

# Australian Iron Ore Miners

## Is Iron-Ore done and dusted?

BUY: BHP.AX, Wait for the dust to settle on other names.

### Global Thematic Research

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### The Situation

The iron ore sector has come under further pressure due to a combination of seasonal weakness, and the uncertainty created by rising interest rates. The sell off looks set to continue due to recent Jackson Hole remarks of US Federal Reserve Chairman Jay Powell underscoring their determination to fight inflation.

In this research note, we introduce a simple measure of investor sentiment that we have found useful in bear market conditions. The idea is to take the temperature of market sentiment according to an estimate of the **average cost of entry**, or cost-basis, of those shares. This relates to investor sentiment in an obvious way: if most investors have unrealized profits their sentiment is good; if most are sitting on unrealized losses their sentiment is poor. The tool cannot, of itself, tell us future market direction, but it can provide a useful gauge of market stress.

The stocks surveyed are:

- BHP Group BHP.AX
- Fortescue Metals Group FMG.AX
- Rio Tinto Ltd RIO.AX
- Mineral Resources MIN.AX
- Champion Iron CIA.AX
- Grange Resources GRR.AX
- Mount Gibson Iron MGX.AX

The list comprises all ASX-listed iron ore producers capped over \$500M AUD. To simplify the equation BHP is 70% of the combined market cap, followed by RIO at 14% and FMG at 11% and MIN at 3%. Pick a major for the core, and a minor for the satellite

### Bear-Market Strategy

Given market conditions, our **sole buy is BHP**, but we flag areas of interest in **MIN, FMG, CIA and GRR** for their exposure to the decarbonization thematic. This is a good area for later research. We think it will repay attention to **focus research on what want to own long term** but delay immediate action. To help assess changing market sentiment, we introduce a tool called **cost-basis analysis**. This can be useful in bear markets, to understand market risk appetite, and the appropriate margin of safety for valuations.

### Formative Background to Cost-Basis

Cost-basis analysis is a tool the author invented in the wash up of the 2000 tech-wreck. Like any risk seeking novice investor, I had plunged into buying a fabulous bouquet of whatever looked shiny. This was a great strategy, for a while, when they went up, and a terrible strategy when they went down.

In the wash-up from that lesson in life, I resolved to do better next time. Of course, markets are tricky at turning points, and my experience taught me that our own emotions can seriously affect our ability to see things clearly, and even more so when there is an active crowd of thrill-seeking people about.

In reflecting on my own inability to see clearly what was going on in the bear market, I surmised that it was quite possible that my mistakes were human.

Whatever I was doing wrong, was a natural error in a financial market. The lesson was obvious. I should feel that I was exactly like everybody else and then think about how I might adjust my vision to look at the situation through a lens other than blind panic.

### Cost-Basis Analysis

The bulk of investors I know have memories like fly paper: they recall when and at what price they have purchased their stock, the better to keep score. The score is everything, especially at dinner parties, and why not? Financial success is the name of the game, and we should all aim to be doing well over time.

Knowing our purchase price can help us measure the unrealized return: **current price divided by entry price**. That is the way to tell how we are doing.

However, when the market is sliding, the economy is weak, inflation is rising, and interest rates are on the way up, measures of unrealized profit will start to deteriorate rapidly. We all know the sense of the dictum to be **greedy when others are fearful**, but it is hard to put that into practise when your hair is clearly on fire and your pants are getting warmer.

### The Sympatico of Knowing How Others Feel

Everyone who ever stubbed their toe knows well the feeling of agony that is fleeting. Since we have all done that, we all know how it feels. When someone stubs their toe, we immediately feel how they feel.

Given that investors are prone to recurring bouts of public agony, called bear markets, we can certainly observe the development of pain in progress.

The average level of profit or loss helps us estimate the level of pleasure or pain investors are feeling on their holdings. This will fluctuate with price and is different for every investor. It depends on when they bought their shares. There is a distribution of entry cost, which we must estimate, as best we can.

### The Distribution of Entry Prices

Firstly, we know that there is a true distribution of entry price since somebody owns each share and each share belongs to some investor. Secondly, the prices at which current investors bought shares are the same prices at which an earlier investor sold their shares to them. Thirdly, the volume of shares traded will determine how rapidly the distribution of share ownership changes.

For the mathematically minded investor, this poses a nice challenge: can we estimate the distribution by knowing only the history of price and volume?

Clearly not, or at least, not exactly. We cannot know if the trade in each share is normal, in the sense of a regular pattern of changing ownership. If there were two parties swapping stock each day, a practise we call spoofing, then the trade is abnormal and there is little we can infer from patterns of trading.

The only prices where any current investor bought are those where the stock traded. If there was a gap in the price history, due to a jump, then there can be nobody who currently holds at that entry price.

### The Moving Average of Cost-Basis

To develop this logic further, we make a simplifying assumption. If we knew the real distribution of entry price, as of, say, yesterday, we could update that by adding the new prices from today, in proportion to the volume that traded today. We know that the share registry has a record of the exact price at which every share traded but they are not telling, for reasons of privacy. However, we can use the above idea to make an estimate using trading data alone.

From the foregoing, we have the necessary bits and pieces, but we know there is math involved. This is fascinating to explore, but really, we just want the answer, so we can get back to talk about markets.

To understand the method, examine Exhibit 1. On the left panel is the assumed distribution of entry price. If there is one new trade, it happens at one known price, with a known volume. The fraction of total shares traded is the new trade volume divided by the total shares outstanding. Intuitively, we just assume that shares sold are equally likely to have come from anywhere on the old distribution.

Given the distribution of prices before the trade, the new distribution of prices follows by blending both. The appropriate ratio for blending the old data with the new data is the **proportion of shares traded**, as compared to the **total number outstanding**. We are assuming that of all the shares sold today, they were equally likely to come from any part of the old distribution. Obviously, it is an approximation, but it seems to work well in practise.

### The Interpretation of Average Cost-Basis

Students of **technical analysis** may recognise the formula as an **exponential moving average**. The average cost-basis is a particular example that has a direct interpretation in terms of sentiment. Unlike a standard moving average, there is no element of choice in the duration of moving average. There is a natural moving average whose “length” in days is set by the rate of turnover for the stock. We can calculate it using a quality data set of past trades.

The average cost basis indicator is an exponential moving average whose memory length depends on how rapidly the market is turning over. In quiet and slowly trading markets, it is a long memory average. In fast markets, it is short memory average.

When the price is above the average cost basis, the average investor has a profit and so their sentiment ought to be net positive. Conversely, when price is below the average cost basis, it is negative. Just as in traditional technical analysis, the average cost basis acts as **support** in bull markets and **resistance** in a bear market. This now makes perfect sense, as they are the price levels at which investors would break even on selling (bear market behaviour) or reload by buying (bull market behaviour). This is the practical way to use cost-basis analysis to predict the likely behaviour of investors in bull and bear markets.

## The Role of Valuation

What you, me, or anybody, paid for our shares, in the past, has nothing to do with the fundamentals of the firm, or prospective investment return. That will relate to the fundamental value of the firm, as estimated from discounting future cash-flow. Since interest rates go up and down, and profits go up and down, the market for stocks is inherently volatile.

What we can know, is that a large negative overhang of unrealized losses will naturally create unhappy investors on the share register. Conversely, a large lift to sentiment, from unrealized paper profits, can help support optimism for stocks in a fading market. We cannot know true value, anymore than we can know true sentiment, however it is natural to think that the two will affect one another in the market.

## Bull Market vs. Bear Market Psychology

In a bull market, most stocks are on the up, and most investors have net unrealized gains. They may trade between stocks, but the profit tide is coming in, and that tide lifts all boats. The exact opposite condition prevails in bear markets. The profit tide is going out.

When markets are clearly over-valued, the tidal lift of positive sentiment can keep them so, and the bull market gravy train keeps chugging happily upward. When markets are clearly under-valued, the under tow of negative sentiment can keep them so, and the bear market misery train rattles on downward.

Once the financial and economic conditions change, it can happen that stocks are over-valued. The new conditions may reduce that value estimate daily. Those investors, who have unrealized profits, might take money off the table, leading to a bear market. In the same way, once the overall market sentiment is negative, the crowd will push stocks to an extreme of undervaluation. If a stock is expensive at the cost basis level, it will likely fall further. However, if it is already cheap enough, that is a clear place to buy.

## The State of Iron Ore and Chinese Politics

Commodity prices matter to fundamentals, and they are down around \$90 to \$100 USD a tonne, just like last year. Part of this is the seasonality of demand in the Chinese market. However, the bigger factor is the Covid-19 lockdowns in China. Xi Jinping is up for a third term at the coming Politburo meeting in mid-October. We do not know if this will happen, but it seems quite likely.

## The Psychology in Iron Ore Stocks

Once Xi Jinping is confirmed for a third term, the China policy emphasis will likely shift to stimulus. The obvious decision is to lift Covid-19 restrictions, which would serve to stimulate the economy.

The state of investor psychology in ASX-listed iron ore stocks appears in Exhibit 2. Over 95% of market capitalisation is in the top three **BHP, FMG & RIO**. It would be even more if we reflected that portion of RIO which is cross listed in London. **MIN** is a distant fourth at around 3%, **CIA** is 0.7% and **GRR** 0.24%.

Of the eight names listed in Exhibit 2, only two have positive sentiment readings, MIN at +22.9% which is magnificently positive, but probably about their lithium projects and not their iron ore. The other is BHP at +0.6%, having just gone ex-dividend. Every other stock is labouring under a weight of negative sentiment. The worst is **MGX**, which is no surprise, as they have lower grade iron ore, and are small.

The charts of average cost-basis for each stock are shown above in Exhibit 3 through Exhibit 16, and the corresponding unrealized profit loss, measured by current price divided by average cost basis, is shown in the charts below. Only BHP and MIN are in positive territory, and the rest are underwater.

Note that the average cost basis has a tendency, like all moving averages, to behave as a **resistance zone** for stocks that are trading upwards from below. This makes sense since investors who want to “get even” will, on average, sell at the break-even price. The average break-even is the average cost basis. The reverse applies when trading down from above. On this criterion, BHP is right now at support, which makes this a suitable time to consider buying it.

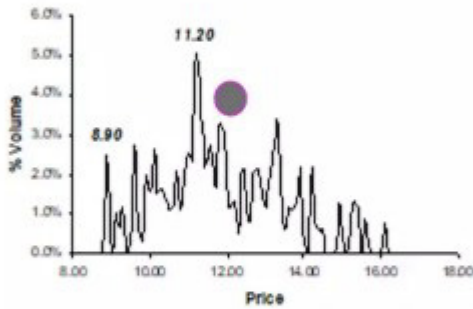
On stock selection, there is an argument to make for GRR and CIA, due to their focus on **pelletized iron ore**, which is playing a role in the decarbonization of steel making, but this phase of a bear market is a risky time to add positions in small-cap stocks.

BHP has a strong balance sheet, a diversified asset base, and a clear strategy to focus on future-facing commodities. The areas where BHP has no exposure are the obvious places to look for satellite positions, in the battery metals, rare earths and other critical minerals. We advocate buying BHP at these levels, in anticipation of a recovery, post October, with an electric vehicle metals exposure via pure plays.

**Exhibit 1 Foundation for estimating average cost-basis from the daily distribution of price and volume traded.**

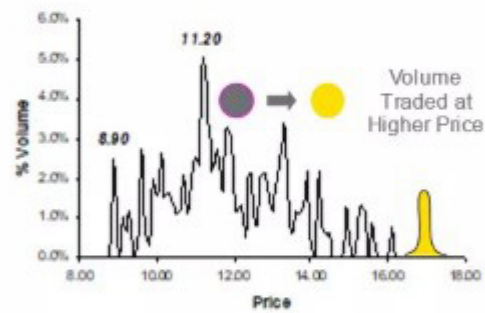
## COST BASIS FOUNDATIONS

**Old Average Cost Basis**



*The Average Cost Basis is near the centre of the Volume at Price distribution*

**New Average Cost Basis**



*When new trading occurs the Average Cost Basis moves toward the new prices*

$$CB_t = \alpha_t P_t + (1 - \alpha_t) CB_{t-1}$$

Source: Jevons Global & Refinitiv Data (2022).

**Exhibit 2 Iron ore producers of capitalisation > \$500M ranked by average investor unrealized profit and loss.**

Ticker	Company	Cap (\$B)	Price (\$)	FwdPER	Yield	Cost Basis	Profit & Loss
MINAX	Mineral Resources Ltd	11.91	62.79	6.02	6.1%	51.10	22.9%
BHPAX	BHP Group Ltd	190.02	37.51	7.52	9.6%	37.27	0.6%
FMGAX	Fortescue Metals Group Ltd	54.31	17.64	7.94	10.1%	18.60	-5.2%
CIAAX	Champion Iron Ltd	2.63	5.09	6.80	5.1%	5.50	-7.5%
RIOAX	Rio Tinto Ltd	34.34	92.52	7.06	10.1%	105.62	-12.4%
GRRAX	Grange Resources Ltd	0.99	0.86		2.0%	1.00	-14.5%
MGXAX	Mount Gibson Iron Ltd	0.56	0.46	12.79		0.57	-19.3%

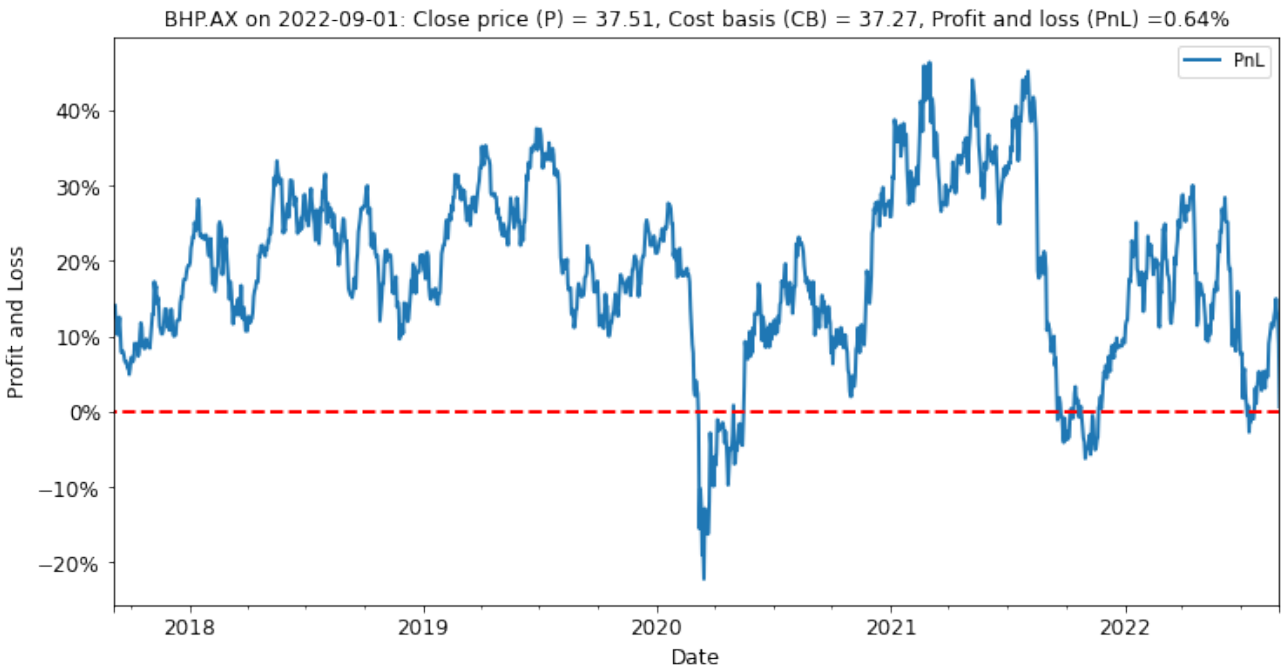
Source: Jevons Global & Refinitiv Data (2022).

**Exhibit 3 Price history of BHP (P) versus estimated average Cost-Basis (CB).**



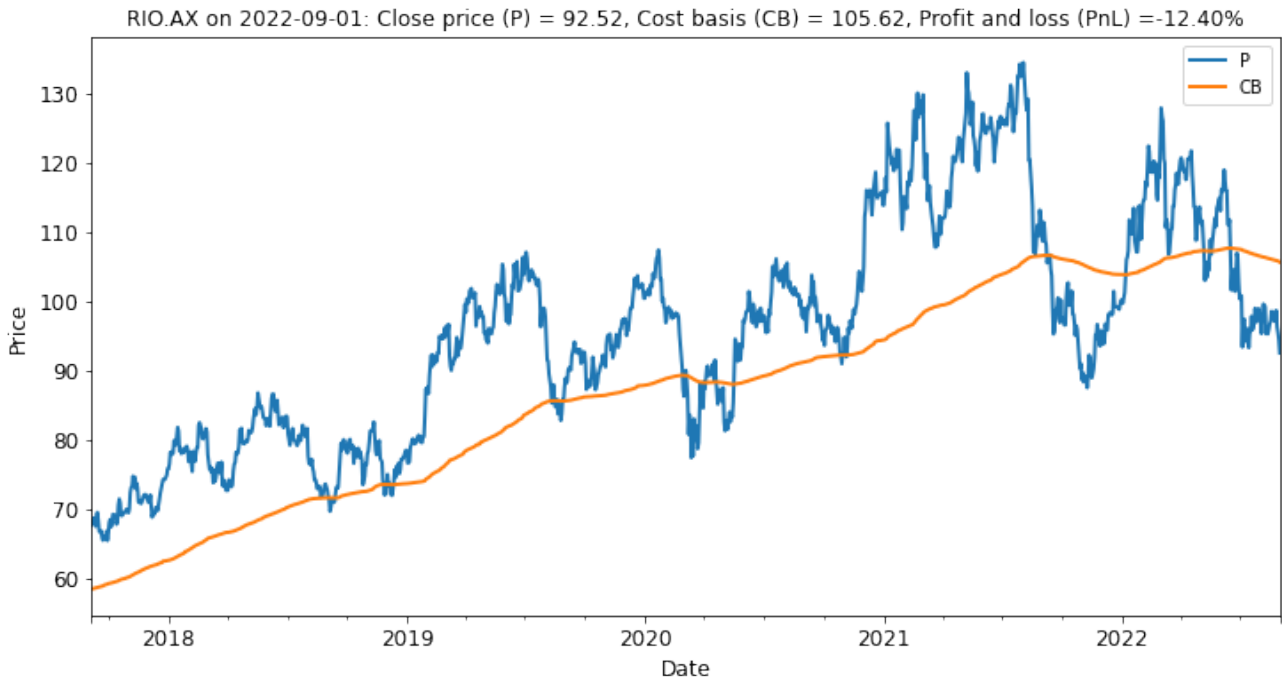
Source: Jevons Global & Refinitiv Data (2022).

**Exhibit 4 Estimated average unrealized profit and loss for investors in BHP (PnL = P/CB - 1).**



Source: Jevons Global & Refinitiv Data (2022).

**Exhibit 5 Price history of RIO (P) versus estimated average Cost-Basis (CB).**



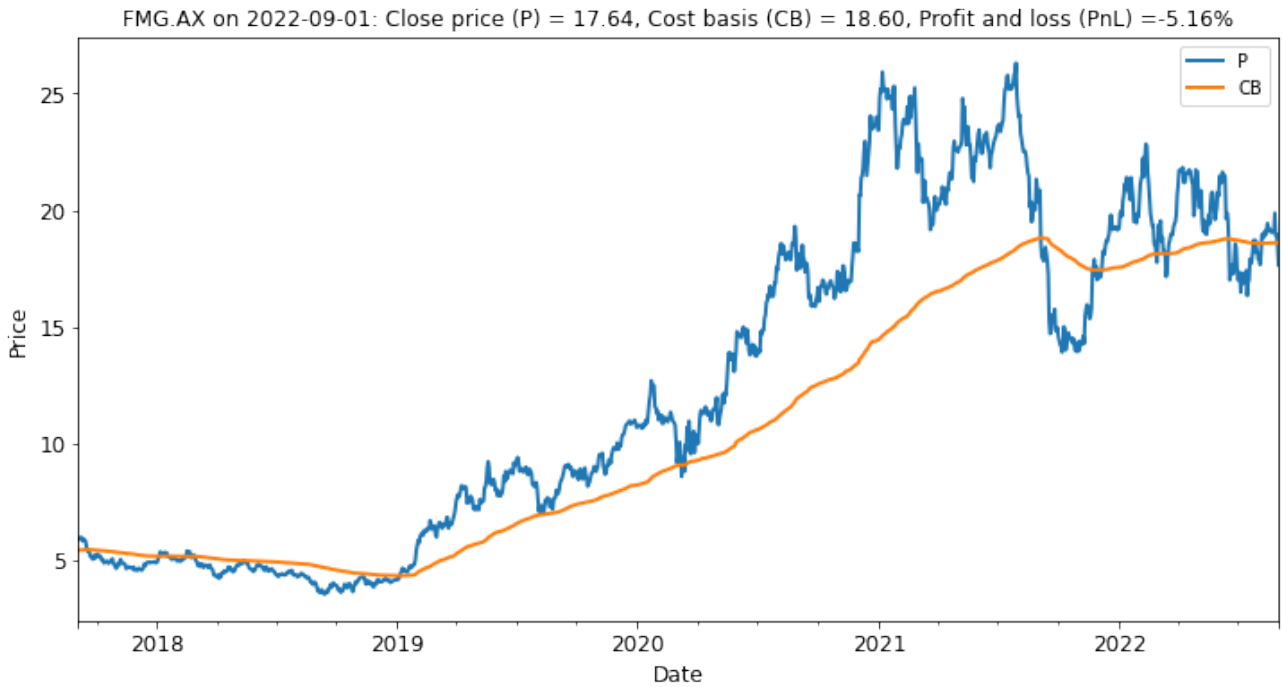
Source: Jevons Global & Refinitiv Data (2022).

**Exhibit 6 Estimated average unrealized profit and loss for investors in RIO (PnL = P/CB - 1).**



Source: Jevons Global & Refinitiv Data (2022).

**Exhibit 7 Price history of FMG (P) versus estimated average Cost-Basis (CB).**



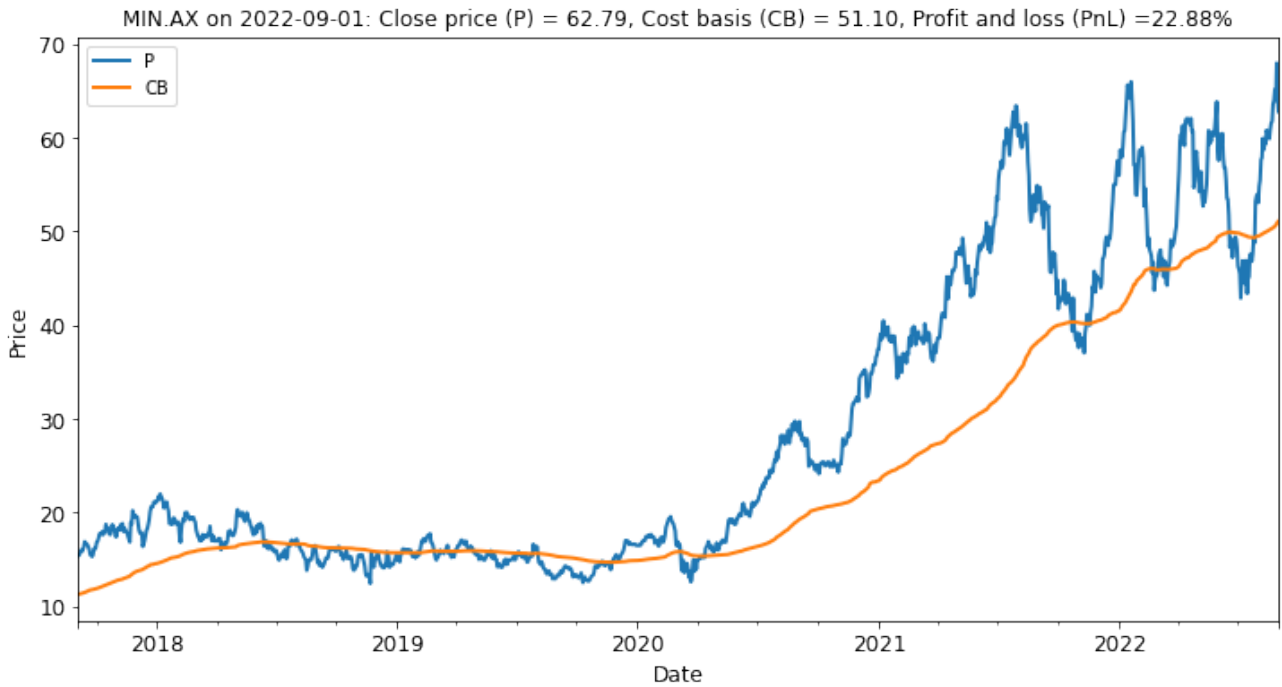
Source: Jevons Global & Refinitiv Data (2022).

**Exhibit 8 Estimated average unrealized profit and loss for investors in FMG (PnL = P/CB - 1).**



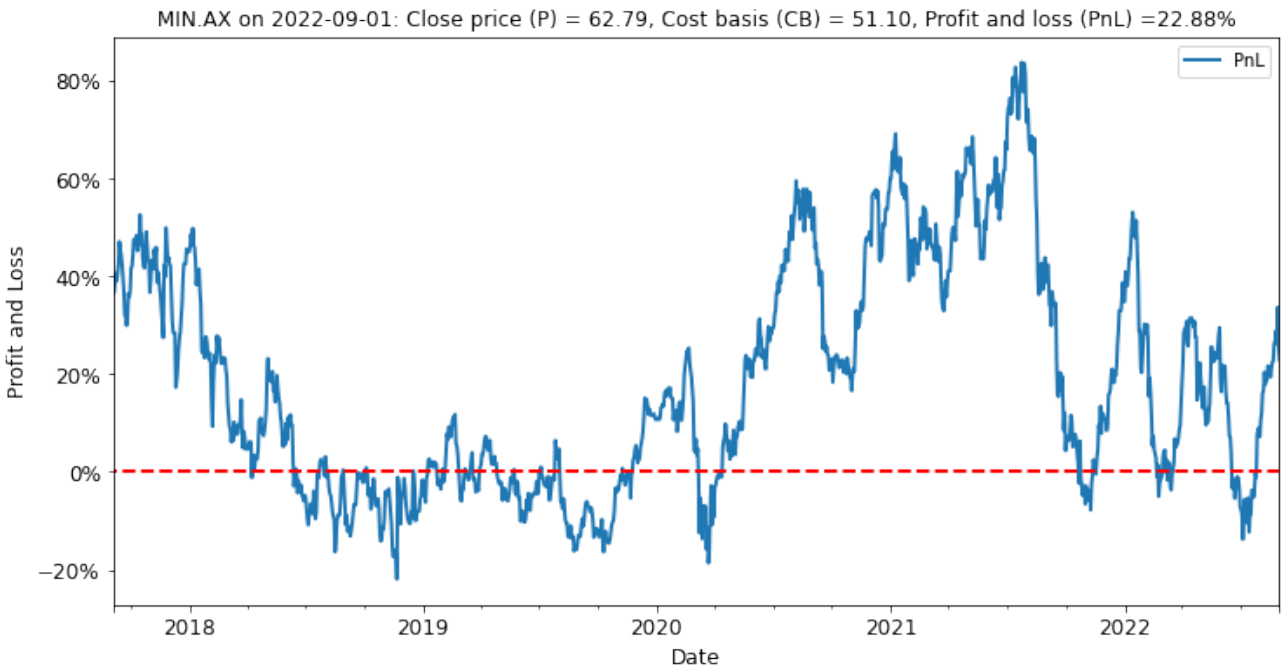
Source: Jevons Global & Refinitiv Data (2022).

**Exhibit 9 Price history of MIN (P) versus estimated average Cost-Basis (CB).**



Source: Jevons Global & Refinitiv Data (2022).

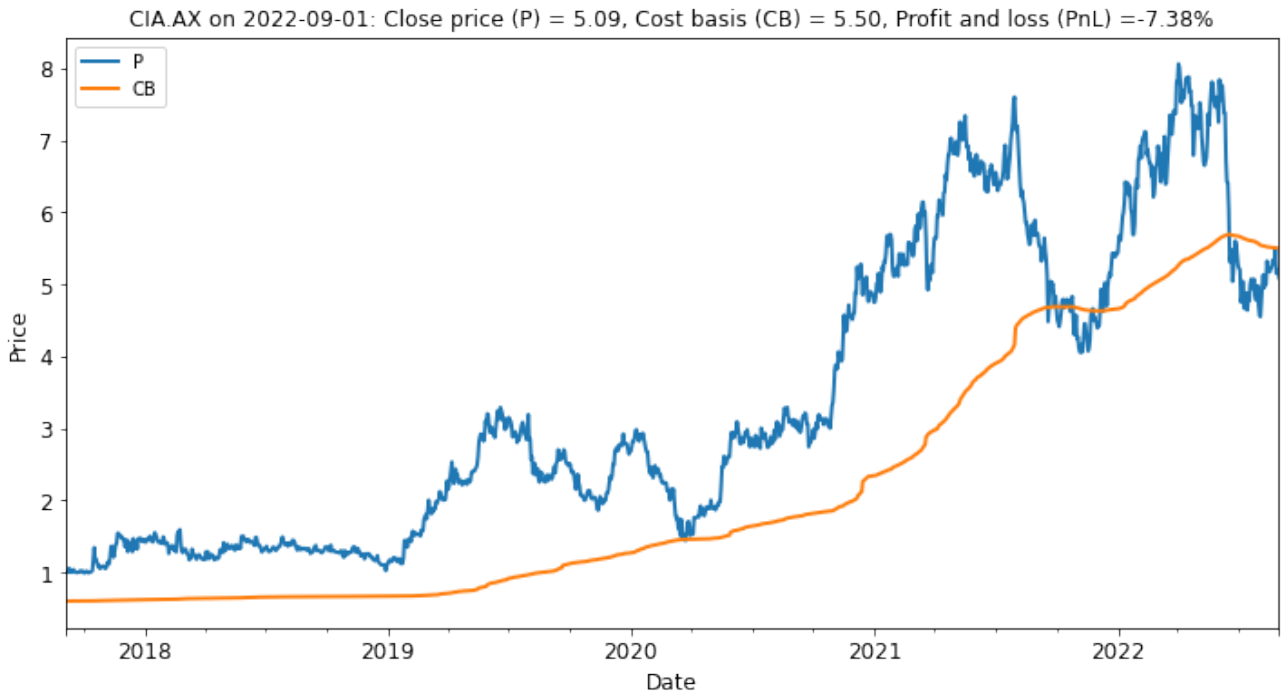
**Exhibit 10 Estimated average unrealized profit and loss for investors in MIN (PnL = P/CB - 1).**



Source: Jevons Global & Refinitiv Data (2022).



**Exhibit 11 Price history of CIA (P) versus estimated average Cost-Basis (CB).**



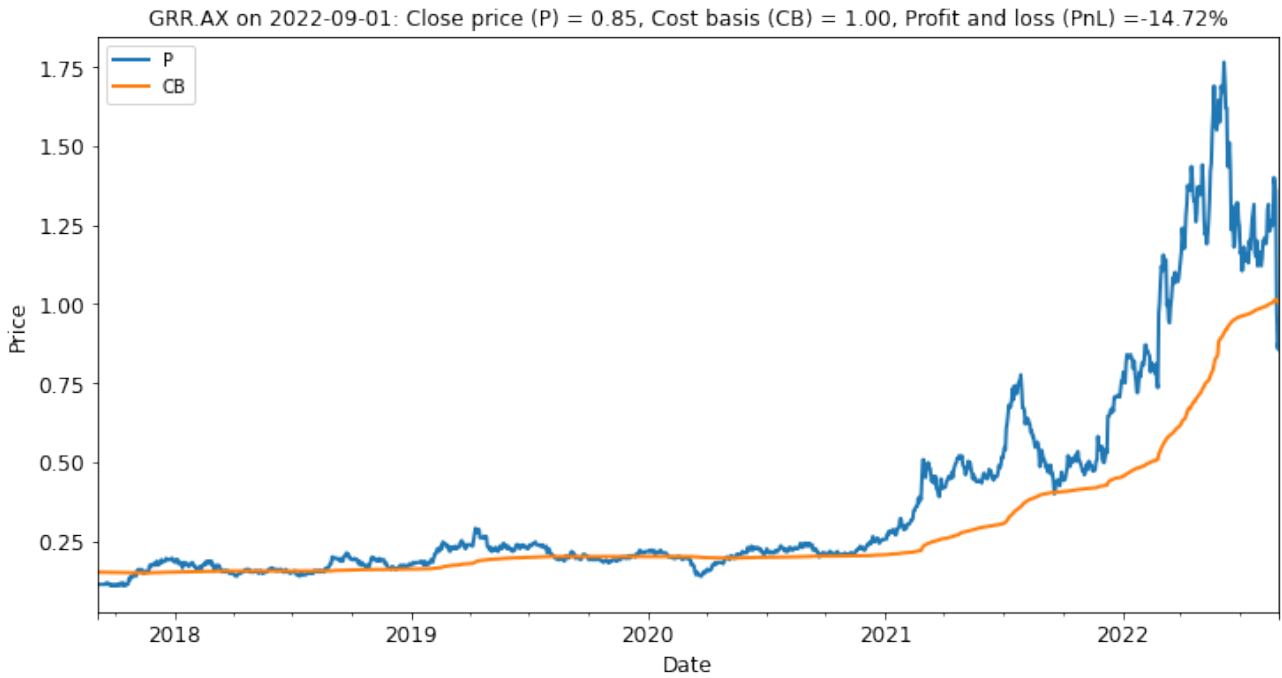
Source: Jevons Global & Refinitiv Data (2022).

**Exhibit 12 Estimated average unrealized profit and loss for investors in CIA (PnL = P/CB - 1).**



Source: Jevons Global & Refinitiv Data (2022).

**Exhibit 13 Price history of GRR (P) versus estimated average Cost-Basis (CB).**



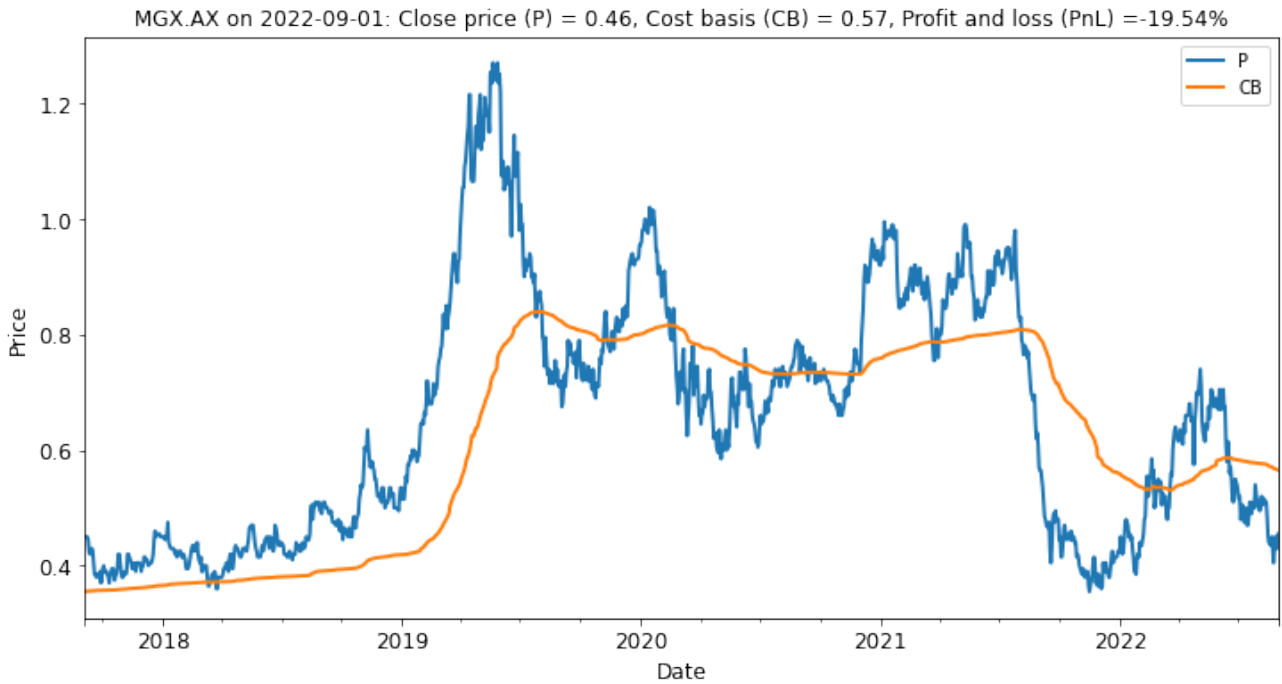
Source: Jevons Global & Refinitiv Data (2022).

**Exhibit 14 Estimated average unrealized profit and loss for investors in GRR (PnL = P/CB - 1).**



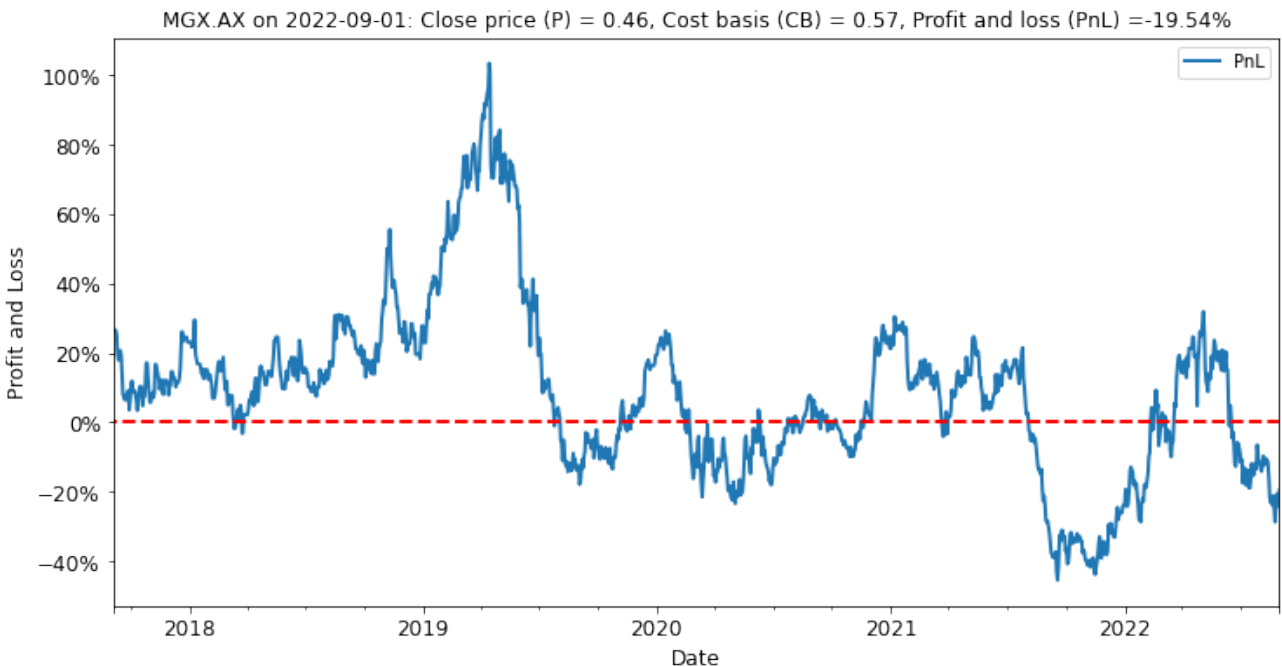
Source: Jevons Global & Refinitiv Data (2022).

**Exhibit 15 Price history of MGX (P) versus estimated average Cost-Basis (CB).**



Source: Jevons Global & Refinitiv Data (2022).

**Exhibit 16 Estimated average unrealized profit and loss for investors in MGX (PnL = P/CB - 1).**



Source: Jevons Global & Refinitiv Data (2022).

**TRADING POSITION DISCLOSURE**

The Jevons Global Opportunities portfolio holds these trading positions of relevance to this research note:

LONG Grange Resources Ltd (ASX: GRR.AX)	Thematic Sector: Resources & Energy
LONG Rio Tinto Ltd (ASX: RIO.AX)	Thematic Sector: Resources & Energy
LONG BHP Group Ltd. (ASX: BHP.AX)	Thematic Sector: Resources & Energy

The analyst Dr Kingsley Jones, CFA has a beneficial interest in any profit or loss derived from these trading positions.

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