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Emerging differences in state grain trading: Australia and Canada

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Abstract

The Australian Wheat Board (AWB) and Canadian Wheat Board (CWB) have attracted attention recently because they are two of the largest state trading enterprises (STEs) engaged in agricultural trade. They have traditionally been viewed as nearly sister agencies. Among major STEs in the world market, these two agencies historically had similar characteristics including: price pooling, cost pooling, export sales monopolies, monopoly powers within domestic markets, grain quality control, and government underwriting of initial producer prices and export credit. However, during the past 6 years, similarities between the AWB and CWB have begun to diverge and the importance of their differences is becoming increasingly apparent. This paper identifies major emerging differences between the AWB and CWB and explores potential explanations (hypotheses) for these dissimilarities. A major point is that reforms in institutional design and legislative changes have given rise to emerging differences in key aspects of the marketing systems and performance. © 1997 Elsevier Science B.V.

1. Introduction

The Australian Wheat Board (AWB) and Canadian Wheat Board (CWB) have attracted attention recently because they are two of the largest state trading enterprises (STEs) engaged in agricultural trade (US General Accounting Office, 1995). Over the past ten years, the AWB and CWB have accounted for 8 and 22% of the world wheat trade, respectively [1], and the CWB is the world's largest grain merchant. STEs are expected to come under increased scrutiny under the new World Trade Organization, partly because of the perception in the United States that the AWB and CWB engage in non-transparent pricing practices and "unfair" trade practices (Chadwick, 1992; Dixit, 1996; US General Accounting Office, 1996). The US General Accounting Office (1992) investigated the AWB and CWB and found they were both non-competitive sellers owing to unfair pricing, pooling, and government underwriting.

The AWB and CWB have traditionally been viewed almost as sister agencies. Among major STEs in the world market, these two agencies historically had similar characteristics including price pooling, cost pooling, export sales monopolies, monopoly powers within domestic markets, grain quality control, and government underwriting of initial producer prices and export credit. During the past six years, similarities between the AWB and CWB have begun to diverge and the importance of their differences is becoming increasingly apparent. This is particularly true since the early 1990s, though emergence of the dichotomy began in the 1980s. AWB reforms are far ahead of those in Canada and, compared to Canada,

[1] The AWB only has single-desk authority for wheat exports, whereas the CWB has single-desk authority for wheat and barley exports and domestic sales of wheat and barley for human consumption.

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the Australian system is now more responsive to changing world market conditions.

In addition to international criticism, these agencies have also come under increased public scrutiny within their own countries. In Australia, pressure for reform started outside of the AWB during the early 1980s, and ultimately resulted in a deregulation process (Watson, 1984; Wilson and Orr, 1989). Basically, the AWB lost the battle over deregulation. Canadian introspection has been more timid until recent years, partly owing to generous government subsidies which reduced pressure for change. Price and income subsidies are coming off now for Canadian farmers and they have become more interested in reducing marketing inefficiencies. In addition, implementation of the 1989 Canadian–US free trade agreement (CUSTA) has added domestic pressure for reform of the CWB.

This paper identifies major emerging differences between the AWB and CWB and explores potential explanations (hypotheses) for these dissimilarities. A major point is that reforms in institutional design and legislative changes have given rise to emerging differences in key aspects of the marketing systems and performance. Theoretical benefits and costs of state trading are discussed in Section 2. Section 3 reviews the empirical evidence on the performance of these agencies. Sections 4 and 5 identify some of the important differences and explore alternative explanations. The final section summarizes the paper and identifies some possible explanations. [2]

2. Theoretical benefits / costs of state trading enterprises

2.1. Benefits and costs

Brenner (1987) argues there are two potential economic explanations for state-owned enterprises: economies of scale and externalities. However, he fails to find empirical support for causal relationships between economies of scale and state ownership, or between externalities and state ownership. Instead, he finds that crises (e.g., wars, economic disasters) often precipitate some form of state ownership. The crises theory clearly applies to the establishment of the AWB and CWB. The two world wars and the great depression were crucial events leading to the creation of these two STEs.

The CWB was first set up as a one-year temporary organization in 1919, in response to the British government's cornering of the Winnipeg wheat futures market and the closing of that futures market. During World War II, the demand for grain raised prices, and in 1943, the CWB was made compulsory to help control inflation. The CWB was retained after the war because most of Canada's wheat was exported to Britain under a bilateral agreement, and the CWB made administration of the agreement much simpler (Fowke, 1957).

The AWB was originally established as a compulsory war-time pool from 1915–21 (Whitwell and Sydenham, 1991). The AWB was subsequently re-established in 1939, during the Second World War. After the war, the Australian Wheat Industry Stabilization Act was passed (in 1948). It lasted for five years and it established a more permanent AWB. The 1948 act was succeeded by seven similar acts, each with a five-year lifespan. The latest Wheat Marketing Act of 1989 does not have a fixed lifespan.

The theoretical rationales that have been offered as justification for the AWB and CWB (i.e. single-desk selling) include the following (Ryan, 1994; Booz et al., 1995; Canadian Wheat Board, 1995):

- exploit market power through price discrimination and thus increase revenue;
- provide farmers with a form of risk management through price pooling;
- develop niche markets and new customers through market development;
- negotiate price premiums with single-desk buyers;
- exploit economies of scale associated with marketing.

With the exception of the market power argument, most of these potential benefits could be sup-

[2] There have been a number of studies on each of these marketing systems in the past decade. Without being exhaustive, these include, for Canada: Loyns and Carter (1984) and Agriculture Canada (1992); and for Australia, the Australian Bureau of Agricultural Economics (1983) and the Industries Assistance Commission (1988).

plied as efficiently by the private grain trade. Therefore, the market-power argument is the only point that deserves serious consideration. The others are largely spurious. The market-power argument is based on the premise that the international grain market is imperfectly competitive and that markets can be segmented (i.e. there is little or no arbitrage between markets). The AWB and CWB (Ryan, 1994; Canadian Wheat Board, 1995) argue that under these conditions they are able to price discriminate by charging relatively higher prices in those markets that are less price-elastic and lower prices in markets that are more price-elastic. If demand responds differently across these (separate) markets, then the alternative demand relationships can be exploited by the STE.

The AWB and CWB have recently argued (e.g. Ryan, 1994) that the US/EU wheat trade war has created the perfect price discrimination opportunity for STEs and justifies their continuance. The US and the EU have been engaged in targeted export subsidy strategies for about ten years. These programs segment the world market into two: the ''subsidized'' and ''non-subsidized'' markets. The law of one price is violated when comparing subsidized with non-subsidized prices. Both the AWB and CWB claim the trade war has resulted in a whole ''schedule'' of prices across importing nations. In essence they argue the law of one price does not even hold for marginal sales within the subsidized markets.

Additional advantages associated with single-desk selling owing to market power have to be weighed against the costs of having a single-desk arrangement in place (Industry Commission, 1991). Lack of competitive discipline within Australia and Canada may mean the costs of marketing grain are higher than would otherwise be the case. In addition, certain practices such as cost pooling and the ideological goal of equity are not conducive to cost minimization.

2.2. Pricing to market

Without offering factual evidence, the CWB has repeatedly argued that it can ''price to market'' in barley and wheat (Canadian Wheat Board, 1992; Canadian Wheat Board, 1995). This is just another way of saying that it can price discriminate among markets. Knetter (1989) developed a statistical test for determining if an exporter can price to market. Knetter's test distinguishes between a competitive market and two forms of imperfectly competitive behavior. The Knetter equation can be defined as follows:

$$\ln P_{it} = \Sigma a_i D_i + \Sigma b_t T_t + \_\Sigma\_ \beta_i \ln X_{it} + u_{it} \qquad (1)$$

where: $\ln P_{it}$ = ln of the export price to country i at time t; D_i = country dummy to capture the country effect; T_t = time dummy to capture the time effect; $\ln X_{it}$ = ln of ith country's exchange rate at time t; and u_{it} = error term.

In a competitive market, export prices should be the same for all importing countries, since there is no country effect: $a = 0$. In addition, changes in bilateral exchange rates should not affect bilateral export prices, $\beta\_ = 0$.

In an imperfect market either $a \neq \_0$ or $\neq \_0$. If $a \neq \_0$ and $\beta\_ = \_0$, it is assumed there is constant elasticity of demand with respect to the importer's currency, but the exporter's markup over different destinations varies, implying price discrimination. For $a = \_0$ and $\beta\_ \neq \_0$, it is assumed demand elasticities vary with changes in exchange rates, implying price discrimination.

Limitations of the Knetter type model, and in particular its applicability to agricultural trade, have been discussed by Alston et al. (1992). Alston et al. (1992) point out that the Knetter pricing-to-market model assumes imperfect competition, which is likely inappropriate for many traded goods. Alston et al. (1992) express concern that the trade volume and value data typically used in the literature (to estimate the Knetter equation) can lead to the appearance of price discrimination where none may exist. This follows because destination-specific differences in product quality or variety, port of export, type or size of packaging and timing of purchases are difficult to control for.

2.3. Economic efficiency

The Canadian Wheat Board (1992) also argued that single-desk selling is important from an economic efficiency viewpoint. It is suggested that inefficient resource allocation will take place if Canadian farmers are in a position to compare the spot US

price with the CWB pooled price. Theory would predict just the opposite: namely that inefficiencies arising from a lack of price information would adversely affect the allocation of resources and lower producer profits.

The current debate over STEs centers on comparing the financial advantages of having a single-desk, against the costs of having a single-desk. With a monopoly in place, the costs typically arise from a general lack of competitive discipline in handling/transport and from price distortions owing to pooling. Price distortions result in allocative (economic) inefficiency. It is expected that under a price pooling arrangement, a farm could remain technically efficient but would most likely exhibit allocative inefficiency. A firm is technically efficient if it produces the maximum level of output for a given level of inputs, for a given technology. This can be interpreted as a situation where the farm is operating on the frontier of the production surface. Technical efficiency has nothing to do with input or output prices or the supply of inputs and it is distinct from allocative efficiency. Allocative (economic) efficiency refers to the correct allocation of inputs and production of outputs, given input and output prices. Competitive input and output markets and profit maximization are usually required to ensure allocative efficiency, but it is the internal workings of the farm firm that determines technical efficiency.

3. Empirical evidence on the AWB / CWB performance

3.1. Australia

The theory of the benefits and costs of single-desk selling in wheat has not been confronted with much empirical evidence. This topic has been debated more vigorously in Australia than in Canada, and thus, there has been relatively more work in Australia on this question. The Australian Industries Assistance Commission (now the Industry Commission) has reviewed the AWB every five years, and consistently doubted the ability of the AWB to extract higher prices in world wheat markets than would otherwise be obtainable. The following quotation from the Industries Assistance Commission (1988) illustrates their scepticism of the net benefits of single desk selling:

> Some wheat markets may provide a premium to Australia, not because of the sole export controller status of the AWB, but rather because they admit only limited quantities of Australian wheat. The Japanese market is widely recognized as such a market which traditionally pays relatively high prices for limited quantities of wheat imported from a variety of sources. Thus, this premium would be available irrespective of the number of sellers of Australian wheat.
>
> Nevertheless, it cannot be denied that, in some circumstances, the AWB may be able to extract price premiums for some (generally smaller) markets by restricting competitive access to them. Although the Commission considers that this ability is limited, it acknowledges that competition from multiple sellers of Australian wheat could result in some erosion of such premiums. However, to some extent, traders may also be able to specialize in servicing certain market niches and extract premiums.
>
> Even if some existing price premium were eroded by allowing competing exporters of Australian wheat, this would not necessarily imply a decrease in growers' returns. Additional competition between sellers could result in a decrease in marketing costs and an increased overall demand for Australian wheat, both of which could enhance growers' returns. More importantly, any potential decrease in premium income needs to be considered in relation to the potential gains that could result from allowing growers and users additional choice and flexibility in marketing wheat and to the impetus which liberalized marketing arrangements could provide in achieving reforms and associated cost savings in grain storage, handling and transport. (Industries Assistance Commission, 1988, p. 118).

Piggott (1992) agrees with the above IAC findings, and he argues that for the AWB, enhanced gains from any market power in the world wheat market are likely to be very small.

Ryan (1994) disagrees with the IAC and Piggott

and suggests substantial benefits are captured by the AWB owing to price discrimination in the world wheat market. Ryan (1994) reports the results of an "internal" AWB analysis of the benefits from price discrimination and he finds the benefits vary from year to year depending on the US Export Enhancement Program (EEP) and the targeting effect. On average, Ryan reports benefits of about US$20 t^{-1} over 1987/88–1990/91 which were years of very extensive use of EEP, which should have the effect of inflating these values absent of EEP. If market power is so significant, how do we explain why both the AWB and CWB sell a significant amount of their wheat exports to private trading companies and thus do not deal directly with the final importer?

Subsequently, Booz et al. (1995) conducted a cost-benefit analysis of the single-desk selling of Australian wheat and their findings are somewhat ambivalent towards single-desk selling. Evidence of small benefits was found to be due to differentiated high service strategy, price premiums, market mix, and freight advantages. The net benefit of the AWB was found to lie between −US$1.31 t^{-1} and +US$5.33 t^{-1}, or an average of US$2.01 t^{-1}. Gross benefits were estimated at US$0.12–7.96 t^{-1} and were composed of a "premium price" (US$0.12–0.31 t^{-1}), "market mix" (US$0–3.25 t^{-1}), and "pricing discipline" (US$0–4.40 t^{-1}). Estimated costs of the AWB were US$1.43–2.63 t^{-1}, calculated through benchmarking AWB costs against the US and Canadian equivalents. Overall, these results are generally inconclusive, but suggest a very slight advantage of single-desk selling of Australian wheat from a net benefit perspective.

3.2. Canada

A major issue is that premiums may be achieved in some markets, but do not offset the additional cost to the system. In Australia this is marginal according to Booz et al. (1995), but highly unlikely in Canada owing to high marketing cost differentials in that country.

The pricing-to-market hypothesis for CWB barley was tested by Carter (1993). The null hypothesis that the CWM is unable to price to market could not be rejected. Pick and Carter (1994) tested the pricing-to-market hypothesis for wheat exports from Canada and the US. They found some evidence consistent with the pricing-to-market hypothesis and were unable to reject the hypothesis that Canada price discriminates in Japan. The exchange rate effect (see Eq. (1)) for Canadian exports to China was also statistically significant and of the "correct sign" but Pick and Carter (1994) discounted this result given the shortcomings of using official exchange rates for China.

The CWB monopoly over barley sales into the US was removed by the Canadian government for a short time in 1993. The Prairie Pools opposed this policy reform and succeeded in having the government order disallowed by a Canadian Court of Law. The Court restored the CWB's single-desk status in barley and the case was never appealed because there was a change in government shortly thereafter. Prior to the 1993 "continental" barley market, Gray et al., 1993 argued that a continental market would result in lower barley prices for Canadian farmers owing to elimination of the single desk. Carter (1993) argued the opposite: that barley prices would remain the same under a continental barley market, compared with the situation under the CWB's single desk. Clark (1995) studied the issue ex-post, testing for structural breaks in barley prices before and after the continental market, and his results supported Carter (1993). Clark (1995) concluded that CWB arguments suggesting that single-desk selling improves barley revenues need to be subject to greater public scrutiny.

3.3. The EEP factor and other considerations

The AWB (Ryan, 1994) and Canadian Wheat Board (1995) have recently argued that the US export enhancement program (EEP) segments world markets and that a single-desk seller can take advantage of this opportunity for further price differentiation. Booz et al. (1995) suggest that without EEP, the single-desk status of the AWB would be much more difficult to justify. The EEP argument put forth by the AWB and CWB overlooks the fact that most markets are eligible for EEP, leaving few high priced "non-subsidized" markets. Using International Wheat Council data, Booz et al. (1995) report that over 60% of CWB wheat sales are made into bulk (i.e. low priced) markets. Both the AWB and CWB

Table 1
AWB and CWB wheat export by destination (average: 1982/1983–1991/1992)

Australia		Canada	
Importer	Average-market share (%)	Importer	Average-market-share (%)
Egypt	16.1	USSR (former)	26.5
China	13.7	China	21.9
Iran	11.8	Japan	7.1
Japan	8.7	Brazil	4.4
USSR (former)	8.4	Cuba	4.1
Iraq	7.6	Algeria	2.8
Indonesia	5.8	Iran	2.8
S. Korea	4.5	UK	2.8
Pakistan	1.8	Iraq	2.5
Bangladesh	1.3	S. Korea	2.3
Other	20.2	Other	22.8

Source: Canada Grains Council (1994).

sell the majority of their wheat into markets where price is more important than quality. The top ten wheat markets for the AWB and CWB are reported in Table 1. The only significant non-EEP markets for wheat are in Japan, S. Korea, the United Kingdom, and parts of Latin America. It therefore appears that the AWB and CWB sell (at most) only about 20% of their wheat into non-EEP markets. In addition, the claim that EEP enhances the benefits of a single desk begs the logical question of why private traders or other exporters do not arbitrage this EEP premium?

Price premiums may also be due to other factors rather than the existence of market power. For example, Canadian grain quality standards and certification are usually argued to add value to Canadian grain. Such premiums also would be available to private sellers and do not require a monopoly seller in order to be realized (Industries Assistance Commission, 1988; Piggott, 1992).

The theoretical case for single-desk selling is not unlike the "new trade theory", which suggests the possibility that government intervention in trade may be in the national interest. However, the empirical validity of the "new trade theory" is questionable because it is virtually impossible to formulate useful interventionist policies given the empirical difficulties in modelling imperfect markets (Krugman, 1987; Baldwin, 1992). Policy makers cannot estimate import demand elasticities without great uncertainty and given these empirical difficulties, formulating "optimal" trade policies could do more harm than good. The Krugman (1987) and Baldwin (1992) critiques of the new trade theory clearly apply to STEs for agricultural products.

The AWB and CWB claim there is an entire schedule of prices across markets due to EEP. However, the non-EEP market is very small and whether or not the law of one price holds within those markets is not critical. In the EEP markets, it is more plausible to argue that the law of one price holds for marginal sales. This view is contrary to that of the AWB and CWB but it is supported by two previous studies. In an analysis of the 1980 US grain embargo against the USSR, the US Department of Agriculture (1986) found that grain is basically fungible and thus the embargo had little impact on the USSR and little impact on world prices and trade volumes. The embargo study implies that the world grain market is efficiently arbitraged. Goodwin (1992) studied wheat prices in five markets and found that wheat prices in spatially separated markets are closely linked and adhere to the law of one price.

4. Institutional and legislative changes providing impetus for emerging differences

The AWB and CWB evolved similarly, partly as a result of the two world wars and the great depression in between the wars. Prior to 1989, the underlying legislation governing these STEs was similar, though there were unique aspects of each country's system. Currently, there are several important differences in the governing legislation and institutional organization that have given rise to important changes in strategies and emerging differences in these respective STEs.

4.1. Legislative differences and changes

4.1.1. Sunset clause

One of the unique differences is that the legislative authority for the AWB had always been subject to a sunset clause. The fact that the AWB had to succumb to a five-year review by the political pro-

cess and the Industry Commission had an important influence on the organization. This clause was removed in 1989 and the current legislation is open ended. In contrast, the CWB has rarely been under review, though examination of its operations has escalated in recent years in a less formal way.

4.1.2. Australian grain marketing deregulation

The most important differences emerged with the 1989 Wheat Marketing Act in Australia which continued a long-term process of deregulation. There were three important features of this legislation: 1) the domestic market was deregulated; 2) the Wheat Industry Fund (WIF) was introduced; and 3) the AWB was allowed to trade other grains. Other reforms included a change in the Guaranteed Minimum Price (GMP) scheme from a guaranteed price floor per metric ton, to a government underwriting on AWB borrowing. The government also changed the AWB's explicit objective to that of maximization of producer (farmgate) returns, as opposed to FOB values. A subsequent legislative amendment in 1992 allowed the AWB to participate in value-added activities, and extended underwriting of AWB borrowing until 1999.

Domestic market deregulation was introduced in Australia to allow for competitive pressures and provide alternatives for growers/end-users in the domestic distribution and pricing of wheat. However, the WIF is quite unique and was an important by-product of other changes. The elimination of the GMP and the placing of a time limit on the government's willingness to underwrite AWB borrowing, meant that the AWB had to establish a capital base. To that end the WIF was established. A 2% (minimum) mandatory levy was established on farm-gate prices and the proceeds are to be used ultimately in making investments to develop a capital base to fund trading activities and finance AWB purchases of wheat.

In contrast, there have been few important changes in the CWB Act since its passing in 1967. In 1974, a "dual" domestic feed grain market was created in Canada, with open market purchases and sales of feed wheat, oats, and barley domestically in competition with the CWB. However, the CWB retained exclusive access to the international market.

4.2. Federal government underwriting

One of the fundamentally important difference between these two systems is the level of guarantees provided by the governments. The level of guarantee has been greater in Canada than in Australia. In fact, in early years, the GMP in Australia was as low as 40% of the expected pool returns, and was announced only after the crop was planted (just before harvest). In contrast, the initial payment guarantee provided by the Government of Canada has been nearly 90% of the total payment, and was (until recently) normally announced prior to planting.

The existence and level of underwriting by the governments have had important implications for trading operations. First, it facilitates borrowing at more attractive rates than otherwise would be available. [3] Second, these guarantees have an implicit option value, and therefore implicit subsidy, which vary with the level of guarantees relative to the market: results suggest this is much greater for Canada than Australia (Bardsley and Cashin, 1990; Wilson, 1995b). Third, a high guarantee relative to the market precludes the need to be active in pursuing other forward price risk management opportunities (i.e. futures, options and swaps) that have become essential for other firms in the grain business. Finally, the level of the guarantee is critical because of cross-border competition (and competition from alternative domestic feed uses) in the case of Canada. If the guarantee (i.e. initial payment) is much lower than US border (spot) prices, incentives to by-pass the CWB and sell direct in the US escalate, effectively diminishing control of stocks by the CWB. [4]

The effect of this difference was to provide an incentive for the AWB to become more directly involved in the use of overt risk management strategies encompassing direct hedges, options and swaps.

[3] Concurrent with a recent Alberta plebiscite on the Canadian Wheat Board, it was pointed out that "if the board's powers diminish the government would likely discontinue underwriting $6 billion in loans the board must take to cover the cost of doing business..."(Duckworth, 1995). The Canadian Wheat Board (1995) has estimated that the underwriting is worth about Cdn$60 million annually.

[4] In fact, this is reflected by the problems in barley for the 1994/1995 crop year.

In contrast, the CWB has been minimally involved and even then only very indirectly in these mechanisms.

4.3. Organization structure

A third major difference governing these two STEs is organizational structure. CWB commissioners are appointed for life without discipline of a board of directors or accountability to shareholders. It should be noted that the CWB does have a Producer Advisory Committee elected by farmers to represent their views, but this is a committee without authority over CWB operations. This organizational structure continues despite a 1990 review panel recommendation to reorganize the structure of the CWB to be a ''modern corporate structure'' with an appointed chair and board of directors, along with a professional president and chief executive officer. The board of directors would represent a broad cross section of interests and would focus on longer-term planning etc.

In contrast, the AWB is organized with a chairman, a board of directors and professional staff to conduct business functions. The composition of the board of directors was changed in the Wheat Marketing Act of 1989 to include a diverse set of individuals with particular expertise. Furthermore, the chairman reports to the board of directors and does not hold a lifetime position.

5. Emerging differences

The differences described above may appear subtle but have provided much of the impetus to the changes that have occurred between these two STEs. It is also important to recognize that there are some key system differences, which also may contribute to the observed marketing function differences. These include, but are not limited to: market structure and regulatory environment of contiguous marketing functions (transport, handling); controls over the handling system (tariffs in Canada versus bilateral contractual relations in Australia) and rail car allocation; and the role and function of accredited exporters.

5.1. Grower marketing alternatives

Price pooling with guaranteed initial payments has provided much of the justification for each of these STEs. Indeed, one of the positive benefits experienced with the ''Board of Grain Supervisors'' in 1917 (which preceded formulation of the CWB) was that of price pooling (Canadian Wheat Board, p. 2). Though the original purpose in each country may have been the same, their evolution has differed. The key elements of pooling include the sharing of price risk and costs, and the payment of an average price.

In Australia the mechanism has evolved since 1948. In 1979 the GMP was established as a means to guarantee producer returns. Originally, the GMP reflected a three-year moving average of returns, including those estimated for the current season, the purpose being to provide a degree of temporal stability in growers' incomes. Just prior to harvest, a preliminary GMP was announced for producers (thus precluding signals from affecting production decisions). The GMP was underwritten by the Commonwealth and payouts were only necessary when prices fell sharply within the marketing year. Underwriting allowed an advance payment scheme to develop. An important result was that borrowing costs of the AWB were reduced by the guarantee of the GMP. Without payment guarantees, interest costs would be greater and/or inventories would be valued at a lower level.

The GMP was eliminated in 1989 and this led to numerous subsequent changes in the Australian marketing system. One was pressure to develop alternative grower marketing options. This came from growers themselves, and was likely fostered by increased competitive pressures (offerings) from the newly emerged private grain companies for domestic marketing. As a result, growers were offered numerous alternatives including: pooled prices without GMP; fixed price contracts; minimum price contracts; and direct hedging alternatives using either futures, options in wheat and/or in Australian dollars. Fundamentally, the AWB took the view that ''Growers are themselves demanding more opportunity to make pricing decisions and to manage their own risks...''(Condon, 1991, p. 3)..

In general, the number of alternatives to growers in Canada has been more restricted in contrast to

those in Australia. The traditional pricing mechanisms using initial, interim and final payments continue to be the primary alternatives. In recent years other options have been added including price projections and bonuses paid for contract fulfilment. However, more advanced grower marketing alternatives using options and other risk management techniques have not been offered.

The CWB has also had a system of delivery quotas to regulate grower deliveries but this has changed. In particular, a system of contracting has been introduced that is now used to regulate flows into the system.

A common theme in both countries is the increase in number of segregations used for marketing, and therefore pooling purposes. The increase in the number of segregations is being driven by international competitive pressures and buyer demands coinciding with their own increase in sophistication (Wilson, 1995a). In Australia, the number of segregations has increased from 2 for wheat in 1980 to 36 in 1994. The same trend in Canada has occurred, but not as drastically. Ultimately, the increase in the number of segregations will undermine the concept of pooling. At the limit, a separate pool could be introduced for each buyer with unique specifications, resulting in numerous individual pools. The effect of this would be to diminish the validity/ability of providing a unique guarantee for each. Condon, 1991 (p. 4) conceded that ultimately the effect of increased numbers of segregations will break down the pooling system, and potentially that of a single seller agency.

5.2. Risk management (of forward sales)

As a result of the elimination of the GMP, the AWB became active in futures for hedging purposes, options and swaps (mechanisms used to hedge longer-term multi year price risks). The AWB may be more involved in SWAPS because of the multi-year time dimension of some transactions. Alternatively, the CWB makes use of futures primarily for facilitating ex-pit transactions with customers, as opposed to having a maintained hedging strategy that is translated back to individual growers. Interpretation of legislation governing the CWB may preclude their overt involvement in these mechanisms as much as may be necessary to offer growers a full array of alternatives; in contrast, the AWB had the legislation changed.

5.3. Vertical coordination and control

There are numerous aspects of vertical control within each marketing system. A common characteristic in recent years is that the STEs have been striving to maintain and increase their control over other aspects of the vertical marketing system. Traditionally these included variety controls, handling, shipping (car allocation), and use of accredited exporters. However, there are several salient differences.

Traditionally these STEs have not owned assets, thereby precluding exertion of vertical control through ownership. The CWB has been able to exert tremendous control over other aspects of the system primarily through legislation and rules and regulations. Absent of legislative authority, the AWB pursued other alternatives such as longer-term bilateral contracts for both handling and shipping, and seeking shares of ownership of handling assets. In contrast, the CWB has sought uniform regulations in the form of maximum tariffs for handling; and has been able to depend on WGTA rates for shipping. In a sense, the CWB has sought the benefits of vertical coordination without extensive use of contractual relationships or ownership.

Much of this control has been legitimized by appealing to the need for quality control of a single agency. In contrast, the AWB, as a result of loss of much of that control, is now trying to gain vertical market power in a more strategic commercial way. Longer-term contracts with individual handling agencies and shipping companies, joint ventures (see below) in asset ownership are all components of this commercial strategy. In contrast, the Review Panel of the Canadian Wheat Board (1990) recommended to not allow the CWB to become involved in these ventures.

5.4. Marketing costs

Both of these STEs have relatively high marketing costs compared to those costs in countries with greater competitive pressures. In the recent Booz et al. (1995) (pp. 49–55) study, trading costs are sepa-

rated from other handling and shipping costs. Results illustrate that both the STEs' trading costs exceed those of US traders, noting that the AWBs were larger, even correcting for economies of scale. Thus, in procuring marketing services, both countries have performed worse than the US, with Canada experiencing the highest costs. Results also suggest that Australia's handling and shipping costs have declined (in real terms) during the past four years, as have those in the US, but close examination of Canadian data suggests they have not.

Both countries are experiencing higher costs owing, in part, to segregations being maintained within their systems, other regulations, as well as more difficult labor situations vis a vis other countries. A particular problem relates to cost pooling within the handling and shipping system which is under pressure to change in each country. Already, one of the major sources of cost pooling in Canada (St. Lawrence Seaway costs) was eliminated in 1995, though it was originally proposed for change in the mid-1980s. Cost pooling is also pervasive in Australian handling and has resulted in numerous inefficiencies. A benchmarking process has been initiated in Australia to compare costs of critical functions with competitor countries.

5.5. Dual marketing system and trading non-board grains

In 1989 the Australian domestic market became a dual market putting the AWB in competition with private traders, handlers and processors. In addition, the AWB was allowed to trade other grains, both domestically and off shore. The AWB remains highly competitive in these markets along with numerous other market channels that have emerged to exploit efficiencies. In addition, there is no evidence that the loss of the control of stocks domestically has hindered their ability to compete offshore.

In Canada, oats were removed from the CWB jurisdiction completely in 1989. A dual market was not considered. However, barley operates in a dual marketing system with domestic sales for feeding traded competitively, but off shore sales (including those to the US) and domestic malting barley sales are controlled exclusively by the CWB. A proposal was made and accepted to relax that control for trade within North America in 1993, but was subsequently rescinded. In recent debates about liberalizing wheat trade (at least in North America) the CWB has claimed that their off shore program absolutely could not survive without a domestic (including North America) monopoly as well.

An important issue is the control of stocks. In Australia the domestic market comprises a relatively small portion of the crop. Under the dual market, more aggressive pricing and marketing alternatives became necessary for the AWB to secure and control supplies adequate for their export program. With current trading and risk management practices, concurrent with a more open and transparent US border, the CWB claims they would have difficulty operating an export program (as traditionally managed). It is significant that under similar situations the AWB has found ways to function without controlling domestic supplies.

5.6. Vertical integration and value-added

The AWB began its involvement in vertical integration and value-added concurrent with deregulation and establishment of the WIF. Aside from this, the general view has been toward closer integration with the processing sector and seeking opportunities for equity participation in these industries (Condon, 1991, p. 4).

To that end and under the auspices of the WIF, the AWB has invested in several notable operations to exploit economies of vertical integration and develop an asset base. These activities now include: milling ventures in Vietnam and China; and a recent investment (30% interest) in an Egyptian flour mill venture. [5] The stated purpose of the latter was "to shorten the marketing chain and increase the potential for export sales." CWB initiatives in this area have been more modest but they have recently hired someone for the purpose of developing value-added strategies; and a study was conducted on value-added opportunities and issues.

There is much momentum into these vertical ven-

[5] This was along with the Australian Barley Board (5% interest) and Omani, Saudi Arabian and Egyptian business partners (Tait, 1995).

tures by these STEs. Undoubtedly, there are several very important aspects of these decisions not dissimilar from those of private firms. Two aspects are notable in the context of these STEs. One is that there are greater risks associated with these investments, particularly if placed off shore and it remains to be seen whether these agencies can manage these as would a private firm. Second, is that any vertical extension of these STEs would result in them competing against either their existing customers or suppliers. Both of these have important broader strategic implications.

6. Summary and implications

The AWB and CWB have traditionally been viewed almost as sister agencies. However, these similarities have begun to diverge since the late 1980s. Generally, the AWB reforms are far ahead of those in Canada. This paper traces out these differences along several dimensions. Results suggest there are several implications of the changes:

- Both countries have operated for years with relatively non-transparent marketing costs. In recent years, and concurrent with deregulation and discussions of such, the levels of marketing costs have come under increased scrutiny. This will likely continue and will create problems for these STEs. This is even more of a problem in Canada given its geographical proximity to the US.
- The increased disaggregation of commodities (i.e. increased segregation) traded by the STEs raises several important issues. Most important is that at the extreme it will undermine the concept of pooling, which has been the main focus of the origins of these STEs.
- As an aside, it is interesting to ask "Why is it just now that there has been a demand for increased segregation?"; "Have there not always been segments?"; and "Have these agencies not served them?".
- A common theme for each STE is that their existence is important because of their discriminatory powers. Both the AWB and the CWB cite this and claim it is more justified in an EEP environment. In a more commercial situation, such discrimination will be objected to by buyers and will serve to undermine the STE. Thus, this should be viewed as a risky strategy for legitimizing retention of single-seller status.

The AWB, and potentially the CWB, is seeking to vertically integrate. While this is a strategy being exercised in other aspects of the world grain trade, there is one major concern. In doing so, ultimately they will be competing with their existing customers which will create a major strategic complication.

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