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Asia Pacific Strateev Pty. Ltd. ACN 00X 632 273

9th September 1997

Australian Black Coal Industry Inquiry Locked Bag 2, Collins Street East Post Office, Melbourne, 8003.

Dear Sir/Madam,

You have invited submissions from educational and research institutions on the above inquiry topic. I am responding in my current role as an econometric research consultant for Asia Pacific Strategy Pty. Ltd., and as Lecturer-Strategic Management at the Graduate School of Management, Griffith University. Professional experience in strategic planning lasting some twenty years in the international energy industry is also relevant, as it included service as Vice-President Planning and Control for Anaconda Australia (now Arco Australia Coal) from 1983 to 1987. Responsibilities encompassed close association and oversight of the Curragh, Blair Athol, Mt Thorley, and Gordonstone projects.

Given the recommendations of the Taylor Report regarding a continued need to monitor coal price formation processes in Asian markets, it is pleasing to see that the issues paper (p.6 item 2.1) acknowledges the need to understand coal market characteristics, particularly in our region. This is an area of personal research interest. Attached for your consideration in gaining an appreciation of how international coal markets currently operate is a recent article entitled "The influence of *sogo .shosha* mine equity participation on contract bargaining in the Pacific metallurgical coal trade", which is presently under referee review for publication with Resources Policy.

The Commission's econometric researchers may also have an interest in an as yet unpublished hedonic analysis of the 1995 thermal coal settlement with Chubu Electric which follows. This contract settlement establishes term prices for all major brands of thermal coal sold to the Japanese power utility industry, and greatly influences thermal coal markets throughout the Pacific region.

Where: CIF, the dependent variable is the landed value in $US/tonne for each brand.
NAR is the net as received calorific value
FR is the fuel ratio.
C 1 and C2 are intercept shift dummy variables suggested by structural testing.

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The regression result is robust considering that data include coal brands from Australia, Indonesia, South Africa, China, Russia and North America. However those Japanese domestic thermal coals having cif values some $ 150 per tonne in excess of foreign brands are not considered in the analysis. Coefficients of independent variables are significant at 1%, and no significant multicollinearity exists. A coefficient of determination (A-square) for the model of 0.8547 indicates satisfactory explanatory power. As has been the case with previous cross sectional modelling of Japanese coking coal settlements, intercept shift dummy variables (C I and C2) suggested by structural testing are highly significant. Modelling of the 1995 settlement with dummy variables alone yields an it-square value of 0.7, suggesting that market segmentation is the main explanatory factor in establishing CIF value in this market. As could be anticipated, as received net calorific value (NAR) and fuel ratio (FR) are quality parameters of statistical significance for the model specified in this way. Interestingly, without introduction of dummy variables suggested by structural testing, the regression relationship ceases to be significant at the 5% level.

This result, with similar modelling results for the settlement for 1992, suggests that market segmentation arising from cartel purchasing practices of the utility companies is the main explanatory factor for CIF value determination in the Japanese thermal coal market. This is a significant departure from ideal market behaviour and one that most Australian exporters seem reluctant to acknowledge. Findings suggest that market power resulting from oligopsony buying policies exercised by Japanese interests have the potential to capture producer surplus otherwise enjoyed by Australian firms in this market, as well as for the coking coal market.

A notable example of this phenomenon followed the granting of export levy relief of $A3.50 per tonne for BHP's premium quality coking coal mines operating in Queensland in late 1992. In the 1993 contract settlement, Australian exporters accepted a price reduction of $A2.95 per tonne for premium brands, suggesting that the JSM captured some 84% of the export levy relief which was also BHP's cost reduction. No increase in market share ensued and Australian premium coking coals were already lower by some $A 5.80 per tonne in CIF cost than comparable North American brands on a quality adjusted basis (Koerner (1996 p.6)). Announcements by the Queensland Government that the profit component of rail freights are to be reduced in future under a new rail freight agreement with BHP must be viewed with some alarm given this experience with the granting of export levy relief.

The findings of econometric modelling of Japanese steel mill (JSM) settlements described in Koerner (1993 and 1996), and in the attached article p.4, differ from results described by other researchers. It seems worth exploring the reasons for such differences. Porter et al.(1990) pooled brand quality data from Canada, US' South Africa, Australia and China for the years 1985, 1986, 1987 and 1988 to investigate the effects of coal quality on settlement price in the Japanese market. Their findings differ

greatly from those described in Koerner (1993 p.75) for cross sectional modelling of the 1988 JSM settlement. The reason seems due primarily to differences in the independent quality variable specification used in the two studies. Porter et al introduced lump size and CSN as two key independent variables in their regression analysis.

I am unaware of any technical reasoning which suggests that coal lump size is a quality characteristic likely to influence the value of a particular brand to coke makers in the case of the JSM, some thirty different brands are crushed to uniform size and mixed together in blends which are then charged to the coke battery at the various integrated plants Regression findings in the Porter study that contract price is positively related to lump size and that lump size is a significant explanatory factor are questionable Problems also exist with the use of CSN as the appropriate measurement parameter for a coking coal brand's plasticity qualities This unrestrained button test is the crudest possible measure of caking property whose only redeeming feature it that is a widely quoted. A far better measure is log Geiseler plasticity, which is known to be the caking related quality parameter used in JSM evaluations (Miyazu et al (1980)). The Porter regression analysis pools 13 semi-coking brands with the premium coal brands considered in the study, without demonstrating by structural tests that such pooling is justified Finally, some 11 soft premium coal brands are included without also considering the Japanese domestic soft coals which made up a substantial portion of JSM coal purchases during the time frame considered. In

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Asia Pacific Strategy Pty. Ltd. ACN 008 632 273 my view these specification related issues cast doubt on the validity of findings of this ABARE study (Project 5132.101) which was later cited byBowen (1993 p.41), and in the Taylor Report (1994 p.89).

Another hedonic study of JSM coking coal settlements by ABARE investigators (Project 40.008) is reported in an article by Low et al (1993). This analysis again considers CSN as an independent variable, but also includes Geiseler fluidity. Inclusion of two caking related quality parameters as independent variables raises the possibility of excessive multicollinearity affecting the regression results. Also, as was the case for Porter's work, these authors pool both premium and semi-coking brands in their analysis. Such an assumption should first be validated by structural testing. Chow testing of those 1994 settlement data given in Koerner (1996 p.19-20) suggests that semi-coking coal brands are structurally different from premium brands. Finally, this regression analysis considers fob price as dependent variable without the inclusion of a freight related independent variable. This is a serious shortcoming, as it assumes coal buyers are indifferent to final delivered costs in price bargaining, and/or that ocean

freight costs are negligible in the international coal trade. Either assumption ignores the seminal work of Smith (1977) who examined the influence of differing ocean freight cost on contract bargaining in the resource goods trade.

The Government is attempting to remove coal export controls and has ceased scrutinising contract settlements for both coking and thermal coal sales to Asia despite the recommendation of the Taylor Report. My research suggests that the behaviour of regional coal markets is strongly influenced by cultural facets of Japanese business practice not acknowledged by Australian exporters, which act to the detriment of the national interest. Hopefully during this inquiry the disparate findings between independent researchers attempting econometric modelling of this most important market for Australia's coal exporters can be satisfactorily resolved. I would be pleased to contribute in re-examining these analyses, or in performing further studies, and look forward to receiving information on the progress of the inquiry.

Yours sincerely,

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The influence of *sogo shosha* mine equity participation on contract bargaining in the Pacific metallurgical coal trade.

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ABSTRACT

The role of trading companies has been held by many economists to be that of reducing transaction costs between buyers and sellers. This article examines the influence that Japanese general trading companies, known in Japan *as "sogo shosha"*, have on contract bargaining outcomes between buyers and sellers in the trade between the coal exporters of Australia, and Japan, the world's largest importer of metallurgical coal.

Propositions that *sogo shosha* companies have played a differential role, influenced by factors peculiar to Japanese business culture, are examined in light of econometric modelling findings suggesting distortion in Pacific metallurgical coal markets. The veracity of these propositions is also tested by a survey of management opinion amongst coal exporters from Australia and Canada. Implications with respect to

foreign ownership policies and countervailing contract bargaining strategies by Australian exporting interests are then explored.

Key words: Contract bargaining; metallurgical coal; Pacific.

Mineral pricing outcomes are influenced by long run production costs, the costs of the highest marginal cost supplier, and the short term supply-demand balance in world trade. In order to maintain market share during periods of excess supply capacity, prices may be accepted by mine operators which are below long run production costs so long as these prices remain above the short run marginal costs. This has been the situation in Australia's coal export industry for some considerable time. As a result a recent investment analysis (McIntosh-Baring,1993) describes the Australian coal export industry as a *"profitless growth phenomenon"*. In order to determine possible reasons for this state of affairs in one of Australia's largest export industries, in which *sogo shosha (ss)* companies have played a significant role, the following three propositions will be investigated:

1. Concerns regarding supply security, and a desire to retain market power over foreign suppliers in
contract bargaining, have resulted in the operation of an effective buying cartel by the five major
Japanese steel companies, for whom *ss* companies act as purchasing agents.
2. Equity participation by *ss* firms in Australian producing mines has not been motivated by the
return on investment considerations which are the norm for private sector firms in Anglo-Saxon
economies.
3. Detailed knowledge of mine productivity and marginal operating costs gained by *ss* equity partner
through operating joint ventures, has caused knowledge asymmetry in contract bargaining between
Australian producers, and the Japanese steel mill (JSM) buyer cartel described by Anderson,1987.
This has been a contributing factor in creating distortions in Asia-Pacific metallurgical coal
markets.

Coal is a low value added commodity having substantial transportation costs. Consequently the location of the mine relative to the consumer facility plays an important role in the determination of potential trade participants and in establishing market price. Recent evolution of world metallurgical coal markets provides a historic background highlighting the importance of the geographic location of producers and consumers in establishing patterns of trade.

World patterns of metallurgical coal trade

Some 80% of world demand for metallurgical coal comes from the coke requirements for blast furnace production of pig iron by integrated steel manufacturers. Since the late 1950's, a redistribution of the geographic patterns of steel manufacture has occurred. There was slowing of production growth in Europe and North America, and high rates of growth in the emerging economies of Asia such as Japan, South Korea and Taiwan. Japan's rapid rise as a world steel producer took place from the early 1960s to 1974. Blast furnace production of pig iron by the five fully integrated Japanese steel mills (JSM) rose from only 12 million tonnes (Mt) in 1960 to peak at a level of 90.9 Mt in 1973. Since 1980, JSM production has fluctuated between the levels of 81 Mt in 1984 and 72.7 Mt in 1986 with business cycle related changes in the demand for crude steel. Continued expansion of blast furnace production by POSCO in South Korea and China Steel in Taiwan has, since the early eighties, compensated for declining Japanese production and resulted in the Asia-Pacific market now accounting for 56% of the world's trade for coking coals.

In 1994, the three major exporters of coking coal were Australia, Canada, and the USA (International Energy Agency, 1995). Collectively, these nations contributed 139.6 million tonnes of coal exports to a world trade totalling 168.6 million tonnes. The patterns of trade occur primarily as Asia-Pacific regional trade (94.2 million tonnes), and European-Mediterranean regional trade (56.5 million tonnes). Because coal is a low value added commodity, and transportation is a major component of delivered cost to the end users, Australian and Canadian producers located close to Pacific export terminals dominate Asian-Pacific trade. US producers from the Appalachian coal region dominate the European Mediterranean trade. Due to the significance of freight costs, bilateral monopoly situations arise (Smith,1977), and relative location has a significant influence in price and contract bargaining outcomes between exporters and importers within these two major regional markets.

The emergence of internationally traded coal markets over the last several decades is well documented (Ellerman,1995 and Koerner,1992). This article will extend previous work investigating price formation in Asia-Pacific coking coal markets (Koerner,1993 and 1996) to examine more fully the role that *ss* firms have played in influencing contract bargaining outcomes in the Japanese market.

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Price and quality/value relationships

The general price levels for traded coking coal price at any time are related to the long run economics of production for the three major world suppliers. However pricing outcomes are not only influenced by long run production costs. For the large scale and capital intensive mining operations of coal exporters from Australia and Canada, the short term supply-demand balance in the export trade can also significantly influence price. Substantial barriers to exit exist for such operators, as the resale value of capital intensive mining facilities and equipment is low. This may result in producers accepting price regimes which yield less than adequate returns to capital in the hope of

future price improvements. The historic landed (cif) values for coking coals imported by the JSM over three decades from 1964 to 1994 are indicated in Figure 1.

Source: Coal Manuals (Horie,H (ed.), 1974 to 1996).

| + Australian | | _~Awrage Imported|

In Figure 1, coals from Australia, Canada, and the US represent more than 80% by volume of coking coal imported by the JSM during the period. Landed values have been inflation adjusted, using annual changes in the US GDP deflator, and are expressed in constant 1987 US dollars per tonne. Results show that a substantial fluctuation has occurred in real terms, and that Australian sourced coals have cif values below the average for all imported coals throughout the period. Previous econometric modelling studies (Koerner,1993 and 1996), which considered the quality characteristics of individual brands of coal important for coke manufacture, suggest that quality is of minor significance in explaining landed value variations. Results suggest rather that the exercise of buyer power by the JSM, acting as a purchasing cartel in bilateral bargaining with individual producers, has created market segments unrelated to quality differences between coking coal suppliers.

Throughout the period from 1964 to 1991, Japanese domestic coking coals also maintained higher real cif costs for the JSM than the average for imports (Koerner, 1993, p 69). The magnitude of this differential widened over the years to reach an impressive $112 (constant 1987 US dollars) per tonne in 1991 (Horde, 1993). Mining subsidiaries of Mitsui, Sumitomo, and Mitsubishi, three of the principal *ss* group companies, were operators of the largest Japanese domestic coking coal mines, and beneficiaries of higher domestic prices which accounted for the large acquisition cost differences.

Contract settlements of 1987 were particularly damaging as far as Australian producers were concerned. A buyer's market existed at that time, as a consequence of excess coking coal production capacity world wide, and low coke demands from integrated steel makers within OECD countries. The resulting struggle to maintain market share in Japan saw substantial price cuts taken for all premium coking coal brands. Also, an emerging sales category called "weaker" or "semi-soft" coking coal, became

significant. Coals of this type were supposedly of lower quality to be used for pulverised coal injection rather than coke manufacture. Several Australian producers took up the opportunity to sell higher ash but otherwise prime quality coals into this buyer created market segment in order to retain or gain volumetric market share. In retrospect, these actions can be seen to be examples of the destructive competition to be expected in the situation where divided sellers, struggling to retain or gain market share, contract bargain with a disciplined buying cartel such as the JSM. Now about

one third of coals by volume, used in JSM coke blends, are sold as weaker or semi-soft coking coal. Half of Australia's exports in 1994 fell within this category.

Hedonic modelling (Rosen,1974) of the 1994 settlement can be employed to determine whether the price differentials between premium brands, and the weaker coking coal brands which have substituted for premium coals, are justified on the basis of actual quality differences important in coke manufacture.

Hedonic modelling of the 1994 price settlement

Price and quality data for Australian, Canadian and US coking coals involved in the 1994 settlement encompasses 43 premium hard and soft coals, and 15 weaker brands (Koerner,1996 pl9-20). The availability of such comprehensive data enable hedonic modelling of the JSM's valuations for a large number of coking coal brands having a significant range of variation in quality from the three major world suppliers. Previous studies (Miyazu et al.,l980 and Koerner,1993) indicate that a rank related characteristic, log Geiseler plasticity, and ash and sulfur content are the coal quality parameters technically important for coke making. Percentage volatile matter is a readily available surrogate characteristic that is rank related. Hedonic econometric modelling is an accepted methodology for examining the significance of such quality parameters, on the landed value of individual brands of coking coal, using conventional regression analysis techniques.

Chow testing (Chow, 1960) suggests that the cif values of the Australian weaker brands are structurally different from those of premium brands from Australia, Canada and the US, due to differences in the intercept value between econometric models for weaker and for premium brands. This would be expected were the crucible swelling number (CSN) values for all weaker coals to be 4 or less. However, CSN values above 4 are indicative of premium coking coals, and nine of the fifteen weaker brands are above this threshold level. Chow tests at the 10% level of significance also suggest that the 22 Australian premium brands listed can be pooled with 7 lower priced Canadian brands, and that three high priced Canadian brands, Quintette, Bullmoose and Gregg River, should be considered separately. "F' testing suggests that the structural differences suggested by Chow tests of premium coal brands from different country sources are again due to intercept shift. The resulting regression model for the cif value "CIF" for each individual brand, calculated on a moisture free basis, is then as follows:

CIF = 56.96 - 0.128 VM + 0.007 A - 0.642 S + 0.363 FY + 15.172 C1 + 6.452 C2 - 7.482 C3
(-2.347)* (0.027) (-0.433) (2.730)* (11.642)* (8.218)* (-10.339)*

* 't" values for Ho significant at 10%

where:VM is % volatile matter (air dried) - a measure of available carbon and rank.

A is % ash (air dried).

S is % sulfur (air dried).

FY is log Geiseler plasticity (ddpm).

Cl, an intercept dummy variable, is one for Quintette, Bullmoose, and Gregg River, and zero for all other coal brands. C2, a second intercept dummy variable, is zero for all Australian and seven Canadian coal brands, and one for the US and other Canadian brands. C3, the third intercept dummy variable, is zero for all premium coals, and one for weaker Australian brands.

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This is a particularly robust modelling result having a coefficient of determination of .9550. The "F" value of the model is F`7 57> = 151.717, and the results are consistent with the previous cross sectional studies (Koerner,1993 and 1996). The coefficient of the dummy variable C2, of $6.45 per tonne, provides a measure of the magnitude of surplus lost by the Australian and lower tier Canadian premium quality producers in their bilateral negotiations with the JSM vis-a-vis the acquisition costs of US brands. The coefficient for Cl of $15.17 represents an addition premium, unrelated to quality, paid for three very high priced Canadian premium brands. The coefficient of -$7.48 for C3, which is associated with the weaker Australian brands, represents a further price discount unrelated to quality characteristics won by the JSM in contract negotiations as a result of successfully establishing this market segment in 1987. It is of interest to note how little those quality factors considered important for technical reasons actually influenced relative landed value in this settlement. The regression coefficients for ash and sulfur content, the two quality characteristics most subject to pricing penalty in individual brand negotiations, are not of statistical significance for the model as a whole. Inclusion of the rank (VM) and fluidity (FY) quality characteristics, although having statistically significant regression coefficients, adds little in terms of the model's explanatory power. A coefficient of determination of 0.9449 is obtained when the 1994 settlement is analysed using only the three intercept dummy variables suggested by structural testing. This result, together with the findings of previous cross sectional modelling (Koerner,1993 and 1996), suggests that it is superior bargaining strategy rather than inferior coal quality which explains the persistently lower cif values for Australian coking coals shown in Figure 1. Such findings then allow an estimate to be calculated for the producer surplus lost by Australian exporters, due to cartel buying practices employed in the Japanese market, over the thirty year duration of the study. Summing the differentials between Australia's cif value and the average for each year, times Australia's export volume in that year, provides such an estimate. Calculated in this fashion, the producer surplus diversion is $5.8 billion in 1987 constant US dollars, or approximately $10 billion in current Australian dollar terms.

Figure 2 provides an overview of the changes of market share for major foreign and domestic suppliers of metallurgical coals to JSM companies. Data include the

emergence of the weaker coking coal category which now amounts to about one third of all imported coals, and over half of the coking coal imports from Australia.

These volumetric market share trends are of particular interest when considered in conjunction with the acquisition cost comparisons of Figure 1. From 1970 until 1978 the displacement of the US as a high cost supplier, by both Australia and Canada as lower cost suppliers, is consistent with ideal market behaviour. After 1978, patterns of imports do not correspond with ideal competitive market behaviour were the JSM acting as an input cost minimising industry. US imports rose above 10 million tonnes annually from 1979 to 1984 despite the availability of much lower cost Australian coals. Since 1983, Canadian imports have generally risen while both US and Australian imports have declined. These

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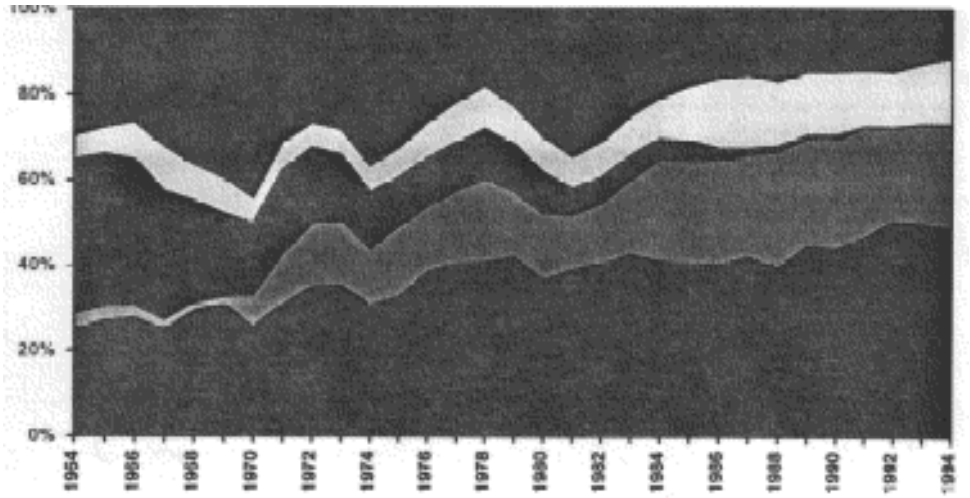

patterns evolved despite the fact that Australia has been the lowest cost supplier throughout the period and, due to the effect of three very high priced coals (Quintette, Bullmoose and Gregg River), Canada has now displaced the US as the highest average cost supplier. Considering that econometric analyses suggest that quality differences are minor contributing factors in explaining landed value differences, such behaviour is not in accord with that expected in a competitive market. An implication which could be drawn from examining these import trends is that, for supply security or other reasons, the JSM have a policy of limiting Australia's market share at about a 50% level irrespective of the value of Australian sourced coals.

Longitudinal econometric modelling of relative market share against acquisition costs for US, Australian, and Canadian hard coking coals from 1978 to 1994 (Koerner,1996, pl 1) confirms that statistically meaningful regression relationships do not exist. This suggests that diversity of supply source is valued more highly by the JSM than the profit interests of individual firms. As a consequence, normal competitive business strategies such as price reduction based on lowering costs, or product differentiation based on quality enhancement (Porter,1980), do not increase Australia's overall market share. Such actions, although perhaps being rewarded by an increased market share for

the individual practitioner, will further divert Australian producer surplus to the buyer cartel in this market situation.

It must be conceded that the conditions necessary for ideal market behaviour rarely exist in the steel commodity trade. Barriers to exit are high both for resource producers and steel manufacturers. Transportation costs are significant relative to production costs for both coal and iron ore, which inevitably creates the situation of bilateral monopoly bargaining over the distribution of locational rents between the buyers and sellers. However, in such circumstances might *ss* equity participation in producing mines further distort the bargaining outcome in markets which already exhibit a significant departure from the ideal competitive paradigm?

Role of *sogo shosha* forms in price bargaining

Direct equity participation in Australian coking coal export mines by *ss* firms began in 1961 with 25% ownership of the Moura mine by Mitsui. This was followed by Mitsubishi taking 15% equity in five large open cut mines, developed initially by Utah International from the late sixties to mid seventies, which were acquired by Broken Hill Proprietary Limited (BHP) in 1984. Mitsui has also taken 10% and 15% equity positions in the Curragh and Gordonstone projects managed by ARCO Coal Australia. Sumitomo has a major interest in the North Goonyella mine operated by White Mining. Equity interests of *ss* firms (mainly Mitsubishi and Mitsui) in Queensland's coking coal operations amounted to 12.4% of export production volume in 1994.

A similar pattern of development commenced in western Canada with the expansion of the Balmer mine to a large scale open pit operation in 1970. Mitsubishi had a direct equity position in that project. Mitsui and the JSM companies have direct equity interests in the Gregg River mine. Nissho Iwo has an equity interest in Bullmoose, and Tokyo Boeki, Sumitomo and the JSM companies hold substantial interests in the Quintette mine. Apart from Balmer (now renamed Elkview), and for contractual reasons, these mines obtain prices in Japan which are well beyond the levels obtained for other imported coking coals when quality differences are taken into account.

Consistent interpretations of the role of *ss* firms in the Pacific coking coal trade are taken by Parker,1992 and Roehl,1983. Parker and Roehl explain this role in terms of the transaction cost efficiency theories of Williamson,1979, which are conventionally used to explain why traders participate in competitive markets. The essential part that *ss* play, according to Parker, is that of efficiently coordinating the supply of large number of different brands of coking coal used in coke blends employed by the JSM.

From technical considerations relating to coke quality and logistics economics, the optimum number of different coking coals used in the steel maker's coke blend would be around ten. This happens to be the approximate number used by European coke oven operators. However Japanese coke makers regularly use thirty or so different brands in the blend. As Parker observes, the cost of contracting and the supply arrangement for so many different coals from different locations involves substantial transaction costs.

With their world presence and efficient intelligence operations, *ss* firms appear ideally suited to perform this particular function.

However, why is the number of different coals used for blending by JSM operators so much greater than technical requirements would normally suggest? A possible reason relates to the use of purchasing strategies which are designed to maximise bargaining power of Japanese end users, as well as assuring security of supply. Clearly, having multiple supply sources weakens the power of any individual supplier in contract negotiations. The division of bargaining power is exacerbated further in the JSM's favour when the coal supplies come from different country sources. Indeed, gains in bargaining power may more than offset the increased transaction costs and logistical complexity associated with dealing with so many different brands. Dowling, 1987 p 38, supports this interpretation. He also contends that *ss* companies act as gatekeepers with respect to bilateral communications to further increase the market power of Japanese interests in contract bargaining.

As the world's largest buyer, it is in the interests of the JSM to maintain an excess of supply over demand in Pacific coking coal markets. Low marginal operating costs and high barriers to exit place downward pricing pressure on producers striving to retain market share when the market as a whole is in over-supply. Returns to capital in mining operations will be inadequate in such an environment. In the current era of large capital intensive coal mines, this outcome can be achieved without significant financial penalty only by minimising direct investment in production facilities. As the word's largest buyer cartel, it is in the JSM's interest to ensure an environment of excess productive capacity with a minimum of direct investment. Might ss firms serve in the role of a JSM agent by ensuring an excess of coking coal production capacity in the Asia-Pacific? Evidence of market distortion in econometric modelling studies, and the history of export mine developments in Australia and Canada from the late sixties to the present, suggests that possibility. To determine industry opinion regarding this proposition, a survey was conducted to canvass the views of export coking coal mining company managers and other stakeholders in Australia and Canada.

Survey of management opinion

Interviews were held with senior managers from all Canadian, and eleven of the largest of the Australian exporters of coking coal from June to September 1994. One Australian company declined to be interviewed, and it was not possible to arrange a satisfactory schedule with the appropriate manager for another. With these two exceptions, all the organisations which were approached participated in the survey. In addition, interviews were conducted with representatives from the departments of energy of Alberta and British Columbia, and a small number of industry associations and consultants within the Canadian coal industry.

Although the agenda for discussion was unstructured for the most part, representatives from all twenty six organisations taking part were asked to respond to a set survey questionnaire (see appendix "A") tabled at the meetings. A total of twenty two indicated the opinion that the role of ss companies could best be described as that of purchasing agents for Japanese end users. Two respondents were of the view that *ss* act as market information coordinators. The remainder, including one Australian subsidiary of an ss firm, considered the appropriate description to be that of mine investors. Chi-square testing suggests these results are highly significant with a value of 68.23 which is significant at the 1% level of significance.

Importance ranking of items considered important for ss mine managers, compared with Anglo-Saxon mine managers, is consistent with this majority opinion. Acting primarily as purchasing agents, one might expect *ss* managers involved with Australian or Canadian mines to place a greater priority on lowering price to their JSM clients than achieving adequate returns on these foreign mine investments. This was confirmed by the survey participants, who ranked customer relations as the most important priority of *ss* managers, whereas return on mine investment was ranked the most important priority for Australian and Canadian managers. However, how were *ss* investors in such projects compensated by the JSM for the less than adequate returns to capital suffered as a result of lower coal prices?

Initially it could have been through discrimination between domestic and imported coal prices. Much higher prices were paid for the Japanese domestic coking coals produced by *ss* mining subsidiaries than

quality differences could warrant. Costs of Japanese coals purchased by the JSM were significantly higher than those imported from Australia (Koerner,1993, p69) for that reason.

Another method of compensation for inadequate returns to capital was the maintenance of flat sales commissions paid to *ss* companies in Yen terms despite declining landed coal costs in US dollars since 1982. A flat commission of 130 Yen per tonne is paid by the JSM for all coals imported from the foreign mines that *ss* firms represent, irrespective of the fob coal price. In 1982 this commission as a percentage of cif cost for Australian coking coals was 0.8%. In 1994 the commission amounted to 2.7% the average cif cost for Australian coals. Cost reduction pressures due to competition from POSCO of South Korea and China Steel of Taiwan, and the attraction of such high commissions, has lead to some of the JSM companies forming vertically integrated trading company subsidiaries which now compete directly with *ss* firms in handling their steel input commodity imports.

Considering the modest equity positions taken by most ss firms in Australian mines, and the value placed on mutual understanding in *keiretsu* relationships (Lawrence,1993), the methods of compensation described above are more than adequate to offset poor returns to capital. It is obvious that ss minority investment in

foreign mines could benefit the Japanese steel industry as a whole if such investment created or exacerbated an over supply situation in Asia-Pacific coal markets. It is even possible that minority investments which result in several large projects coming on stream together could influence supply demand equilibrium and thereby achieve a leveraged financial outcome. However, there is another and more damaging outcome for Australian producers resulting from the minority equity position of *ss* participants. This relates to the situation of knowledge asymmetry in annual contract negotiations which is exacerbated.

Knowledge asymmetry in price bargaining

In an ideal competitive market all traders are assumed equally well informed. This does not imply perfect knowledge, but does assume that buyers and sellers are equally well enough informed so that neither would wish to alter contractual terms. If a situation occurs where buyers, acting as a caner, have inside knowledge regarding a seller's production costs, knowledge asymmetry in price bargaining may ensue. If also divided sellers have no understanding of the buyer group's valuation of quality charaeteristics, or policies with respect to supply dependency, considerable market power may accrue in favour of the buyer cartel

The minority equity position of *ss* firms in most large coking coal mines has afforded them detailed knowledge regarding operating costs and returns to capital within Australia's coking coal industry. In their role as purchasing agents, *ss* firms make this knowledge available to the negotiating team which bargains with Australian producers on behalf of the JSM (McIntosh Baring, 1993, p45). This has been the situation over the last thirty years which, together with divided Australian exporters price bargaining with a disciplined cartel, has contributed to the outcome so evident in the price trends shown in Figure 1.

Knowledge asymmetry in bargaining was also a major contributing factor in the creation of an additional market segment by introduction of the weaker coal category in 1986. Quality specifications for the weaker brands listed in Appendix "A", such as Moura "K", ULV and HLV, were negotiated with Mitsubishi's and Mitsui's knowledge of yield and short run marginal costs of higher ash production through the coal preparation plants of these mines being available to the JSM. Armed with this intelligence in a buyer's market situation, JSM negotiators were able to establish this "weaker/semisoft" market segment for Australian coals which are priced below fully burdened production costs. In return for price discounting in the 1987 settlement, producer s selling such coals were rewarded with an increase in volumetric market share at the expense of other Australian exporters. Coking coals of this weaker/semi-soft category now account for more than half of Australia's exports to Japan. Some 70% of this volume represents what are in effect prime quality coals, having higher ash content, offered at discounted prices so as to displace the premium quality/priced brands of other Australian producers in order to gain market share. However, Australia's overall market share is not permitted to exceed a defaeto ceiling established from security of supply and/or market power policy considerations. Such

actions demonstrate the damaging effects of knowledge asymmetry in a market distorted by cartel purchasing arrangements.

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Given the sorts of problem created by knowledge asymmetry, why do Australian producers so readily accept minority equity participation in joint venture operations by *ss* firms? The answer rests with the effectiveness of the JSM buyer cartel. Faced with the reality of Japan as the world's largest importer of coking coals, initiators of Australian export mine projects presently cannot resist the pressure of JSM insistence that an *ss* firm be included as market facilitator.

Strategic changes now in train may weaken the power of the JSM in Pacific markets. With the emergence of POSCO and China Steel as major low cost fully integrated steel competitors, the unique role that *ss* firms have played in benefiting Japanese steel industry interests is under threat.

Future market evolution in the Pacific

The following events are creating pressures on the JSM cartel and the unique role that *ss* firms have played in maintaining it's effectiveness:

Rising labour costs with the strengthening of the Yen has made the JSM less competitive in world steel markets.

The phasing out of domestic production has eliminated a method by which the JSM was able to compensate *ss* companies for less than adequate returns to capital on foreign mine investments.

Traditional *ss* firms are losing market share to the trading company subsidiaries of the JSM. This weakens their commitment to act solely as JSM purchasing agents, and ignore less than acceptable returns on their foreign mine investments in the interests of mutual cooperation.

Cost pressures are weakening discipline within the JSM cartel. Individual firms are now negotiating with Australian producers for substantial coal volumes sold outside the annual joint settlement agreement.

Other Asian steel producers (POSCO and China Steel) with far lower labour and infrastructure costs are benefiting from the JSM's market power in annual price negotiations with Australian and some Canadian producers, without the cost of poor returns on equity in foreign mines, or paying the very high prices necessary to sustain high cost Canadian production to maintain supply capacity in Pacific markets.

Countervailing policy options

In addition to the competitive pressures now being exerted on the JSM cartel from other regional steel companies, several policy changes by Australian government stakeholders come to mind which could be helpful in ameliorating present market distortions.

Australia's foreign ownership regulations currently encourage minority Japanese equity interests in export mines. With the knowledge asymmetry problems that such a policy introduces, and given the Japanese business culture, a policy of major equity interest or no foreign ownership would seem preferable. If forced to accept substantial ownership to gain equity participation, *ss* firms would be forced to consider more seriously the competing interest between return on their mine investment and price minimisation for the JSM. Strong support from the Australian government, through foreign ownership policy, is also one of the few ways that the developers of new mining projects could resist demands of the JSM for *ss* or direct minority equity participation, as a price of entry into the Japanese market.

The Department of Primary Industry and Energy (DPE) has recently lost it's approval authority over mineral export contracts. Although infrequently used, this approval authority was one of the few means available to discourage destructive competition between Australian exporters. Should future hedonic modelling suggest destructive competitive behaviour due to price cutting, or quality enhancements not rewarded by price improvement due to cartel manipulation of the market, it is now only transparency and the threat of adverse publicity following exposure which can discourage destructive competition

among sellers. Restoration of DPE's export approval authority would be far more effective in preventing such destructive competition, as it would permit the withholding of export approval for the additional contract volumes normally awarded by the JSM to those producers who adopt such tactics.

Conclusions

Important aspects of the success that a number of Asian nations have enjoyed in the last several decades as traders, have been their export focussed manufacturing strategies supported by industrial policy, and control of their domestic markets. Differences exist between Asian and Anglo-Saxon social cultures and their respective business strategy approaches. What might be considered collusion or anti competitive behaviour in one system, may be the norm and socially responsible behaviour in another. The failure to appreciate such differences is one of the reasons that Australia's coal export industry has been for the most part, in the words of McIntosh-Baring, 1993, "A *profitless growth industry"*.

Japan's adoption of export driven systemic business strategies has been extremely successful, and is emulated by other Asian countries such as South Korea, Taiwan, and now the People's Republic of China. In Asian cultures, tradition, mutual understanding

and implicit contracts cause many of the assumptions which underlie Anglo-Saxon derived concepts of economic rationalism to be inappropriate.

Recognition of these cultural facets of bargaining strategy seem necessary, and new policies and business strategies are required to ameliorate cartel buying induced market distortions. Such actions would facilitate aspects of steel industry restructuring which seem likely to be required in the Pacific region in future years, and restore a more equitable distribution of economic surplus between Australia's coking coal exporters and the JSM. Such an outcome is important to achieve from Australia's perspective as it is the world's largest exporter of metallurgical coals, and JSM contract settlements spill over into other markets. Ceiling prices at the port of export (fob) and quality specifications for Australian coal exports elsewhere in the Pacific Rim, and to the Indian sub-continent, are presently established by annual JSM contract settlements.

Appendix "A"

Survey Questionnaire

In your view which one of the following best describes the *sogo shosha* role in Canada's / Australia's

coal industry:

· Mine investors.

· Project development facilitators.

· Market information coordinators.

· Purchasing agents for Japanese end users.

· Other.

In your opinion what degree of importance in the scale 1-5

Very important Fairly important Neutral Not so important

1 2 3 4

do Canadian (or Australian) managers, compared with *sogo shosha* managers, regard:

1. Size of operation (capacity)?

2. Capital intensity of operation?

3. Return on investment in the project?

4. Annual profit performance?

5. Supply reliability/consistency?

6. Customer relations?

7. Labour efficiency?

8. Labour relations?

9. International cost competitiveness?

10. Market share of the country's exports (Canada or Australia)?

11. Market share of seaborne trade?

Not at all important
5

Overall, how do you expect that Canadian (or Australian) managers, compared with *sogo shosha* managers, rank the above items (1-11)?

Most important

Least important

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