided.*"

The Formula is prescriptive. For commodity-driven industries this is an issue as it does not adequately accommodate the commercial realities of sustained market volatility. Meaning, a strict application may fail to reflect the true financial impact of an insured event. This is because the well-established principles of contract construction require the parties to give effect to the objective meaning of the policy words. Where the policy includes a prescribed formula, as is the case for business interruption cover, that is the formula that must apply.[5]

This underscores the importance of ensuring that the Formula aligns with the fundamental characteristics of the insured risk.

3.   The limitation of applying a single Rate of Gross Profit

The notion of a single Rate of Gross Profit is fundamentally incompatible with the intrinsic nature of commodity-based risks.

Assuming a single Rate of Gross Profit can apply in a set sequence to calculate a Reduction in Turnover oversimplifies and misrepresents the economic reality of fluctuating commodity prices.

Take lithium, for example[6] – a critical metal in the energy transition – which has experienced price volatility in recent years:

Graph 1: Lithium Price (USD/T) - April 2023 to April 2025:
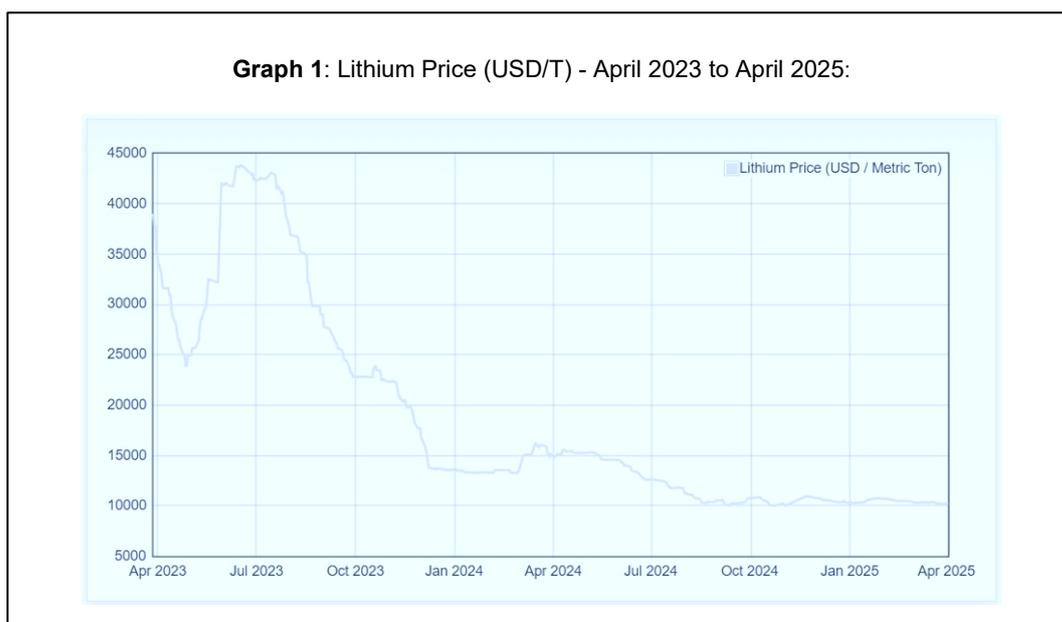
Had a lithium mine suffered an insured loss during the extreme peaks and troughs of this period, the Rate of Gross Profit calculation on those fluctuating prices swings significantly from 90.1% to 66.6%. This is illustrated in Table 1 below:

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[5] See for example the decision of *Mobis Parts Australia Pty Ltd v XL Insurance Company SE* [2018] NSWCA 342 which specifically dealt with this scenario.

[6] https://www.dailymetalprice.com/metalpricecharts.php

Table 1: Indicative example of the different Rate of Gross Profit earned on fluctuating lithium prices (assuming consistent variable mining costs):

Description	Quarter ended Jun-23	Quarter ended Sep-23	Quarter ended Dec-23	Quarter ended Mar-24	Quarter ended Jun-24	Quarter ended Sep-24	Quarter ended Dec-24
Price (USD / T)	35,350	33,860	19,060	14,060	14,590	11,060	10,490
Variable cost (USD / T)	(3,500)	(3,500)	(3,500)	(3,500)	(3,500)	(3,500)	(3,500)
Gross Profit (USD / T)	31,850	30,360	15,560	10,560	11,090	7,560	6,990
Rate of Gross Profit	**90.1%**	**89.7%**	**81.6%**	**75.1%**	**76.0%**	**68.4%**	**66.6%**

Table 2 then demonstrates the significant financial impact of applying one Rate of Gross Profit over another on the calculated Loss of Gross Profit. In this example, the variation is material – illustrating how the Formula's fixed Rate of Gross Profit may materially over- or under-indemnify the insured.

Table 2: Sensitivity analysis of the impact of applying a different point in time Rate of Gross Profit:

Description	Start of period	End of period	Average
Reduction in Turnover (USD)	100,000,000	100,000,000	100,000,000
Rate of Gross Profit	90.1%	66.6%	76.7%
Loss of Gross Profit (USD)	**90,099,000**	**66,634,900**	**76,739,600**

To overcome this variability, forensic accountants often apply a weighted average Rate of Gross Profit to the total shortfall in Turnover.[7] While this approach may better reflect the insured's actual loss, it does not strictly align with the policy. It is also an inherently circular workaround. Without a predetermined rate, the method derives the average rate from the Loss of Gross Profit calculations – the very figures it is meant to produce. As such, it remains an imperfect solution.

It is also worth noting that the policy's "Adjustments Clause"[8] permits modifications to the Formula inputs. However, it is intended to refine variables – not to alter the order or mechanics of the calculation itself. As the sequence of the calculation determines the result, the Adjustments Clause has limited capacity to address the structural limitations of a fixed Rate of Gross Profit.

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[7] Calculated by applying a monthly Rate of Gross Profit to the shortfall in Turnover for each month, then calculating a weighted average Rate of Gross Profit from the total Loss of Gross Profit to apply to total shortfall in Turnover for the indemnity period.

[8] ISR Mark IV standard wording: "*Adjustments shall be made to the Rate of Gross Profit… as may be necessary to provide for the trend of the Business and for variations in or other circumstances affecting the Business either before or after the Damage or which would have affected the Business had the Damage not occurred, so that the figures thus adjusted shall represent as nearly as may be reasonably practicable the results which, but for the Damage, would have been obtained during the relative period after the Damage*".

4. The inability to account for increased profits from insured events

A more fundamental limitation is the inability to apply a different Rate of Gross Profit to *expected* versus *actual* Turnover.

Currently, the application of a single Rate of Gross Profit to the shortfall in Turnover assumes consistency between the Rate of Gross Profit earned on both *expected* and *actual* Turnover. In practice, this assumption does not always hold.

When an insured event occurs, businesses often adapt operations to mitigate loss, which can improve profitability. This is particularly prevalent in commodity-based industries where operational decisions, like pivoting to more profitable production, can materially increase the profit margin on *actual* Turnover.

As a result, the Rate of Gross Profit earned on *actual* Turnover during the indemnity period may differ significantly from pre-event expectations:

i)   when the *actual* Rate of Gross Profit is <u>lower</u> than expected (indicating reduced profitability due to the insured event)[9], the insured may seek cover under Increase in Cost of Working or similar provisions,

ii)   when the *actual* Rate of Gross Profit is <u>higher</u> than expected (and the improvement is attributable to the insured event), there may be an over-indemnification scenario, as the Formula does not account for improved profitability that directly arises from an insured event.

Consider this fictional scenario: following damage to primary crushing equipment, Swift Metals reduces ore processing. To mitigate its losses, it processes higher grade ore containing double the usual metal content. While total sales volumes fall, the Rate of Gross Profit increases from 75% (expected) to 90% (actual), because of higher sales values and lower unit costs per dollar of output.

Under the Formula, Swift Metals' loss would be calculated using the *expected* 75% Rate of Gross Profit, ignoring the increased profitability of *actual* operations during the indemnity period.

If *actual* Turnover generated was $100 million, the Formula would overstate Swift Metals' claim by $15 million, compared to its actual economic loss, as shown in Table 3.

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[9] For example, where an insured purchases third-party product at a higher cost to maintain sales following an insured event.

Table 3: Swift Metals' Loss of Gross Profit –
Comparison of Expected vs Actual against the Formula

Description	Expected	Actual	Formula
Turnover	200,000,000	(100,000,000)	100,000,000
Rate of Gross Profit	75%	90%	75%
Gross Profit	**150,000,000**	**(90,000,000)**	**75,000,000**
Loss of Gross Profit		60,000,000	75,000,000

$15m overstatement when applying the Formula

This shows that assessing loss by *expected* versus *actual* Gross Profit is a more appropriate measure of the insured's actual loss, rather than relying on the Formula's fixed Rate of Gross Profit.

5.   The solution

Addressing these limitations requires the development of a revised, fit-for-purpose methodology with clear definitions.

Other policy wordings, particularly in the US, adopt a 'Gross Earnings' basis which indemnifies the *actual* loss sustained. While more flexible than the Formula, the 'Gross Earnings' basis does not fully address the nuances of commodity-based risks.

The solution proposed here adopts a similar concept but retains the ISR Mark IV structure with two key changes that more closely align the Formula with the operational realities of commodity sectors:

1)   flexibility to account for expected and actual 'variable costs' (rather than applying a fixed Rate of Gross Profit); and

2)   explicit reference to both *expected* and *actual* Gross Profit.

As a starting point, 'variable costs' should be explicitly defined. This should include:

- identifying any costs the insured expects to vary with production or turnover; and

- a mechanism to account for any variable costs that change as a direct result of the insured event.

The methodology should then clearly distinguish between *expected* Gross Profit and *actual* Gross Profit. This distinction is critical to avoid over-indemnification when increased profitability directly arises from an insured event.

Annexure A sets out how this solution may look in practice.

Other considerations worth highlighting, though beyond the scope of this paper, include a 'commodity price cap' mechanism or 'volatility clause' to manage exposure to commodity price volatility. Similarly, where an insured can sell finished goods e.g. refined petroleum products, an additional consideration for *actual* Gross

Profit should include the sales value of stock sold during the indemnity period, to the extent such sales mitigate the impact of lost production.

There should also be a 'sales value adjustment' to remove the impact of price movements driven by the insured event itself. For example, if storm damage limits generation at a wind farm and simultaneously drives up electricity prices due to supply constraints, the remaining turbines may sell electricity at a higher price. While uncommon, scenarios like this have significant implications when they arise.   Without a clear method to account for these effects, outcomes may deviate significantly from the principle of indemnity.

This is not intended to be a complete solution, but a necessary first step toward adapting business interruption cover for the risks and realities of modern industry.

6.   Conclusion

As insurers look to manage increased volatility in commodity-driven sectors, establishing a more appropriate loss assessment framework is essential for preserving the relevance and effectiveness of business interruption cover.

The current Formula requires refinement if it is to remain fit-for-purpose for industries defined by pricing volatility and operational adaptability. Moving away from a fixed Rate of Gross Profit toward a model that compares *expected* versus *actual* Gross Profit, with reference to clearly defined variable costs, would provide a more accurate and equitable basis for measuring loss. This approach not only reflects how commodity-based businesses operate in practice – it enhances fairness, reduces disputes, and supports transparency for all stakeholders.

The era of volatility demands more than legacy formulas. For commodity-driven industries, one size does not fit all and the wording should evolve to keep pace.

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Annexure A – The solution in practice

Loss of Gross Profit

In the event of interruption or interference with the Business as a result of Damage, the Insurer will indemnify the Insured for the actual loss sustained, being the amount by which the Gross Profit earned during the Indemnity Period is reduced in consequence of the Damage, calculated as follows:

1. **Expected Gross Profit** – the Gross Profit that the Insured would have earned during the Indemnity Period had the Damage not occurred, calculated as:

    i.   The expected sales value of production that would have been achieved but for the Damage, determined by reference to prevailing market conditions, production capacity, historical and forecast performance, and expected demand during the Indemnity Period.

    ii. *Less*: the expected variable costs that would have been incurred to generate the expected production, as defined in the Schedule.

2. **Actual Gross Profit** – the Gross Profit actually earned by the Insured during the Indemnity Period, calculated as:

    i.   The actual sales value of production achieved during the Indemnity Period.

    ii. *Less*: the actual variable costs incurred during the Indemnity Period in generating that production, using the same cost categories as set out in the Schedule.

3. **Loss of Gross Profit** – calculated as the difference between:

    i.   Expected Gross Profit; and
    ii. Actual Gross Profit.

Increase in Cost of Working

The additional expenditure necessarily and reasonably incurred for the sole purpose of avoiding or diminishing a reduction in Gross Profit during the Indemnity Period as a result of the Damage, but not exceeding the Actual Gross Profit earned as a result of that expenditure.

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