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**Proposed CWH/WSI Merger -
Review of Draft
Determination
Bell Gully**

NERA
Economic Consulting

**Public Version
Prepared at Request of Counsel**

Project Team

James Mellsop

Kevin Counsell

Will Taylor

NERA Economic Consulting
Level 18
151 Queen Street
PO Box 105 591
Auckland 1143
Tel: +64 9 373 7230
Fax: +64 9 373 7239
www.nera.com

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1. Introduction

At the request of Bell Gully, in our 8 February 2011 report we quantified the benefits and detriments of a potential merger between the wool scouring businesses of Cavalier Wool Holdings Limited (CWH) and New Zealand Wool Services International Limited (WSI). For that purpose we generally adopted the models used by the Commerce Commission in previous authorization decisions (we identified in the report where we used a different approach).

We also carried out a critical loss analysis to assist in assessing the extent to which a price increase by the merged entity would be constrained by the entry/expansion of competing firms (whether domestic or overseas). This is useful in assessing the likely extent of any detriments.

Since the filing of the application we have provided four further reports:

- On 10 March 2011, a review of the 4 March 2011 Castalia report (commissioned by Godfrey Hirst);
- On 16 March 2011, a memo analyzing productive and dynamic efficiency losses in more detail, and analyzing the price elasticity of demand for scouring services;
- On 23 March 2011, a review of the 7 March 2011 Futures Consultants (Brent Layton) report (commissioned by WSI); and
- On 25 March 2011, a memo analyzing the impact of the expected variable cost reductions on the allocative inefficiency of the merger.

Bell Gully has now asked us to comment on the Commerce Commission's Draft Determination proposing to authorize the potential merger (dated 13 April 2011). To assist the Commission we have focused on the issues where the preliminary views expressed in the Draft Determination differ most significantly from those we have previously expressed.

Accordingly, this report covers three major issues: the likely price increase in the factual; quality benefits; and superstore benefits.

2. The Post-Merger Price Increase

2.1. Introduction

The Commission's estimate of allocative inefficiency detriments is based on price increases of 5%, 10%, and 20% (Table 2 of the Draft Determination). We have already expressed our view that a 10-20% price increase in respect of this particular merger is implausible,¹ and in this section we set out and elaborate on the reasons for that view.

¹ See page 4 of our 23 March 2011 memo "CWH/WSI: Comments on the Layton Report".

2.2. 20% Price Increase is Implausible

We note that a 20% price increase was put forward by both Castalia and Futures Consultants, but without any valid economic reasoning.

Castalia claimed that the merged firm could raise prices by 20% on the argument that it is [] more expensive to export wool to China, scour it, and import it back to New Zealand, than it is to scour wool in New Zealand. We have already discussed in our 10 March 2011 memo why this claim lacks analytical foundation.²

Among the several reasons we outlined is that even if there was a []% cost difference for wool exported greasy to China and imported back again, that cost difference would not be relevant for wool that is not destined to come back to New Zealand. In other words, the “China constraint” is set by merchants choosing to sell their wool greasy into China, not those who may wish to transport it to China and back to New Zealand. Even if the []% cost difference is correct for the latter group (which we cannot comment on), clearly the difference will be lower for the former group. As such it cannot be assumed that the merged entity would be able to increase the price of all volume by []%.

As far as we can tell, the 20% claim by Futures Consultants is not based on any evidence or theory. We refer again back to our 23 March 2011 memo.³

As we also noted in our 10 March memo, the posited large price increase is inconsistent with the fact that WSI only accounts for a small share of the contestable commission scouring volumes ([]%, based on Figure 2 of the Draft Determination), and the documented reluctance of the merchants to scour with WSI.

2.3. Declining Real Prices

The data show that CWH’s real prices have fallen since at least 2006/07, as shown in Figure 2.1 and Figure 2.2 below (as originally set out in our 16 March 2011 memo). Over the time period shown there was rationalization in the industry with the Godfrey Hirst/Feltex (approved by the Commission on 31 August 2006)⁴ and CWH/Godfrey Hirst (approved by the Commission on 6 March 2009)⁵ mergers.

Against this background, it seems implausible to suggest that the removal of the constraint from WSI, given the evidence that WSI is just one of the constraints (and not the strongest one) operating on CWH,⁶ will cause prices to increase by 10-20%, when real prices have been decreasing even during periods of rationalization.

² See section 4 of our 10 March 2011 memo “CWH/WSI – Review of Castalia Report”.

³ Section 5.1 of our 23 March 2011 memo.

⁴ *Decision 587*.

⁵ *Decision 666*.

⁶ Note for example that according to Figure 2 of the Commission’s Draft Determination, []

Figure 2.1
Average price - South Island

[]

Figure 2.2
Average price - North Island

[]

2.4. Chinese Constraint

The evidence suggests that the constraint from exports of greasy wool to China already binds at today’s prices, and merchants can and do export greasy wool to China in the current market.

The evidence is also that exports of greasy wool to China are increasing, as shown by the Commission in Figure 4 of the Draft Determination, which implies that the constraint from China is also increasing. As the evidence suggests that the merged entity would not have the ability to price discriminate against customers that do not have the option of scouring in China, the China constraint would be sufficient to constrain the price to all customers.

To see this, note that our original critical loss analysis (see Table 3.1 of our 8 February 2011 report) demonstrates that a 10% price rise would not be profitable if the merged entity lost more than []m kg in the North Island or []m kg in the South Island. For smaller price increases the critical quantity is much lower. In 2009/10 approximately 18.3m kg of wool was exported to China in scoured form.^{7,8} Assuming this volume is spread evenly between the North and South Islands would mean that approximately 9m kg of scoured wool goes to China from each Island. Because 9m kg is greater than the critical quantities mentioned above ([]m kg), it would not be profitable for the merged entity to raise price to this level if it meant all Chinese volumes would be lost.

Furthermore, and even if the existing Chinese scoured volumes were asymmetrically distributed between the Islands, it is also relevant that exports of scoured wool to China are increasing, as shown by the Commission in Figure 4 of the Draft Determination. Given the overall declining New Zealand wool clip, it appears that the proportion of scouring customers with the option to scour in China is increasing. This is another reason why we consider it unlikely that the merged entity would find it profitable to “forgo most or all scoured wool volumes that currently go to China in order to achieve higher margins on wool destined for other markets” (¶163 of the Draft Determination).

⁷ Beef and Lamb New Zealand Wool Statistics, available at: <http://www.meatnz.co.nz/main.cfm?id=259>.

⁸ We note that at ¶27 of the Draft Determination, the Commission states that 32% of New Zealand wool exports were to China in 2009/10. Based on the Beef and Lamb New Zealand Wool Statistics we calculate this figure as 38% using the “Clean Tonnes” column and 42% using the “Actual Tonnes”. We also note that at ¶79 of the Draft Determination, the Commission refers to 32% of New Zealand’s wool clip being exported to China.

2.5. Variable Cost Reductions

CWH expects that the merger would result in variable cost reductions, and as we noted in our 25 March 2011 memo,⁹ these would be expected to reduce the extent of post-merger price increases. This is a concept acknowledged by the Commission in its *Mergers and Acquisitions Guidelines*,¹⁰ and is widely accepted in the economics literature.¹¹ While the Commission accepts the variable cost reductions resulting from the merger (at ¶199 of the Draft Determination), it appears not to acknowledge the effect this will have on the post-merger price. Based on some simple calculations in our 25 March memo assuming 50% pass-through of variable cost reductions, we showed that a gross post-merger price increase of 10% would in fact be 8% in the North Island and 6% in the South Island once variable cost reductions are netted off.

In that memo we also re-ran our original allocative inefficiency model with these assumed price increases net of variable cost efficiencies. Here we apply these net price increases to our allocative inefficiency model but using the Commission’s inputs,¹² as provided by the Commission in a note dated 19 April 2011.¹³ Our results are shown in Table 2.1 below, where we report results for the same (gross) price increases and demand elasticities as in Table 2 of the Draft Determination.

Table 2.1
National allocative inefficiency detriments (with variable cost efficiencies, NPV over 5 years) using Commission’s inputs

Demand elasticity	Gross price increase		
	5%	10%	20%
-0.05	n/a	\$0.506m	\$1.309m
-0.5	\$1.418m	\$5.061m	\$13.086m
-1.0	\$2.837m	\$10.122m	n/a

2.6. Declining Sheep Numbers

If there is a higher price in the factual, it is likely to be reduced through a declining demand. The Commission notes (at ¶172) that the ongoing decline in sheep numbers and the wool clip

⁹ “CWH/WSI – Impact of Variable Cost Reductions”.

¹⁰ See section 7.4.

¹¹ See, e.g., Massimo Motta (2004), *Competition Policy: Theory and Practice*, Cambridge University Press, p.238 and references therein.

¹² We also assume that [], as it appears that this is the approach the Commission has used.

¹³ Note that using the Commission’s inputs, and our own allocative efficiency model, we have attempted to replicate the Commission’s Table 2 results (without variable cost reductions). We have replicated all of the Commission’s results with the exception of the entry at a price increase of 5% and a demand elasticity of -0.5. It is not clear to us how the Commission has obtained this figure (we obtain \$3.541m, while the Commission obtains \$4.235m).

has been, and will continue to be, an important driver of productive efficiencies. The Commission (at ¶188) implies also that this decline has been one driver of product and process innovation (although it notes also that these were made in a competitive climate and, arguably in its view, may not occur with only a single operator).

We would expect that the declining demand would also lower the absolute price rise in the factual. To see this, note that over each of the five years of the analysis, the counterfactual demand curve would be falling (shifting left). All else equal, a fall in demand leads to a lower price - the graphs above showing real prices falling over time are consistent with this proposition. Thus, if the merged firm raises price in the factual by a given percentage amount, it does so from a lower starting (counterfactual) point i.e., the lower price due to the decline in demand. This leads to a lower post-merger price rise than would otherwise be the case, and accordingly declining allocative efficiency detriments over time.

This can be incorporated into the Commission's calculation of allocative inefficiency detriments by assuming that the counterfactual price and quantity is consecutively lower in each of the five years of our analysis.

From the above graphs of real and nominal prices we have estimated that from 2007/08 to 2010/11, nominal prices have fallen by an average []% per annum in the North Island and []% per annum in the South Island.

Starting with the counterfactual price used by the Commission of [] in the North Island and [] in the South Island, which we take as the year 1 price, we reduce these by 2.1% and 1.6% respectively to get year 2 prices, then a further 2.1% and 1.6% to get year 3 prices, and so on.

For quantity we have estimated that the wool clip has fallen by 2.6% per annum from 1990 to 2009,¹⁴ and we similarly apply this to the counterfactual quantity in years 1 to 5 in the same way as for price.

We have also (unrealistically) assumed that marginal cost falls by the same amount as the fall in price, so that gross margins remain unchanged. Note that this is conservative, as if we were to assume unchanged marginal cost the allocative inefficiency detriments would be smaller.

With these assumptions around declining demand (and again assuming variable cost efficiencies as in Table 2.1), the estimated national allocative inefficiency detriments are shown in Table 2.2.

¹⁴ International Wool Textile Organisation, *ITWO Market Information*, 2010 edition.

Table 2.2
National allocative inefficiency detriments (with declining demand variable cost efficiencies, NPV over 5 years) using Commission’s inputs

Demand elasticity	Gross price increase		
	5%	10%	20%
-0.05	n/a	\$0.461m	\$1.201m
-0.5	\$1.247m	\$4.607m	\$12.010m
-1.0	\$2.493m	\$9.213m	n/a

3. Quality Benefits

3.1. Value of an Incremental Unit of Y

At ¶224 of the Draft Determination, the Commission notes that WSI and other industry participants seem to accept that the value of a unit increase in base Y value is 4 cents per kilogram. In our 8 February 2011 report we quantified quality benefits based on incremental values of base Y of 2.5, 3.52 and 6.2 cents per clean kilogram (equivalently 1.9, 2.6 and 4.7 cents per greasy kilogram).

While it is unclear whether the 4 cents per kilogram figure is for clean or greasy kilograms, we have recalculated our quality benefits based on the 4 cent figure both assuming that this is clean kilograms and assuming it is greasy kilograms.

In Table 3.1 we set out the 5-year NPV of the quality benefits assuming a price premium for a unit increase in base Y value of 4 cents per kilogram clean (equivalently, 3 cents per kilogram greasy). We have split this into North and South Islands, the further Y benefit and WSI Y benefit (as defined in our 8 February 2011 report), and the CWH and WSI further Y benefit in the North Island. The total (national) quality benefit ranges from \$[], depending on elasticity. Similarly for Table 3.2 we assume 4 cents per kilogram greasy (equivalently, 5.3 cents per kilogram clean) with total national quality benefits ranging from \$[]m, depending on elasticity.

Table 3.1
Quality benefits with 4 cents per kilogram *clean* incremental Y value (NPV over 5 years)

Demand elasticity	Further Y benefit CWH	North Island		South Island	
		Further Y benefit WSI	WSI Y benefit	WSI Y benefit	Total
-0.5	[]	[]	[]	[]	[]
-1.0	[]	[]	[]	[]	[]
-2.0	[]	[]	[]	[]	[]
-3.0	[]	[]	[]	[]	[]

Table 3.2
Quality benefits with 4 cents per kilogram greasy incremental Y value (NPV over 5 years)

Demand elasticity	North Island			South Island	
	Further Y benefit CWH	Further Y benefit WSI	WSI Y benefit	WSI Y benefit	Total
-0.5	[]	[]	[]	[]	[]
-1.0	[]	[]	[]	[]	[]
-2.0	[]	[]	[]	[]	[]
-3.0	[]	[]	[]	[]	[]

3.2. Bleach Cost Saving on WSI Volumes

The Commission does not place any weight on the claim that the proposed post-merger investment would increase the value of Y, because the Commission is not convinced that these benefits would be merger specific. We understand that CWH disagrees with this view.

We note that the merger would result in bleach costs being avoided if the merged entity would be able to scour the existing WSI volumes to their existing (scoured) Y values, using a lower volume of bleach. This would be the case if it is accepted that CWH already achieves a higher Y value than WSI while using less bleach. In this case, the saved bleach costs should be counted as a (further productive efficiency) benefit (assuming that WSI would not make the required investment to achieve this in the counterfactual).

In particular, we understand that the merged entity would be able to scour the existing WSI volumes to their existing (scoured) Y values, using a lower volume of bleach. For present purposes we assume that half a volume of bleach per greasy kilogram would be saved – as set out in the 28 March 2011 Bell Gully submission, this equates to a 1 unit Y increase.

As per the discussion in the 28 March 2011 submission, this equates to a cost saving of \$[] = \$[] per greasy kilogram. Based on WSI (North and South Island) volumes, this implies a saving of \$[] per year, or a present value of \$[] over five years. Splitting this into the North and South Islands gives an annual cost saving of \$[] (\$[] PV) in the South Island and an annual benefit of \$[] (\$[] PV) in the North Island.

4. Superstore

At ¶223 the Commission states:

Therefore, while the Commission is satisfied that substantial benefits could accrue from the implementation of the superstore concept, because of the uncertainty surrounding the

development of the project it cannot apply the full value of this benefit of about [] per annum (once the [] of North Island wool clip is diverted to the superstore) without firm evidence that the concept would be likely to come to fruition. Therefore, due to the difficulty of determining a discount factor based on the likelihood or otherwise, of the superstore occurring, the Commission does not quantify the actual amount to be ascribed to this benefit.

While we acknowledge the Commission’s comments about uncertainty, it is possible to quantify the potential benefit of the superstore notwithstanding this uncertainty - there are techniques to take account of and test the impact of uncertainty on this benefit.

At a basic level there are two levels of uncertainty surrounding the superstore:

- The probability of it occurring; and
- The point in time at which it will occur.

We have calculated the expected present value benefit of the superstore in the North Island assuming it occurs with a probability of only 25%. From the point in time at which investment occurs (which we vary), we model a perpetuity of approximately [] per year, and one-off capex of []. The approximately [] per year is [] of total North Island volumes (of 93,500 tonnes, from the Commission’s Figure 2) multiplied by the cost saving of [] set out in ¶217 of the Draft Determination. We have not been able to reconcile this with the [] figure mentioned in ¶219 of the Draft Determination, although we note that the [] is an annualised figure that has had a WACC, tax and depreciation deducted.

Figure 1 plots this calculation with the x axis representing the number of years into the future that the superstore actually occurs.

Figure 4.1

[]

Figure 4.1 demonstrates that even if we only place a 25% probability on the superstore occurring in 5 years time, this still results in a probability-weighted benefit of roughly \$[]m. If the probability of the concept occurring was higher than 25%, then the expected benefit would also be higher.