# Portfolio Risk Management

Investor Presentation

February 2006



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All data included shows historical actual data unless otherwise mentioned.



- Introduction
- The BHP Billiton Portfolio

- Portfolio Risk Management Strategy & Performance
- Portfolio Value @ Risk
- Portfolio Potential



# Where we have come from

#### **Financial Strength**

- Credit rating
- Liquidity profile
- Interest cover
- Gearing

# BHP Billiton Financial Risk Management Strategy

#### **Financial Markets**

- Commodities
- Currencies
- Capital markets
  - Debt
  - Equity

#### **Business Strategy**

- Financial targets
- Capital management
- Growth aspirations
- Capital investments
- Acquisitions



# Portfolio Risk Management Strategy

- To manage risk through the strength, flexibility and natural diversification in the BHP Billiton Portfolio.
- To only hedge when the residual risk in the portfolio may compromise the delivery of corporate objectives.

# Portfolio Risk managed within Board approved limits and performance measured and reported monthly

- Cash Flow @ Risk
- Ratio of Cash Flow @ Risk to projected Cash Flow
- Worst case projected gearing in two years' time

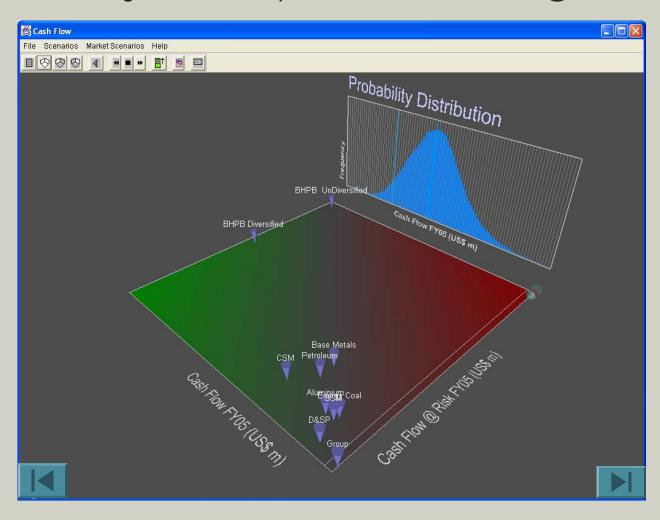
## Part of Capital Allocation Process for major investments

- For example, the WMC acquisition



# The BHP Billiton Portfolio Model

Risk is managed within a quantitative Cash Flow @ Risk framework





# What is new

Next generation of the Portfolio Model. Extension from *cash flow* to *value*:

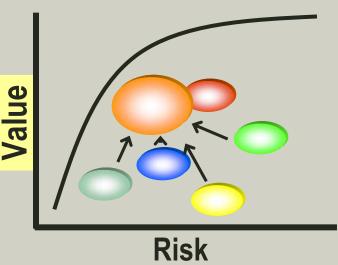
## Cash Flow @ Risk

# Cash Flow

# Risk

### KISK

# Portfolio Value @ Risk



- 5 Year Cash flows
- Market risk
- Only cost of growth

- Value based, but includes other metrics
- "Whole of company" risk
- Risk and reward of growth



Introduction

The BHP Billiton Portfolio

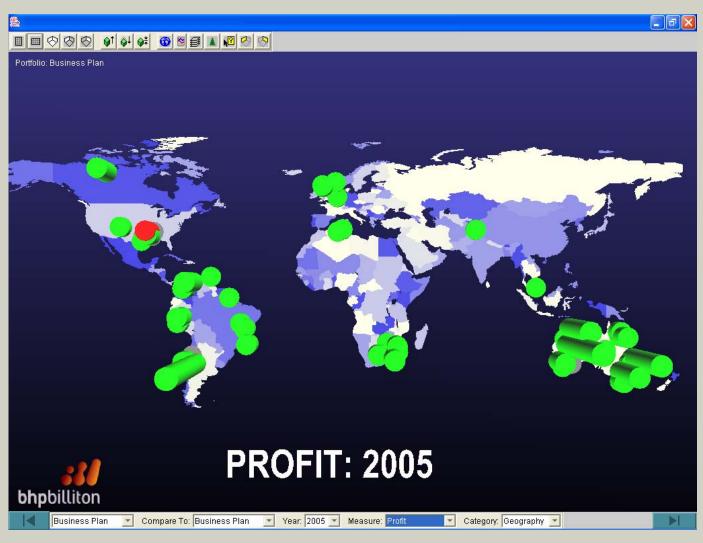
Portfolio Risk Management Strategy & Performance

Portfolio Value @ Risk

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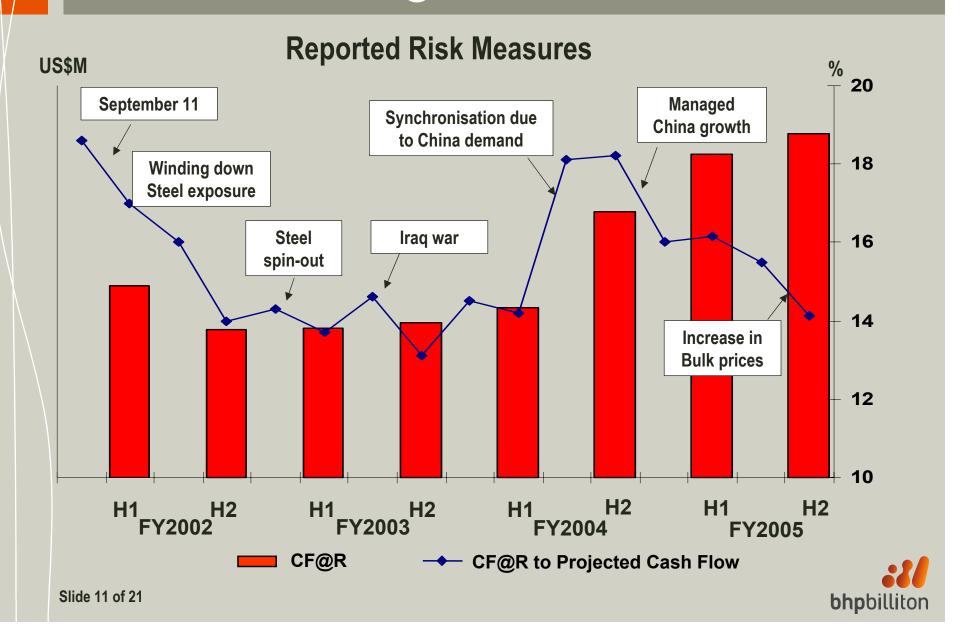
# The BHP Billiton Portfolio



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# Evolution of Cash Flow @ Risk



# Portfolio Risk has decreased

- BHP Billiton portfolio risk less than at time of merger in July 2001
- Addition of WMC acquisition does not significantly alter risk

	At Time of Merger Jul 01	Without WMC Jul 05	With WMC
Ratio of Cash flow at Risk to Cash flow	19%	13%	14%

- Credit ratings confirmed following the acquisition
- > A+ from S&P
- ➤ A1 from Moody's



# Overview of Modelling

#### Cash Flows (from Business Plan)

#### 83 Assets (24 as at Jul 01) Asset 1 Asset 2 Asset N 57 Risk Factors (26 as at Jul 01) **Exposure 1** $CF_{11}$ CF<sub>12</sub> CF<sub>1N</sub> CF<sub>2N</sub> Exposure 2 CF<sub>21</sub> CF<sub>22</sub> • • • **Exposure N** $CF_{NN}$ $CF_{N1}$ CF<sub>N2</sub>

#### Market-derived Statistics

- Correlations
- Volatilities
- Stress tests including
  - market implied volatilities
  - impact of crises (e.g. Gulf Wars)
  - breakdown of correlations

#### Probabilistic CF@R Model

E(CF)

#### Analytical CF@R model

#### Decomposition of Risk

- Contribution of an Asset to CFaR
- •Contribution of a Risk Factor to CFaR
- Effect of correlations

#### PV@R model

#### Value at Risk

- Non Market Risks
- •Other metrics (Value, EBIT)
- •Longer term, strategic focus



P=5%

Portfolio Risk

CFaR

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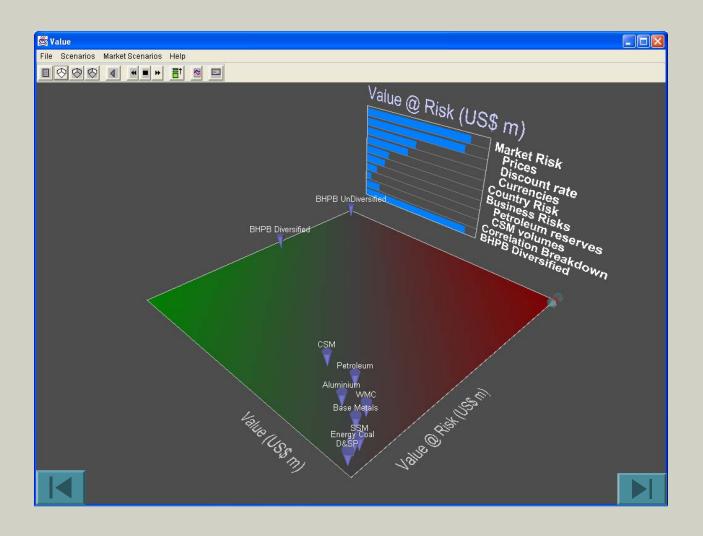


# The Portfolio Value @ Risk Model

- Takes input directly from the asset valuation models in terms of their sensitivity to major risks (e.g. price, currency, production volumes, reserves, costs, timing)
- Aggregates the risks in a consistent way
- Cuts and splices the output to reveal features of interest (e.g. risk by CSG, by asset, by risk driver, by major risk grouping)



# Portfolio Value @ Risk



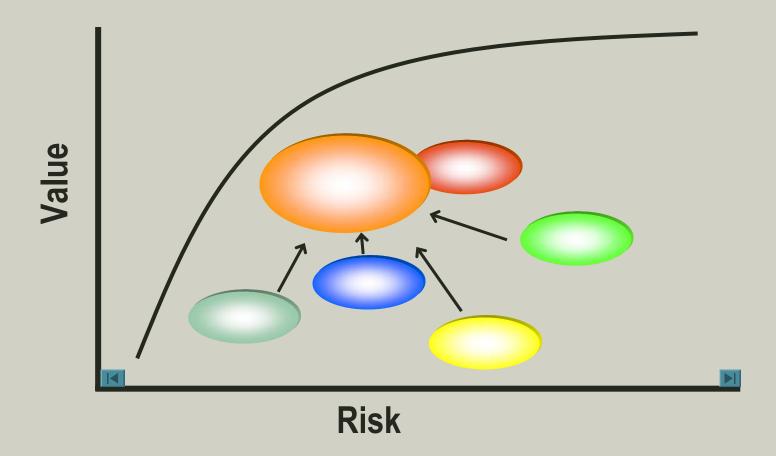


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# Portfolio Potential





# Summary — Portfolio Risk Management

# Look at the whole picture ...

- Pyramid of investment options
- Long-term vs. short-term
- Alternative future scenarios
- Qualitative and quantitative risks
- Uncertainty in key business drivers
- Inter-relationships in the portfolio
- Portfolio risk vs. return

"Return on risk" vs. "Return on capital"



# Conclusion

 Ongoing best practice approach to Portfolio Risk Management

Innovative portfolio analysis tools

Demonstration of portfolio potential



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