



THE UNIVERSITY OF  
WESTERN AUSTRALIA

Business School

**ECONOMICS**

**Report on**  
**MINING AND ENERGY SEMINAR**

**by**

**Kenneth W Clements**  
**Mei Han**  
**Callum Jones**  
**The University of Western Australia**

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[www.business.uwa.edu.au](http://www.business.uwa.edu.au)

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## REPORT

The seminar on Mining and Energy was convened at the University Club, The University of Western Australia on 27 June 2008. The day-long seminar was coordinated by Mei Han of the UWA Business School and chaired by Dr David Butler, also of the UWA Business School. The seminar was mostly attended by academics and students, and financial support for the seminar was generously provided by the UWA Business School. The purpose of the seminar was to present and discuss ongoing research on topics related to mining and energy. It is these sectors that have provided a major stimulus to economic activity in Western Australia, particularly in recent times.

The first session encompassed topics on steelmaking and accounting. Dr Paul Crompton of the UWA Business School presented a joint paper with Professor Tim Coelli of the University of Queensland on “Regional Variation in Global Ironmaking Costs”. Using data provided by BHP Billiton, Crompton and Coelli detail the breakdown in pig iron production costs for 69 plants and compare the components of costs for each plant by location. Subsequently they investigate in depth the contributions to pig iron production costs by estimating cost functions under different assumptions. Interestingly, though in what is perhaps counter-intuitive, they find no evidence for economies of scale in the production of pig iron and conclude:

“The variation in pig iron production costs must therefore be a result of a combination of ... factor prices ... conversion costs or ... plant efficiency.”

Drawing on this conclusion, the presentation investigated the relationships between iron production costs and these three factors and it is found that only conversion costs have a reasonable linear relationship with iron production costs. This formed the basis for their reported finding that “it is primarily conversion costs that account for much of the global variation in pig iron production” costs. A future suggested area of research is to investigate individual plant efficiency and how these affect production costs.

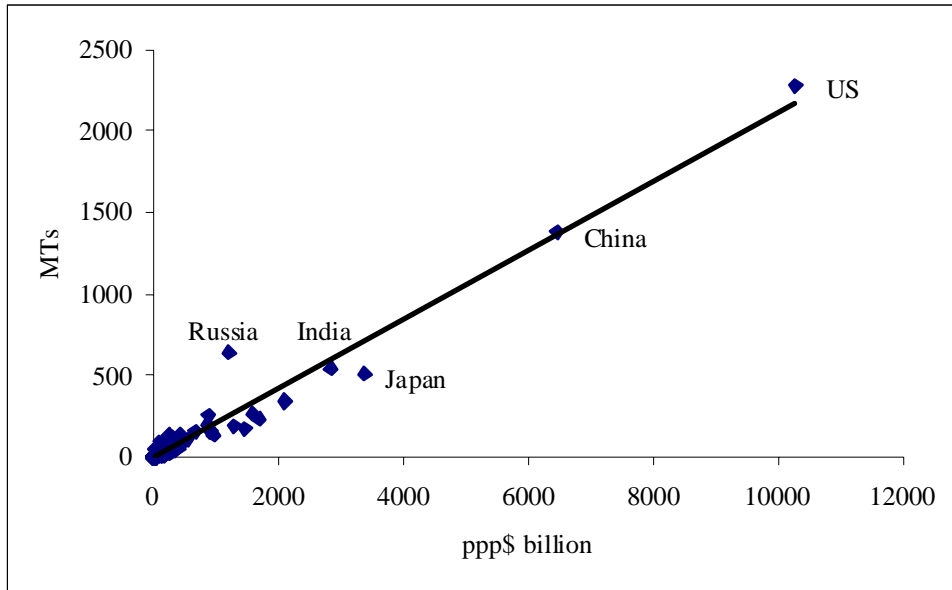
The second presentation of the first session was given by Associate Professor Ann Tarca of the UWA Business School on joint research involving herself and Associate Professor Robert Durand, also of the UWA Business School, titled “An Investigation of the Usefulness of Accounting Data in Extractive Industry Operations”. This topic, part of an international debate, investigates the value to market participants of accounting data generated by firms in the extractive industries. Tarca and Durand test empirically their initial hypotheses that information about extractive industry assets is ‘value relevant’. Using market data and information about extractive industry firms’ (specific) assets,

liabilities, revenue and profit, they find specific tangible extractive industry assets are value relevant while intangible assets are periodically relevant. Hopes were expressed for more data to explore further their findings.

Professor Raymond da Silva Rosa of the UWA Business School presented the first paper of the second session on governance, energy and exchange rates, detailing joint research between himself and Professor Izan, Deputy Dean of the UWA Business School titled “An Analysis of the Impact of Corporate Governance Compliance on Mining IPOs”. In his presentation, da Silva Rosa compared and contrasted tangible and measurable elements of corporate governance requirements for the Australian Stock Exchange to the Toronto Stock Exchange, analysing how these requirements impacted on the performance of the IPO for mining companies as measured by the degree of underpricing for the float. da Silva Rosa and Izan find no association between corporate governance compliance and IPO underpricing or subsequent share performance. This was attributed to the inability to account for the important intangible aspects of corporate governance such as directors’ reputation.

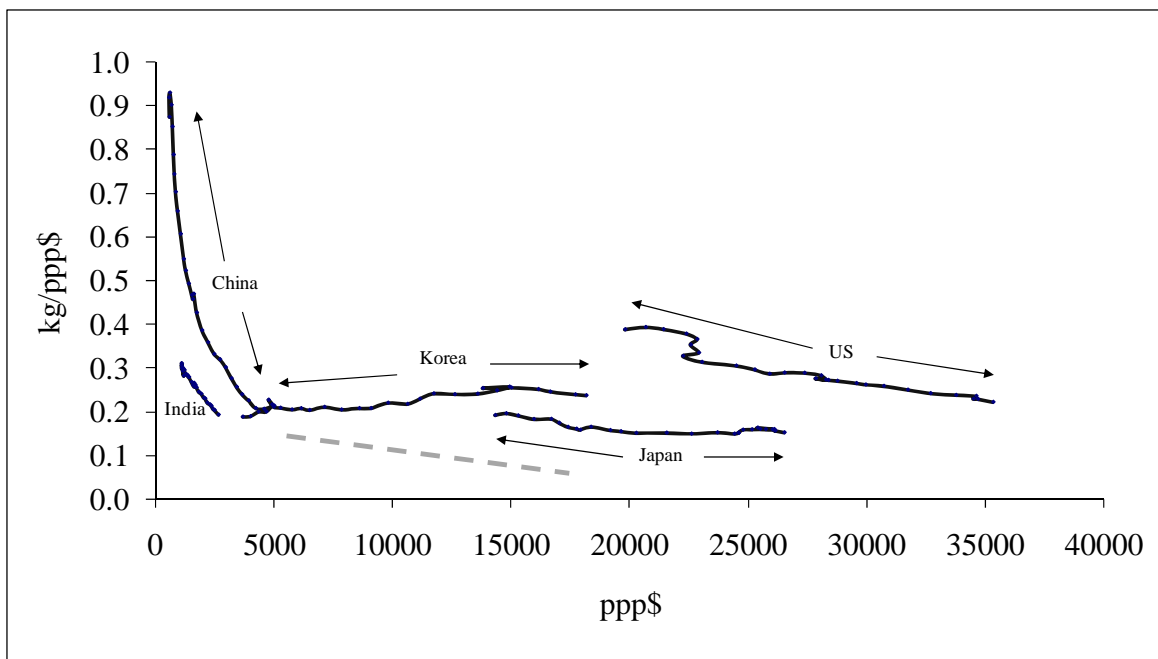
The first paper of the second session was given by Professor Yanrui Wu of the UWA Business School on the “Cross-country Comparisons of Energy and Emissions Intensities: Implications for China and India”. Wu describes how China and India are rapidly emerging as the world’s largest emitters of carbon gasses. Drawing on the experiences of other developed nations, and particularly on the experiences of other Asian economies, Wu hypothesises the future direction of China and India. Figure 1 below replicates a figure from Wu’s presentation illustrating the strong, expected linear relationship between energy consumption and GDP. He uses these statistics and figures to motivate the subsequent discussion on energy and emissions intensities, defined as the amount of energy consumed or CO<sub>2</sub> emitted per unit of GDP. Clearly, lower energy emissions intensities are desirable and indicative of a country’s stage of development.

Figure 1: Energy Consumption and GDP in 2003



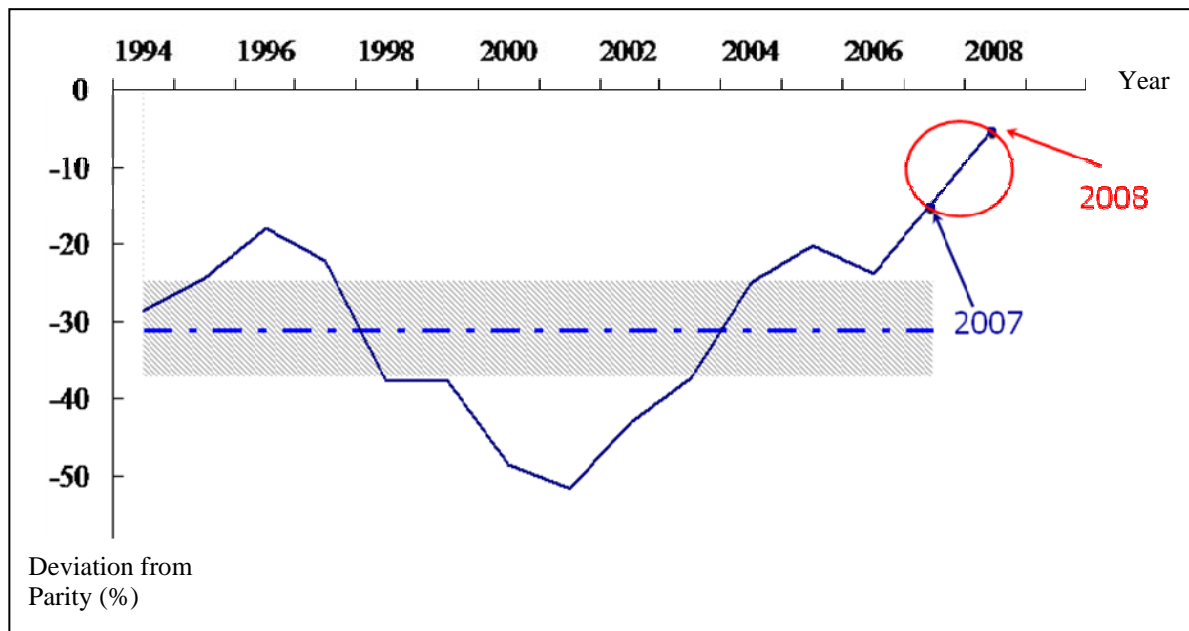
The next figure, Figure 2, displays Wu's comparison and motivated suggestions of China and India 'tunnelling' beneath the Korea and Japan path of energy intensity (along the dashed line). Wu concludes: "If China and India can maintain their practices in the past decades, tunnelling through is highly possible as there is still a long way for the two countries to catch up with their Asian rich neighbours".

Figure 2: Energy Intensity, 1975-2003



The second session, and the seminar, concluded with a presentation by Professor Kenneth W Clements, the BHP Billiton Research Fellow at the UWA Business School on the “The BMI, Exchange Rates and Fundamentals”, part of joint research with Dr Yihui Lan of the UWA Business School. They show the Big Mac Index (BMI), published by The Economist, is a biased predictor of currency movements but when the bias is accounted for, the BMI has reasonable predictive power. Figure 3 below provides an example of the downward bias present in the BMI for Australia since 1994. There is a suggestion, over the past two years, that this bias is vanishing in accordance with the depreciation of the United States dollar.

Figure 3: The Australian Dollar BMI Valuation



## ABSTRACTS

### **Can Production Efficiency Explain Regional Variance in Steelmaking Costs?**

Paul Crompton  
University of Western Australia

Tim Coelli  
University of Queensland

Steel production costs in Asia are around 15 per cent lower than in North America and Western Europe. Asian steelmakers would be expected to have an advantage in terms of both labour costs and raw material costs; however, the ability of producers to efficiently combine capital, labour and raw materials during the production phase is also an important determinant of steelmaking costs. Using a sample of 69 integrated steel plants in 27 countries that produce hot rolled coil, we estimate to what extent production efficiency versus input costs explains regional variation in global steelmaking production costs.

### **An Investigation of the Usefulness of Accounting Data About Extractive Industry Operations**

Robert B Durand  
University of Western Australia

Ann Tarca  
University of Western Australia

This study investigates the relevance of accounting data generated by firms in the extractive industries. We consider the extent to which generally accepted accounting principles (GAAP) accounting data and non-GAAP data has (a) predictive power for future performance and (b) is related to firm market value. Our preliminary study is based on 52 Australian firms over the period 1985-2003. We find that the amount of recognised intangible assets and disclosed capital expenditure commitment are relevant to market participants, while other recognised tangible assets are not. The results suggest that firms' measures of intangible assets (which include purchased mining leases as well as capitalised exploration and development costs) are priced by the market, despite possible managerial discretion in their measurement. Future expenditure commitments, which are not recognised expenditure but rather note disclosures in the financial statements, are also value relevant. The findings are of interest in the current international standard setting initiatives for extractive industry operations, which will address the extent to which firms are permitted to capitalise intangible assets.



## **An Analysis of the Impact of Corporate Governance Compliance on Mining IPOs**

Raymond da Silva Rosa  
University of Western Australia

Izan H Y Izan  
University of Western Australia

We investigate the corporate governance of mining IPOs on the Australian Stock Exchange (ASX) and Toronto Stock Exchange (TSX) from 1997 to 2006. We find that while both markets experienced robust growth, the proportion of IPO companies following “best practice” guidelines does not change after the exchanges formally recognized the practices as “best”. The two exchanges’ decision to recommend ostensible best practices rather than make them mandatory was effective in preserving market flexibility. Further, we do not find an empirical association between compliance with best practice recommendations and either IPO underpricing or subsequent share market performance. However, compliance may be efficient in other ways. For instance, compliance with best practice recommendations may make it easier for block-holders to sell their stake.

### **Cross-country Comparisons of Energy and Emissions Intensities: Implications for China and India**

Yanrui Wu  
University of Western Australia

China and India (Chindia) have attracted a lot of attention due to their impressive economic performance and the sheer size of their economies and potentially their markets. The rise of these two Asian giants has important implications for the rest of the world. One of the areas which have been intensely debated is energy consumption and the associated consequences in China and India. These two countries are emerging not only as key players in the global energy market but also the main emitters in the world due to their large volume of energy consumption. Where do China and India stand internationally in terms of energy and emissions intensity? What can they learn from the experience of other developed economies? How will the increasing concern about, and the potential responses to, global climate change affect energy consumption and hence economic growth in the two countries? These are some of the questions investigated in this paper.

## **The BMI, Exchange Rates and Fundamentals**

Kenneth W Clements

University of Western Australia

Yihui Lan

University of Western Australia

The Big Mac Index, published by The Economist magazine, has attracted much attention over the last two decades. We show that it is a seriously biased predictor of future currency movements. But once this bias is allowed for, the BMI does a reasonably good job in forecasting exchange rates, beating the widely-accepted benchmark -- the random walk model. Additionally, instead of treating the equilibrium exchange rate as a constant as in previous research, we investigate its dependence on economic fundamentals such as incomes and interest rates.

## SPEAKERS

**Kenneth W Clements** has been at UWA for 27 years as Professor of Economics. Educated at The University of Chicago, he is a generalist economist with research expertise in international finance, demand analysis and index numbers. He has previously worked at the Graduate School of Business, The University of Chicago and the Reserve Bank of Australia. Recent research projects include mining and the WA economy, exchange-rate economics, and economic aspects of marijuana. Recent research papers include “Larry Sjaastad, The Last Chicagoan.” (Journal of International Money and Finance, 2005); “Pricing and Packaging: The Case of Marijuana.” (Journal of Business, 2006); “Stochastic Index Numbers: A Review” (with Izan H Y Izan and E A Selvanathan, International Statistical Review, 2006); “Commodity Currencies and Currency Commodities” (with R Fry, Resources Policy, 2008).

**Paul Crompton** has been at UWA for 12 years and is presently a Senior Lecturer in economics. He has a PhD in economics from the University of Western Australia and specialises in mineral and energy economics. He has previously worked at the University of Tasmania and the Australian Bureau of Agricultural and Resource Economics (ABARE). He is currently course controller for the unit Finance and Economics for Mining and Energy 2204 at UWA. Recent research projects include a regional comparison of the efficiency of steelmaking, economies of scale in steelmaking, and energy demand in China. Recent research papers include “Energy Consumption in China: Past Trends and Future Directions” (with Y Wu, Energy Economics, 2005); “Economies of Scale in the Global Ironmaking Industry” (with J B Lesourd, Resources Policy, 2008).

**Robert B Durand** is Associate Professor in Finance in the UWA Business School. His research interests include asset pricing, portfolio theory and behavioural finance. He has published a number of papers on asset pricing in Australia and the integration of the Australian and world markets.

**Izan H Y Izan** is currently Professor and Deputy Dean at the UWA Business School. Her scholarly contributions reflect her broad multidisciplinary background in economics, accounting and finance. Her papers have appeared in several leading journals including the Journal of Business, Journal of Banking and Finance, Pacific-Basin Finance Journal, European Economic Review, International Economic Review, Journal of Econometrics, Journal of Business and Economic Statistics and Journal of International Money and Finance. Her current research projects include ARC funded projects on stochastic index numbers and the role of Board of Directors in mergers and acquisitions.

**Yihui Lan** is currently a Lecturer in the Financial Studies Discipline at the University of Western Australia. Her main research interests are international finance, quantitative finance, and derivative securities. After completing her PhD studies in international economics in 2003 at UWA, Yihui worked with Professor Kenneth W Clements on several ARC research projects, such as stochastic index numbers, exchange rates and commodity prices, international consumption patterns, modelling marijuana consumption, and applied demand analysis. Her current research interests focus on in value-at-risk modelling, futures hedge ratios, and the application of wavelet analysis to economics and finance.

**Raymond da Silva Rosa** is Director of the WA Centre for Capital Markets Research at UWA Business School. Corporate governance, mergers and acquisitions (M&As), and managed funds are the principal foci of the Centre's research activities. The Centre has attracted industry funding to investigate, inter alia, directors' remuneration in ASX companies and retail investors' choice of managed funds. Members associated with the Centre have also won Australian Research Council funding, awarded on a competitive basis, to investigate the role of directors in M&As. In addition to the publications stemming from his research, Raymond has developed courses in M&A and behavioral finance. He has taught at the University of Sydney, Melbourne Business School, and at the Stern School of Business, New York University. Raymond is co-author of the 2007 Australian edition of the US best-selling textbook Investments by Bodie, Ariff, Da Silva Rosa, Kane and Marcus. A report on behavioral finance, "Behavioral Finance: A Primer for Investment Advisers", originally commissioned by industry, is scheduled for commercial publication in late 2008.

**Ann Tarca** is Associate Professor in Accounting in the UWA Business School. She has published papers in Australian and international journals about the adoption of international accounting standards and the regulation of financial reporting, particularly the harmonisation and enforcement of reporting requirements at an international level. She is currently working on projects relating to financial disclosure in management commentary reports and about adoption of international accounting standards.

**Yanrui Wu** is currently Professorial Fellow in Economics at the UWA Business School. He previously held positions at The University of Otago, Murdoch University and The University of Adelaide. He specialises in the economies of China and other Asian countries, and has published extensively in these areas. His interest in the mining sector includes efficiency analysis, consumption and trade, and his research covers coal, LNG, iron ore, steel and other metals. Recent papers include “The Chinese Steel Industry: Recent Developments and Prospects” (Resources Policy, 2000) and “Determinants of China's Energy Imports: An Empirical Analysis” (with X. Zhao, Energy Policy, 2007).

#### **SEMINAR CHAIRMAN**

**David Butler** has both a BA and an MSc from the University of York, UK, and a PhD from UWA. His research interests focus on the application of experimental methods to the economic theory of individual choice and to game theory. In particular he studies competing explanations for systematic violations of expected utility theory and other choice theories, as well as the role of cognitive limitations and ‘exotic’ motivations such as reciprocity in behavioural game theory. Dr Butler has published in a number of international journals including most recently in the *American Economic Review*. Before moving to Perth he also worked for Commodities Research Unit in London. He also spent 2002-2004 as Visiting Assistant Professor in the Department of Economics at the University of Arizona.

## ATTENDEES

Name	Institution
1. Harry Bloch	Curtin University
2. Richard Borozdin	WA Dept of Industry and Resources
3. David Butler	UWA Business School
4. Mei Chen	UWA Business School
5. Virginia Christie	Reserve Bank of Australia
6. Tsun Se Cheong	UWA Business School
7. Kenneth W Clements	UWA Business School (Speaker)
8. Paul Crompton	UWA Business School (Speaker)
9. Robert B Durand	UWA Business School
10. Megan Garner	UWA Business School
11. Grace Gao	UWA Business School
12. John Gould	UWA Business School
13. Pietro Guj	UWA Centre for Exploration Targeting
14. Xiumei Guo	Murdoch University
15. Mei Han	UWA Business School (Coordinator)
16. Phil Hancock	UWA Business School
17. Izan Izan	UWA Business School (Speaker)
18. Callum Jones	UWA Business School
19. Stephanie Kan	UWA Business School
20. Jasmine Kaur	WA Department of Treasury and Finance
21. Hwee Ping Koh	UWA Business School
22. Yihui Lan	UWA Business School
23. Bob Li	Monash University
24. Ian Li	UWA Business School
25. Shoufu Lin	Curtin University
26. Yuan Lu	ANU
27. Dianne Massoudi	UWA Business School
28. Scott Molloy	UWA Business School
29. Weiwei Ren	UWA School of Mathematics
30. Raymond da Silva Rosa	UWA Business School (Speaker)
31. Adham Al Said	UWA Business School
32. Mobin Salasi	UWA Business School
33. Jiawei Si	UWA Business School
34. Abu Siddique	UWA Business School
35. Jin (Debbie) Sun	UWA Business School
36. Jill Sweeny	UWA Business School
37. John Taplin	UWA Business School
38. Ann Tarca	UWA Business School (Speaker)
39. Duc Vo	UWA Business School
40. Jiuchang Wei	Curtin University
41. Yanrui Wu	UWA Business School (Speaker)
42. Simon Zheng	WA Department of Treasury and Finance
43. Kaylene Zaretsky	UWA Business School