

Portfolio Risk Management

Investor Presentation February 2006

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Welcome. My name is Jane McCarthy and I'm the Manager of Portfolio Risk Management for BHP Billiton. The presentation today is about looking at BHP Billiton as a portfolio: what are the value drivers, what are the risks, how do we manage the risks, and where this is all leading ... what is the potential of the portfolio?

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The presentation takes 30 minutes and follows the agenda outlined on this slide. The purpose of the presentation is three-fold. Firstly, it is to review a very important part of our strategy – the Portfolio Risk Management Strategy – how we balance the pursuit of opportunity with the management of risk. Secondly, it is to introduce some new portfolio tools that we have developed and to use those tools to visualise features of our portfolio. Thirdly, it is to demonstrate the potential of our portfolio and how we are constantly striving to grow shareholder value. Part of that is through innovative thinking and planning and a best practice approach to portfolio risk management.

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Just to recap on where we have come from, this slide shows our approach to managing financial risk. The first element is: continuous monitoring and quantitative modelling of financial markets for commodities, currencies and capital over a five year time frame. The second element is: combining our modelling of the market environment with the Business Strategy in terms of the financial targets we set ourselves and the likelihood of us meeting them, capital management initiatives, the growth aspirations we have, capital investments, or acquisitions. And the third element is: working through the implications for the financial strength of the company, in terms of credit rating, liquidity profile, interest cover and gearing. Financial Risk Management is about integrating these elements.

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In managing financial risk we have adopted a portfolio approach. Our strategy has not changed. We manage risk through the strength, flexibility and natural diversification in the BHP Billiton Portfolio. Hence we are adopting a self-insurance strategy. However, as implied in the second bullet point, there are some limits to the amount of residual risk we are prepared to take on and that's where measures of diversified risk such as Cash Flow at Risk (CFaR) come in. We manage to quantitative benchmarks.

In practice, the strategy involves monitoring risk in the portfolio on a regular basis and seeing how it is impacted by potential market events and by major investment decisions, such as the WMC acquisition.

There are three risk measures with approved limits which are reported monthly to the Financial Risk Management Committee and Board. These are...CFaR (with a 12 month horizon and a 95% confidence level); Ratio of CFaR to projected Cash Flow; and worst case projected gearing in two years' time (also at a 95% confidence level).

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Let me review the quantitative Cash Flow at Risk framework which underpins the strategy. And to do that I'll use our Portfolio Model.

What we are seeing here is a chart of CFaR vs. cash flow for FY05 for each Business Unit.

Carbon Steel Materials has the highest cash flow, incorporating last year's increases in bulk prices and volumes. It also acts to reduce risk in the portfolio because its products are sold under annual negotiated contracts and because it has substantial AUD costs which hedge our commodity price exposure.

Petroleum is another great diversifier of portfolio risk. There are two aspects to this. Firstly, oil fundamentals are different from other commodities. Although strongly influenced by China demand, oil price is also strongly driven by the supply side and the geopolitical premium. Secondly, there is internal diversification in our portfolio through our usage of fuel and energy-related products in our operations. This demonstrates the need for us to manage risk at the portfolio level, considering the impact of risk drivers on the business as a whole.

The total risk vs. reward of the portfolio is represented here by the BHP Billiton Diversified dot. The total cash flow is obtained by adding the cash flows from the Business Units. The portfolio risk is harder to calculate and is the key output from the model. If we did just add the risks in the separate Business Units, we would get to the Un-Diversified dot. In practice, because of the natural hedges in our portfolio, there is a diversification benefit and that is measured by the reduction in risk in moving from the Un-Diversified dot to the Diversified dot... about a half.

In the 3D view we can see a few more features of the modelling. On the back wall is a distribution of BHP Billiton's cash flow over a year. The distribution is built up by Monte Carlo analysis, varying prices, exchange rates and interest rates and I can show you a schematic of that. So here we are seeing a subset of the underlying risk factors and a calculation of cash flow being performed thousands of times, each time with a different set of inputs for the underlying drivers.

When we have generated the distribution, the CFaR is calculated by taking the difference between the expected cash flow and the "worst case" cash flow at the 5th percentile. So you would expect to exceed that difference, and be down in the tail of the distribution here, only 1 year in 20.

Cash Flow at Risk is embedded in the organisation as part of the Financial Risk Management Strategy. We'll return to this later in the presentation when we look at the performance of the strategy since the BHP Billiton merger.

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What I want to do now is to introduce the next generation of the portfolio model, what we call the "Portfolio Value at Risk" (PVaR) model. It is an extension of the Cash Flow at Risk concept to a longer-term, value-based view. Whilst CFaR is based on 5 year cash flows, PVaR is based on a discounted cash flow valuation of our assets over their life, and it also incorporates other important portfolio metrics such as profit, return on capital, and margins. It extends the modelling of risk from market risk to "whole of company" risk, including country risk, business risks, and "event" type risks.

Many of these additional risks are, by their nature, multi-year risks which only really have full meaning in the context of a valuation model. Furthermore, PVaR includes the risk and reward of growth options whereas in the CFaR model these appear as a cost.

Just to emphasise the difference, consider how Petroleum Exploration is viewed in the two frameworks. In a cash flow framework, exploration is a short term cost, mostly incurred in USD, and doesn't contribute to CFaR as such. In a valuation framework, exploration is a major contributor to both risk and reward. There is the opportunity to add significant barrels to the petroleum portfolio, as has happened in the Gulf of Mexico, and the possibility for disappointment. This adds uncertainty through both volumes and price. Our business is all about creating and exercising growth options so the valuation framework is essential for strategic planning. The two models are complementary, one hasn't supplanted the other. We see CFaR as more of a financial risk management tool and PVaR as more of a strategic planning tool.

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One feature of the PVaR model, and the one which often creates the most interest, is its use of 3D visualisation. As an introduction, I will show you a simple use of the tool to visualising some features of our current portfolio. Now if this was all the model could do it wouldn't be very exciting, but this will give you an idea of its basic functionality and we'll return to the details of quantitative risking later in the presentation.

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As most of you know, BHP Billiton is the world's largest diversified resources company. We have over 100 operating sites in approximately 25 countries. Let's see what this looks like using the Portfolio Visualisation Tool.

Let me just orientate you inside this tool. On the base, we are showing a map of the world with our operations depicted. It is currently showing Profit from FY05. The relative size of the columns is meaningful so, for example, Escondida was one of our major profit generators in FY05, but we are not going to show actual numbers. As well as FY05, we can load our whole forecast in here for display. And we can display other metrics, such as EBIT etc.

The side wall can be used to display forecast information or company performance measures such as Earnings per Share. Currently, it is being used to display performance measures for the past five years. And what a great story that is!

The back wall shows a list of the assets in the model grouped by major business. Let's look at that close up. Here are four of our Businesses: Petroleum, Base Metals, Aluminium and Stainless Steel Materials.

Now I could spend all day going through different permutations and combinations of the portfolio, but I'm just going to concentrate on some major features to demonstrate the functionality. I can use filters and zoom in and out to look at aspects of the data. First, let's look at where EBIT in FY05 came from. Some major EBIT contributors were Ekati, Escondida, Cerro Matoso, Liverpool Bay, Hillside, WA Iron Ore, Queensland Coal, and Bass Strait.

The map view emphasises our global footprint. Our major production centres are in Australia, Southern Africa and Latin America. We have a growing base in North America, with our Petroleum operations in the Gulf of Mexico, and we have assets in Europe and Asia as well.

These are outstanding assets as our results have shown. Large, low cost, high reserve assets are the foundation of the company's cash flows. They contribute the cash, and what we call the portfolio effect produces stability of cash flow. The portfolio effect is all about risk reduction and we can illustrate that with some simple pie charts. Here we see a split of EBIT by Commodity. With the growth in Carbon Steel Materials (in yellow) a larger percentage of our cash flow is being generated by bulk commodities, iron ore and coking coal, which have annual fixed contracts and hence act to reduce cash flow volatility. To investigate country risk we can look at a split of EBIT by geography. About 50% of EBIT is being generated by assets in Australia. This percentage will increase in the future because of the growth in Carbon Steel Materials and also because of the addition of cash flows from the ex WMC assets. The risk reduction inherent in this asset mix is evidenced by our A+ credit rating from Standard & Poor's and A1 from Moody's.

In this brief introduction to the PVaR model I have demonstrated the following functionality: interactive visualisation of extensive asset data, construction of a portfolio, evaluation of the portfolio performance measures, and qualitative investigation of portfolio risk through the use of pie charts. Later I will discuss the quantitative risk capabilities of the model and use it to demonstrate our portfolio potential.

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But first let's return to the slide presentation and look in more detail at the matter of portfolio risk from the point of view of our Portfolio Risk Management Strategy and Performance. I will show a trace back of the key risk measures which are regularly reported to the Senior Management and Board, discussing the causes of changes in our risk profile.

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This slide shows the evolution of CFaR since the merger in July 2001. The red bars show CFaR and the blue dots and the blue line show the ratio of CFaR to projected cash flow. We monitor our CFaR against Board approved limits on an ongoing basis and track changes over time.

Initially, following the merger, risk in the portfolio decreased. Amongst other things, this was as a result of Steel being spun-out, reducing our exposure to volatile export steel prices. Then there was a period of stability when the risk and cash flow didn't change much, in spite of events in the outside world such as the Iraq war and SARS. Then, in the second half of 2003, there was an increase in risk. This was due to changes in the market. The impact of China demand and the rapid decline in the US dollar, led to a synchronisation of commodity markets and to higher correlations and higher volatility in our portfolio model. Subsequently, the risk has come down again. This has happened as China has been seen to manage its growth and as correlations have weakened somewhat with increased differentiation between commodity markets in their response to China demand. Also, we have seen the dramatic growth of bulk commodities in the portfolio, which reduces risk.

Looking at this chart just let me emphasise that although there has been an increase in absolute CFaR since the merger (red bars), this is a good news story, caused by increased volumes and prices as a result of the commodity boom. The key point is that risk as a percentage of cash flow has gone down.

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So, the big picture is that portfolio risk has decreased since the merger in July 2001.

And the addition of the WMC acquisition does not significantly alter the risk in the portfolio. That acquisition was at a value less than 10% of our market cap. Its main effect has been to increase our exposures to nickel and copper, offset somewhat by the addition of uranium, which behaves more like a bulk with long term contracts and which hedges our energy-linked exposures. And it has contributed more AUD exposure which adds to our natural hedge.

Consistent with this benign view of the risk impact of the acquisition, the rating agency response has been good. From a portfolio perspective, one can view BHP Billiton as a company delivering strong cash flows which follow a broad-based index of commodities and currencies, thereby diversifying investors' portfolios and reducing beta. Then, on top of that, it delivers growth from a well-managed resources business, thereby generating positive alpha.

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This slide is an overview of the modelling we do and the improvements that have been made.

Note that we have refined the modelling at the asset level and included more risk factors, especially on the cost side. Now that we have gone into the detail we have developed a pretty good feel for what is important and what is not at the Group level. We have done a lot of work on stress testing. We stress test for negative scenarios such as a "Gulf war" scenario and a "breakdown of correlations". We check that our main conclusions hold over the cycle and in stress test situations.

Furthermore, we have developed models that focus on different aspects of the markets and their impact on company performance. Short to medium term market movements are more linked to financial risk management and CFaR. Longer term, structural changes are more linked to value and PVaR. These models reinforce each other and give us increased confidence in the results we present.

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Now I will return to the Portfolio Value at Risk model and describe in more detail how it is used to generate quantitative risk information.

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The PVaR model takes input directly from the asset valuation models in terms of their sensitivity to major risks, whether those be price, currency, production volumes, reserves, costs, timing, or whatever. It aggregates the risks in a consistent way to quantify "whole of company" risk. The model contains a lot of detail and the output can be cut and spliced to reveal features of our risk profile which are of interest.

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In this chart, the x-axis shows Value at Risk and the y-axis shows Value. On the back wall is a tornado chart of aggregated risks.

The risk that shows up as having the biggest impact is market risk, which is a combination of prices, discount rate and currencies. Market risks are modelled, similarly to CfaR, using historical volatilities and correlations in underlying price and rate data to parameterise a probabilistic model... only the time frame is longer.

Next comes country risk, then combined business risks, to which Petroleum reserves and bulk volumes are the biggest contributors. And we also have a stress test to breakdown in correlations.

There are some types of risk that aren't included. Not our HSE risks, not any residual risk from our marketing operations, not Human Resources risks. We do quantify and manage all these risks at the Group level, but PVaR is not the most useful framework for thinking about them. On the other hand, in the PVaR model we do have the ability to include specific event risks, such as the introduction of a carbon tax or a plant failure, as appropriate.

So this is Value at Risk for BHP Billiton. The same level of risk analysis can be performed for other metrics in the model; for example, cash flow (giving an alternative calculation of CFaR) or profit or EBIT or Return on Capital Employed, and we can generate range outcomes and probabilities for meeting portfolio targets.

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We have looked at value and risk in our existing portfolio. Now let's consider our portfolio potential. And this means looking beyond our existing portfolio to what we could become. What are our options?

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I am going to go back to the Portfolio Visualisation Tool.

If you remember, the project list in the model contained all our existing operations. And now I'm going to show you that the model also contains investment options: our Exploration, Development and Marketing assets, Business Excellence and Technology, some Brownfield and Greenfield projects from our growth pipeline, and some New Ventures. (For illustration's sake, the New Ventures are all in the category of BRICs — that is Brazil, Russia, India and China — countries where we see resources opportunities on both the sales and production sides. And we certainly have the ability to take on more country risk since more than 80% of our EBIT is from investment grade countries.)

This isn't a comprehensive list. Here are Neptune and Shenzi, but we also have Puma, Cascade, and Chinook, all in the Gulf of Mexico. Also, here are Stybarrow and LNG Train 5, but we also have other gas development opportunities such as Cabrillo Port.

The projects which are lit up in green are those which are in this Business Plan Portfolio, that is, existing assets and sanctioned development projects. The others are investment options which can be turned on or off in the model (being "greyed out" indicates that they are currently turned off).

So now I hope you're getting the bigger picture of what the portfolio model is. It contains information about our base business and risks, and it also contains a choice of investment options, from all parts of the investment pyramid. Projects can be turned on or off to create alternative portfolios, and to see what impact that has on the risk/reward profile and on the probability of meeting business targets. Business problems can be addressed by manipulating and understanding the mix and timing of investments.

To illustrate this let's turn on these investment options. Notice that the grey project names have been turned green and that the name of the portfolio has been updated to "Managed Growth". All the data being displayed in the model has been updated to refer to the new portfolio. I call this portfolio Managed Growth because it is really about us bringing on our existing project pipeline and investing in a limited number of new ventures.

What do we look at when we consider changes to the portfolio? Well we do look at changes in short term measures and performance. Things like cash generation and earnings per share accretion and dilution. And that's what we would normally show on these charts, with the Business Plan portfolio represented by the white line and the new portfolio by the blue line with the yellow squares (these are "dummy" numbers).

But primarily we look at value and risk. Here we are seeing the change in the value distribution for the Managed Growth portfolio in the blue bars vs. the Business Plan, the white line. We look at risk in the broadest sense, not just "Cash Flow at Risk" and "Value at Risk" measures, but also industry risks, human resources, capabilities, HSE etc. And we look at how investments perform under different long term scenarios.

Clearly, portfolio modelling is just one of a variety of tools to assist in the decision making process and, let me emphasise, not the most important. But it gives us a different perspective. One thing it allows us to do, for strategic planning purposes, is to consider an optimised "efficiency frontier".

And here we are seeing a chart of portfolio risk vs. reward with an efficiency frontier in blue. The red dot represents the Business Plan portfolio. This yellow dot (*upwards and to the right*) is the Managed Growth portfolio. This yellow dot (*downwards and leftmost point on the chart*) is from last year's modelling. You can see the tremendous value increase over the last year, as evidenced by our share price performance. We have created value through the exercise of real options in our tier one assets (witness the rapid expansion of WA Iron Ore), through our exploration success in the Gulf of Mexico and elsewhere, through our business excellence initiatives, and through the execution of our project pipeline. This last yellow dot (*top right on the chart*) is a "Pleasant Dreams" portfolio, a realistic but optimistic scenario, because it shows where we might get to if the commodity super cycle plays out and we enter a period of rising price trend. We don't know whether that will happen or not, and we certainly don't base our investment decisions on that, but it makes sense for us to consider what options we can create to participate in that market circumstance if indeed it does occur.

Conceptually, an efficiency frontier defines the boundary of the company in terms of what risk/reward profile can be achieved. It depends on what investment opportunities are available consistent with the company strategy, and on competition and other constraints. It defines a strategic direction for the company. The key

portfolio management question becomes: What types of investment do we need to do in order to move towards the efficiency frontier?

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In summary, portfolio risk management is about looking at the whole picture. It is not about minimising risk. It is about investigating the critical business questions: Are the performance goals achievable? What is the likelihood that they will be satisfied? What options exist to improve the probability of satisfying the goals? How can we optimise the portfolio risk/ return trade-off? It focuses on Return on Risk, thereby encouraging a balance between profits and prudence.

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When I started I said there were three things I wanted to get out of today.

Firstly, it was to review an important part of our strategy – how we balance the pursuit of opportunity with the management of risk – and to demonstrate an ongoing best practice approach to portfolio risk management.

The second thing was that I wanted to introduce you to a new portfolio analysis tool and use it to demonstrate what we mean when we talk about our value drivers – what distinguishes us from the rest.

The third thing was to demonstrate to you the potential of our portfolio and how we are using innovative thinking and planning to grow shareholder value.

The key point is that, partly because of the idiosyncrasies of the resources industry, there are opportunities to be smart and value to be created if we really understand the risks and trade-offs in our portfolio.

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Thank you for listening. Should you have any follow up questions, or wish to clarify any of my comments, please contact our Investor Relations department in your local region. Contact details are provided on slide 21.