

Broken Hill Proprietary Billiton report: Analysis Available Strategy to Hedging Risks by Using Futures Contracts, Foreign Exchange Futures

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Abstract: With the development of multinational companies, plenty of companies confront enough problems in financial management. This paper using real figure analysis method to conclude companies financial problems. After data analysis, we found Broken Hill Proprietary Billiton as one of the multinational company, it faced enough problems as commodity price risk, currency exchange rate risk and interest rate risk. In this case, hedging strategies with derivatives are used to minimize the risks of financial loss. Futures contract can be used to deal with commodity price risk and risks of currency exchange risk by locking in price and reduce uncertainty of market movements. Finally, contrast advantages and disadvantages for each strategy. After analysis of Broken Hill Proprietary Billiton, it could provide enough strategies to alleviate financial risks for multinational companies.

Keywords: Broken Hill Proprietary Billiton; Commodity Price Risks; Currency Exchange Rate Risk; Interest Rate Risk; Strategies

1. Introduction

In recent years, multinational companies confront enough financial problems [1]. Broken Hill Proprietary Billiton which selected is a well know multinational natural resource company. In this report, identify three risks in financial aspect. In this case, using different strategy to reduce these risks, such as hedging strategies with derivatives, Futures contract and swap. Both advantages and limitations of each strategy are discussed. Provide available strategies could used in different multinational companies which may resolve their financial problems.

2. Research Method

BHP Billiton Limited is a publicly listed company headquartered in Melbourne, Australia. It generates revenue mostly from mineral, oil and gas exploration, development, production and processing [1]. BHP Billiton was formed in June 2001, when the Australian firm BHP Limited merged with the London-based mining house, Billiton plc. The merger produced one of the largest mining companies worldwide. BHP specializes in iron ore, petroleum and copper, which contribute largely to its business profits, with the percentage of 33.02%, 25.65% and 25.66% respectively. The multi-national mining company of BHP Billiton expands its footprint globally into more than 26 countries [2]. As the global leading resources company, BHP exposures to different risks including commodity price risk, currency exchange rate risk and interest risk due to its operating activities in the market. To analysis company risks by using data analysis and chart comparison.

3. The Results for Broken Hill Proprietary Billiton

3.1 Commodity Price Risk

The uncertainty and fluctuations of future commodity prices will significantly influence the financial performance of any company. Commodity prices are highly subject to the supply and demand in the market. BHP Billiton's annual report (2016) indicates that it has suffered substantial losses due to a remarkable decrease in commodity prices. Although BHP Billiton is confident about future energy demand globally, it is still necessary to hedge the commodity price risk by applying appropriate derivatives such as

using copper futures to hedge the risk in this research.

3.2 Currency Exchange Rate Risk

As what already mentioned above, BHP is a huge multi-national company specialized in diversified assets. The different countries BHP operates in and raises capital from make its business easier and bigger while sometimes it also gives rise to some potential risks, among which the risk associated with the fluctuations of currency exchange rates can be an obvious one. BHP Billiton is trading globally and U.S. dollar is the main currency to its operation; the sales or revenues they earned in other countries can be largely influenced by the exchange rate between U.S. dollars and foreign currencies. For instance, when foreign currencies depreciate, BHP will surely suffer great loss gets higher because it will get fewer U.S. dollars exchanged back.

3.3 Interest Rate Risk

A country's interest rate will be influenced by many factors like inflation, economic performance, and monetary police [3]. According to BHP Billiton's annual report (2016), revenues of this company are sensitively influenced by the interest rates due to the floating interest rate. As shown in the annual report, the total asset in 2016 is \$118,953 million and the total liability is \$58,882 million, which accounts for around 49.5% of its total assets. Therefore, when the interest rate in Australia grows, BHP has to pay much more interest to its debt holders. What's more, important financial ratios such as profitability ratio, liquidity ratio and solvency ratio may be presented not correctly. In the long run, it may negatively affect the company's capability to make investments or raise capital.

4. Strategies to Resolve Risks

4.1 Hedging Strategies for Commodity Price Risk

As a global leading resource company whose revenue is made up of sales of resources such as copper, iron ore, petroleum and other resources, BHP exposures to a huge commodity price risk [4]. The company experienced a drop of revenue about 30% in the year 2016 compared to 2015. The decline

of the Cooper price contributes a lot to the decrease of revenues of BHP (Figure 1).

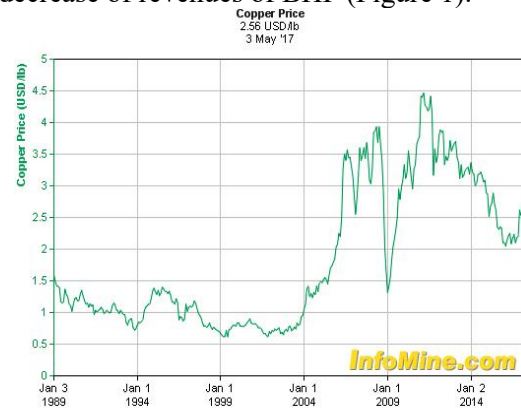


Figure 1. Copper Price

The company has 277 thousands of tons of copper exposure at 30 June 2016 and a 10% change in this price would decrease the after-tax profit by US\$98 million [5]. Therefore, it is necessary for BHP to use derivatives to hedge its commodity price risk. BHP could use the copper futures traded on New York Mercantile Exchange (NYMEX) to hedge the copper price risk and the copper futures contract specification is in Figure 2—the contract size is 25,000 pounds.

Contract Unit	25,000 pounds	
Price Quotation	U.S. Cents per pound <i>Please note: Prices are disseminated in U.S. Dollars and Cents</i>	
Trading Hours	CME Globex:	Sunday - Friday 6:00 p.m. - 5:00 p.m. (5:00 p.m. - 4:00 p.m. Chicago Time/CT) with a 60-minute break each day beginning at 5:00 p.m. (4:00 p.m. CT)
	CME ClearPort:	Sunday - Friday 6:00 p.m. - 5:00 p.m. (5:00 p.m. - 4:00 p.m. Chicago Time/CT) with a 60-minute break each day beginning at 5:00 p.m. (4:00 p.m. CT)
Minimum Price Fluctuation	\$0.0005 per pound	
Product Code	CME Globex: HG CME ClearPort: HG Clearing: HG	
Listed Contracts	Trading is conducted for delivery during the current calendar month, the next 23 calendar months, and any March, May, July, September, and December falling within a 60-month period beginning with the current month.	

Figure 2. CME Group 2017

The price of the 2016 September futures was about US 2.1 cents/pound (Figure 3).



Figure 3. INO.com, Inc. All Rights Reserved 2017

The amount to be hedged was 277,000 tones, which equals to 610,680,466 pounds. As a

result, BPH could sell 24,428 (610,680,466/25,000) three-months copper futures contracts to hedge the possible decline of the copper price. As in the short position of the contract, BPH needs to open a margin account with the clearinghouse members and keep margin maintenance of 2750 USD [6]. The advantage of using futures contracts could be divided into two main parts. First, it locks the price and allows BPH to sell copper at a predetermined price, which reduces the uncertainty of market movement exposure by BPH. Second, the Exchange requires the two parties to keep margins accounts that reduce the credit risk to a large extent and the futures contracts could be closed out as easily as stocks in futures Exchange. However, futures also have some limitations. Locking the price could limit the potential loss; on the other hand, it also limits the potential profit if the price of the underlying assets goes in the different direction compared to the company's expectation. In addition, futures are standardized contracts, which provide less flexibility, and the company might experience a loss with hedge if its competitors do not take actions.

4.2 Hedging Strategies for Currency Exchange Risk

Currency exchange rate risk is the financial risk of the investment value due to the changes in currency exchange rates. The dominated functional currency used in the BHP operation is USD dollars, which is 91 percent of net asset and liability whereas some other non-functional currency to BHP exposed, are the Australian dollar. The profit after tax decreases by US \$15 million due to weakening of US dollar as well as strengthen in AUD [7].

By hedging this risk, the paired AUD / USD foreign exchange futures traded on CME could be used. BPH should take a long position in this kind of future contract to lock in exchange rate of AUD/USD. The contract size of the futures is 100,000 Australian Dollars with the minimal trade of 100 contracts and it is quoted in U.S. Dollar per one Australian Dollar (Figure 4).

The amount of AUD that needs to be hedged is 2,491.4 million, which is equivalent to U.S. \$1,908 (1870+38) million in 2016 with the average exchange rate of 1.30579 AUD/USD

(Figure 5& Figure 6).

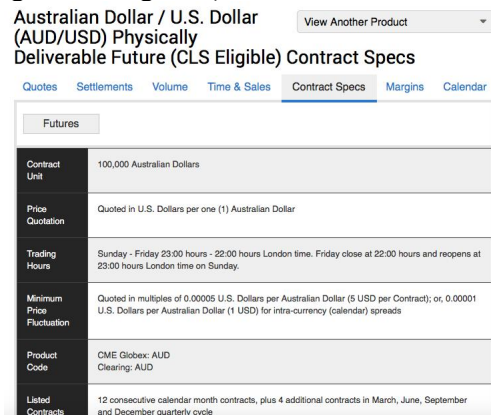


Figure 4. CME Group 2017

	Interest bearing liabilities		Cash and cash equivalents	
	2016 USDm	2015 USDm	2016 USDm	2015 USDm
USD	19,600	16,563	10,083	6,553
EUR	10,419	8,926	-	-
GBP	3,886	3,023	37	33
AUD	1,870	2,011	38	17
CAD	646	647	89	58
Other	-	-	72	92
Total	36,421	31,170	10,319	6,753

Figure 5. BHP Annual Report 2016



Figure 6. USD to AUD Chart

Therefore, the company should long 24,914 (2491.4m/0.1m) three-month futures contracts to hedge the currency risk it exposures to. The advantages of using the foreign exchange futures to hedge the currency risk could be divided into two main aspects. First, futures are standardized and traded on Exchanges, so it is unlikely that one of the two parties would default. Another benefit is that futures are high liquidity in terms of its daily settlement and companies could close out their position simply by entering to an opposite position [8]. However, it also has some drawbacks. First, it is hard to ensure the accuracy of the prediction of the exchange rate. If the exchange rate of AUD/USD goes to the opposite direction, the company might experience a greater loss. What's more, the standardization of the futures contract also limits the flexibility, such as the contract size, the minimal number and the standard volume.

4.3 Hedging for the Interest Rate Risk

In 2015, the net debt is US \$24.4 billion whereas in 2016, the net debt of BHP group is US\$26.1 billion, which increases US\$1.7

billion. This indicates that the interest payment produced by the debt would be higher in succeeding years. In addition, borrowing at a floating interest rate exposes the interest rate risk with the change of reference rate over time. After the global financial crisis, US dollar LIBOR tends to decline for about 8 years then begins to recover since the year 2015, which has some positive impact on interest (Figure 7).

3 month US Dollar LIBOR interest rate

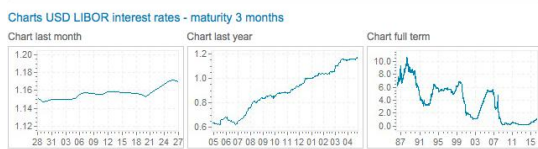


Figure 7. 3 month US Dollar LIBOR interest rate

As a result, swap futures contracts could be used to hedge the interest rate risk as same as what the peer companies in this industry do which would effectively reduce the cost of borrowing.

As mentioned before, in 2016, the net debt position of BHP is US\$26.1 billion and 91 percent of its borrowings are exposed to floating interest rates [8]. CME Groups (2017) provides interest rate swaps with different maturities—2-, 5-, 7-, 10-, 30-year USD MAC swap futures (Figure 8).

Product Name	Clearing	Close	Floor	ClearPort	Exchange	Product Group	Clearing As	Volume	Open Interest
7-Year USD MAC Swap Futures	BTU	BTU	-	BTU	CBOT	Interest Rate	Futures	0	0
30-Year USD MAC Swap Futures	BTU	BTU	-	BTU	CBOT	Interest Rate	Futures	40	1,326
2-Year USD MAC Swap Futures	BTU	BTU	-	BTU	CBOT	Interest Rate	Futures	0	0
5-Year USD MAC Swap Futures	BTU	BTU	-	BTU	CBOT	Interest Rate	Futures	1,487	25,794
10-Year USD MAC Swap Futures	BTU	BTU	-	BTU	CBOT	Interest Rate	Futures	1,259	35,262

Figure 8. 2-, 5-, 7-, 10-, 30-year USD MAC swap futures

BHP could apply the 2-year interest rate swaps traded on Chicago Board of Trade (CBOT) to hedge the increasing interest rate. As the contract size has the value of \$100,000 (Figure 9), BHP could hedge by buying 244170 2-year USD swap contracts.

Contract Unit	\$1,000 per point (\$100,000 per contract)
Price Quotation	Prices are made in terms of price points: 100 points plus net present value (NPV) of IRS that meets Delivery Standard, where NPV is present value of IRS fixed-rate payments minus present value of IRS floating-rate payments as of 3rd Wednesday of Delivery Month. Par is on the basis of 100 points.

Figure 9. 2-year USD Interest Rate Swap Futures Contract Specs

In this way, when the interest rate goes up in the future, BHP would receive the same amount to cover the loss of higher interest payment by converting the floating interest rates to fixed interest rates.

A swap traded in Exchanges is not like the swap traded in the over-the-counter (OTC) market, which is directly arranged by two

companies with specific contract size, settlement date and calculation method. The exchange-traded swap is standard with predetermined contract size and quote prices, which charges a low margin to two parties as to enhance the safety. In other words, it could reduce the default risk between the two positions. Moreover, lots of swaps are traded in the “plain vanilla” which means that parties exchange interest rate instead of principal [9]. Swap hedging strategy costs less in the transaction and it is a standardized way to minimize the interest rate risk, which will lower the credit risk as well. However, swap also has some limitations. First, it is only used for short-term strategies instead of long-term strategies. In addition, when interest rate increases sharply or decrease sharply, the party with the floating position has more possibilities to default. Moreover, companies who lock the interest rate by using a swap could lose their flexibility to the movement of interest rate in the real market.

5. Conclusion

BHP, as a global leading resource company, exposures to many financial management risks such as commodity price risk, foreign currency risk and interest rate risk. The company could hedge these risks by using exchange-traded copper futures contracts, currencies futures and interest rate swaps according to its revenue components and debt structures.

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