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Productivity Commission Submission
Pig and Pigmeat Industries :
Safeguard Action Against Imports

30 September 1998
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1 Executive Summary

1.1 Productivity Commission Terms of Reference

The Commonwealth Government has asked the Productivity Commission (the Commission) to report on whether safeguard action, in accordance with the World Trade Organisation (WTO) Agreement on Safeguards, is warranted against imports of certain frozen pigmeat. The Commission has also been asked to report on factors affecting the profitability and competitiveness of the domestic pig farming and pig meat processing industry.

This submission has been prepared by Darling Downs Bacon to identify what impact pigmeat imports have had on its operations and financial performance.

1.2 Darling Downs Bacon

1.2.1 Background

Darling Downs Bacon (DDB) was registered under the Companies Act in March 1911, and was subsequently converted to a co-operative and is incorporated in Queensland under the Co-operatives Act 1997. DDB is 100% owned by local pig producers and as a result only processes 100% Australia pork.

DDB is the largest private employer in Toowoomba with 650 staff in total, and as a consequence is a significant contributor to the local economy of Toowoomba, as well as Queensland and Australia.

DDB's operations involve killing, boning, processing and marketing domestic grown pork based products predominantly in Australia. Through its co-operative status DDB is also integrated with pig producers, in that the producers are the members of the co-operative. As a result, DDB's key objective being to maximise shareholder value through its operations is consistent with maximising value for its producer members.

DDB produces and supplies branded and unbranded pork products for the retail, food service and fresh pork markets. Its products include:

- ham, bacon and smallgoods ("further processed products") for the retail and food service markets. DDB produces approximately 150 product line items in pre-packs under the KR and Huttons brands and in bulk;
- branded and unbranded boxed pork for retail and food service;
- fresh pork;
- frozen pork to other manufacturers; and
- dry grocery products under various brands including Spam, Hormel and Marrakesh Express, supplied through the KR Hormel partnership. DDB is discontinuing its previous practice of allowing the KR Brand to be used on imported canned ham.

DDB is the market leader in Australia in sales of branded ham, bacon and other smallgoods to the retail sector with an overall national market share of 17.5%. This sector is the largest market segment and the most profitable for suppliers. Management believes that DDB is a market leader in other product/market segments but comparative information is not available in these sectors.

1.2.2 Financial Performance

Canadian imports impact on the co-operative's gross profit has caused a long term decline in gross profit since 1991 as evident in the average gross profit. The loss of gross margin is in consequence of competitive pressure on price through DDB's competitors, such as Primo who have imported Canadian pork.

DDB estimates that the loss of profits to DDB through the importation of Canadian pork is $2,980,000 since January 1992 to June 1998. If it is assumed that DDB would have efficiently reinvested these sums (if they had not been lost) then the damage is $3,568,000.

DDB's total shareholders' equity as at 31 December 1997 was $20,744,429. The damage represents 14.4% of shareholders' equity in terms of the loss of profits and 17.2% of shareholders' equity if the potential for reinvestment is considered. It is therefore submitted that DDB has suffered serious injury in consequence of the importation of Canadian pork.

1.3 Empirical Evidence of Imports Affecting DDB

Empirical evidence has indicated that the Australian pigmeat industry, at all levels - producer, wholesaler, and retailer, has been seriously injured by the importation of pigmeat.

More specifically, prices for DDB product lines have been shown to be significantly affected by imports with as-like products, such as Champagne Ham (bone-out) and Processed Shoulder Ham. These products registered declines in prices of $0.71 ± 0.38/kg and $0.27 ± 0.11/kg for every 1,000 tonnes of imports respectively. In addition, market conditions after the November 1997 quarantine restriction changes have resulted in Champagne Ham prices dropping $1.27± 0.33/kg.

The impact of pigmeat imports on DDB's performance (utilising the results of the VEC model) has reduced profits by nearly $1.65 million over the last three financial years. This compares our financial analysis of DDB's performance which suggests a loss of profits of approximately $2,980,000 over the period January 1992 to June 1998, or $1,927,000 estimated for the period July 1995 to June 1998 . This difference is due to :

- the time periods under review;
- econometric analysis is based on limited product lines; and
- econometric analysis has not calculated financial impacts as a result of Granger Causality of products.

In any case, both the financial and econometric analysis have indicated DDB has recorded serious injury as direct result of pigmeat imports.

1.4 Introduction of Safeguard Measures

Consistent with industry organisations and bodies, DDB recommends the introduction of a tariff quota be implemented against imports for an initial four year period, with a staged reduction of the quota tariff each six or twelve months.

As per the issues paper, the safeguard measures' quantitative restrictions may only limit imports to a level consistent with their average level over the past three years. Utilising the last three financial years data on Canadian imports, the tariff quota would be set at 6,618,800 kilograms, however given the impact of Chisholm's pigmeat import / export policies over the last two years, we would suggest the last three years should not be considered representative years.

Rather, DDB consider the three years prior to Chisholm's pigmeat import / export activities are representative years, that is, 1993/94 to 1995/96. This results in a tariff quota of 2,916,100 kilograms for Canadian pigmeat imports.

Where imports exceed this level, DDB recommend an out of quota tariff of A$2/kg be exercised on Canadian pigmeat.

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2 Productivity Commission Terms of Reference

2.1 Introduction

The Commonwealth Government has asked the Productivity Commission (the Commission) to report on whether safeguard action, in accordance with the World Trade Organisation (WTO) Agreement on Safeguards, is warranted against imports of certain frozen pigmeat.

The Commission has also been asked to report on factors affecting the profitability and competitiveness of the domestic pig farming and pig meat processing industry.

2.2 Safeguards Inquiry into Imports of Frozen Pigmeat

The first part of the reference requires the Commission to investigate whether safeguard action to protect the domestic industry against imports of frozen, boned pigmeat is warranted. Safeguard measures, which may be in the form of a quota, a tariff quota, or an increased level of tariff, provide temporary assistance and the opportunity to adjust to an industry suffering serious injury (or threatened serious injury) as a result of increased imports.

In essence, safeguard action is intended to provide a breathing space for industries to adjust to increased competition from imports, while safeguard measures must be liberalised progressively in order to promote industry adjustment to import competition.

The general procedures which the Commission must follow, and the questions it must consider, in order to determine whether safeguard action is warranted are set out in the Commonwealth of Australia Special Gazette No. S 297.

Prior to recommending any safeguard measures, the Commission must :

- determine whether safeguard measures are justified under the WTO Agreement; and if they are justified
- consider what measures would be necessary to prevent or remedy serious injury and facilitate adjustment; as well as
- consider whether, having regard to the Government's requirements for assessing the impact of regulation which affects business, those measures should be implemented.

Safeguard measures are justified only after a public inquiry which demonstrates that increased imports (in absolute terms or relative to production) have caused, or are threatening to cause, serious injury to the domestic industry.

Under WTO safeguard procedures, 'serious injury' is defined as a significant overall impairment of the domestic industry, while 'threat of serious injury' means serious injury that is clearly imminent.

In determining whether increased imports have caused, or are threatening to cause, serious injury to a domestic industry, the Commission must evaluate all relevant factors of an objective and quantifiable nature, in particular :

- the rate and amount of the increase in imports in absolute and relative terms;
- the share of the domestic market taken by increased imports;
- changes in the levels of sales, production, productivity, capacity utilisation, profits and losses, and employment.

Further, a causal link between increased imports and serious injury must be demonstrated.

2.3 Inquiry into Factors Affecting Profitability and Competitiveness

The second part of the reference involves a general inquiry into factors affecting profitability and competitiveness of both the pig farming and pigmeat processing industries, and assessment of the relative importance of each factor.

In particular, the inquiry is to identify impediments to improved competitiveness and industry restructuring.

3 Profile of Darling Downs Bacon

3.1 History

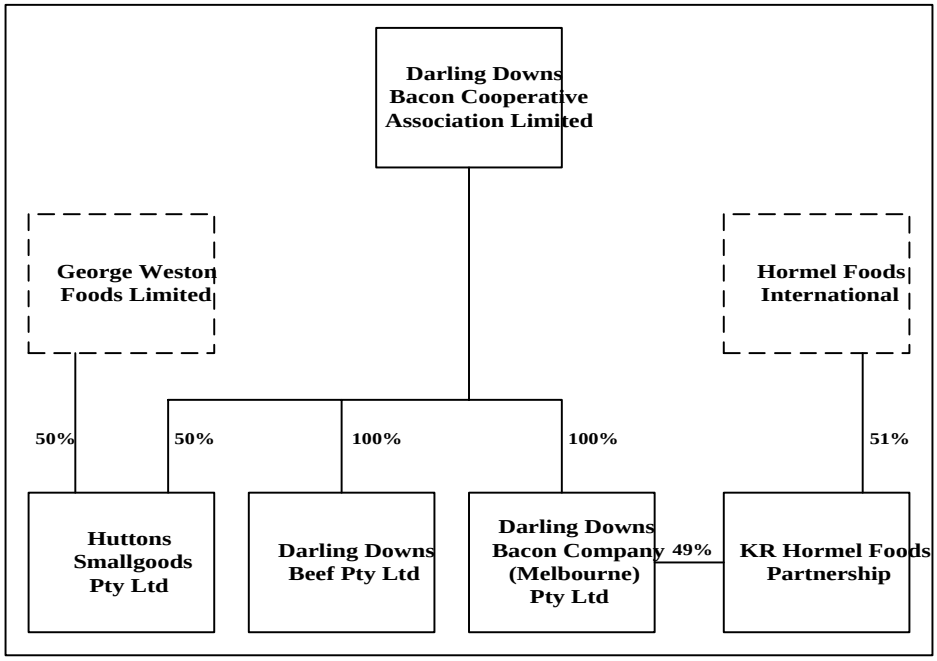
Darling Downs Bacon (DDB) was registered under the Companies Act in March 1911 as the Darling Downs Co-operative Bacon Company with capital of 25,000 shares of £1.00 each. In September 1912, a factory was commissioned on the current Willowburn site and processing of member produced pigs commenced.

The company was subsequently converted to a co-operative and is incorporated in Queensland under the Co-operatives Act 1997. DDB is 100% owned by local pig producers and as a result only processes 100% Australian pork.

DDB is the largest private employer in Toowoomba with 650 staff in total, and as a consequence is a significant contributor to the local economy of Toowoomba, as well as Queensland and Australia.

3.2 Corporate structure

DDB's corporate structure is illustrated in the following chart.



The activities of group entities are as follows:

- virtually all of the assets are owned, and most of the operations are undertaken, by Darling Downs Bacon Co-operative Association Limited;
- Darling Downs Beef Pty Ltd receives interest on a loan account with DDB but otherwise is dormant;

- Darling Downs Bacon Co-operative (Melbourne) Pty Ltd is the partner in KR Hormel Foods and is otherwise dormant;
- Huttons Smallgoods Pty Ltd is the registered owner of the Huttons brand. DDB is the registered user of the Huttons brand in Queensland, New South Wales, Australian Capital Territory and Northern Territory. George Weston Foods is the registered user elsewhere in Australia, except Tasmania where Blue Ribbon is the registered user; and
- the KR Hormel partnership is unincorporated. It markets shelf stable products under various brands including Spam and Hormel which are produced in the USA.

3.3 Operations

DDB's operations involve killing, boning, processing and marketing domestic grown pork based products predominantly in Australia.

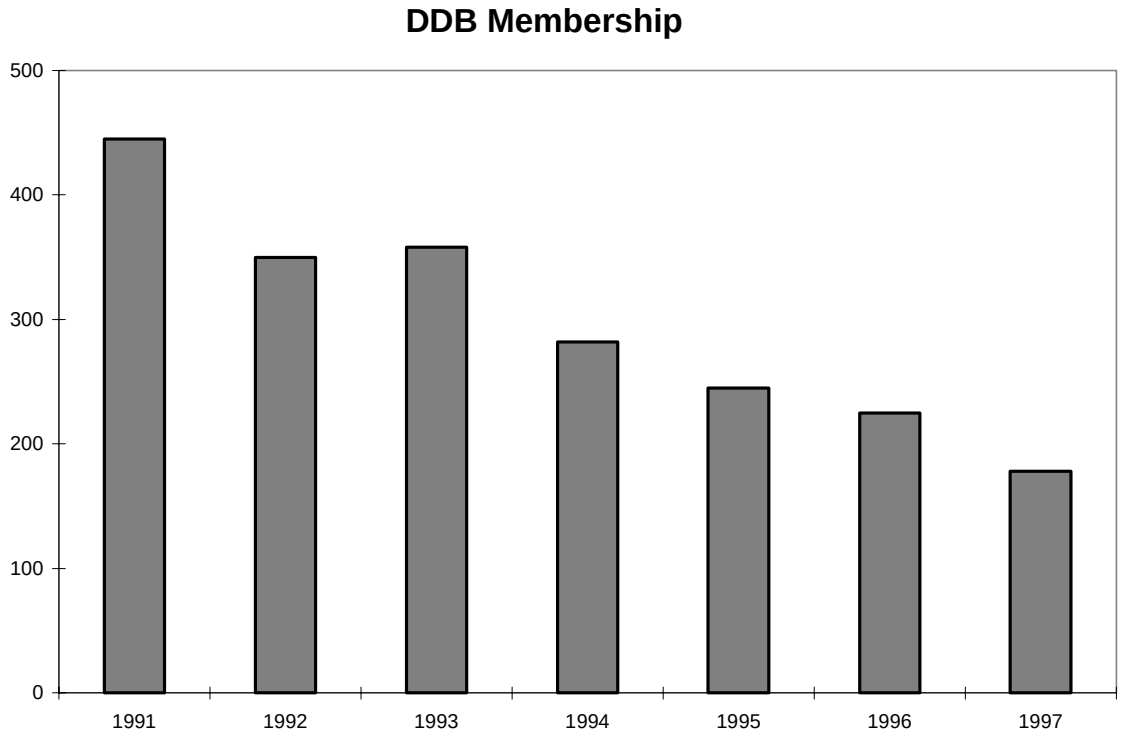
Through its co-operative status DDB is also integrated with pig producers, in that the producers are the members of the co-operative. As a result, DDB's key objective being to maximise shareholder value through its operations is consistent with maximising value for its producer members.

Increases in value due to gains in efficiencies are passed on to members via dividends and rebates on pig prices.

3.4 Membership and supply arrangements

As a result of its co-operative status, DDB buys pigs from members under a formal agreement which specifies the number of pigs which will be supplied and are guaranteed to be accepted during a twelve month period. Membership of the co-operative is restricted to producers who are current suppliers of pigs.

As at 31 December 1997, there were 177 members. Membership of the co-operative has reduced significantly over the last ten years in line with the increasing concentration of the pig farming industry (refer following diagram):



3.5 Facilities

DDB operates from the following premises:

Darling Downs Bacon Premises		
Location	**Ownership**	**Activities**
Willowburn, Queensland	Owned	Head Office Abattoir Boning room Further processing Warehousing Distribution
West End, Queensland	Leased	State Sales and Administration Office
Arndell Park, New South Wales	Leased	State Sales Office
Laverton, Victoria	Leased	State Sales Office and Refrigerated Warehouse
Port Adelaide, South Australia	Leased	State Sales Office
Source : DDB		

DDB owns approximately 72 hectares of land at Willowburn which is located on the northern outskirts of Toowoomba. Today's preferred transport mode is road, and the site is well serviced by road being adjacent to the Warrego Highway to Brisbane, the New England Highway to Sydney.

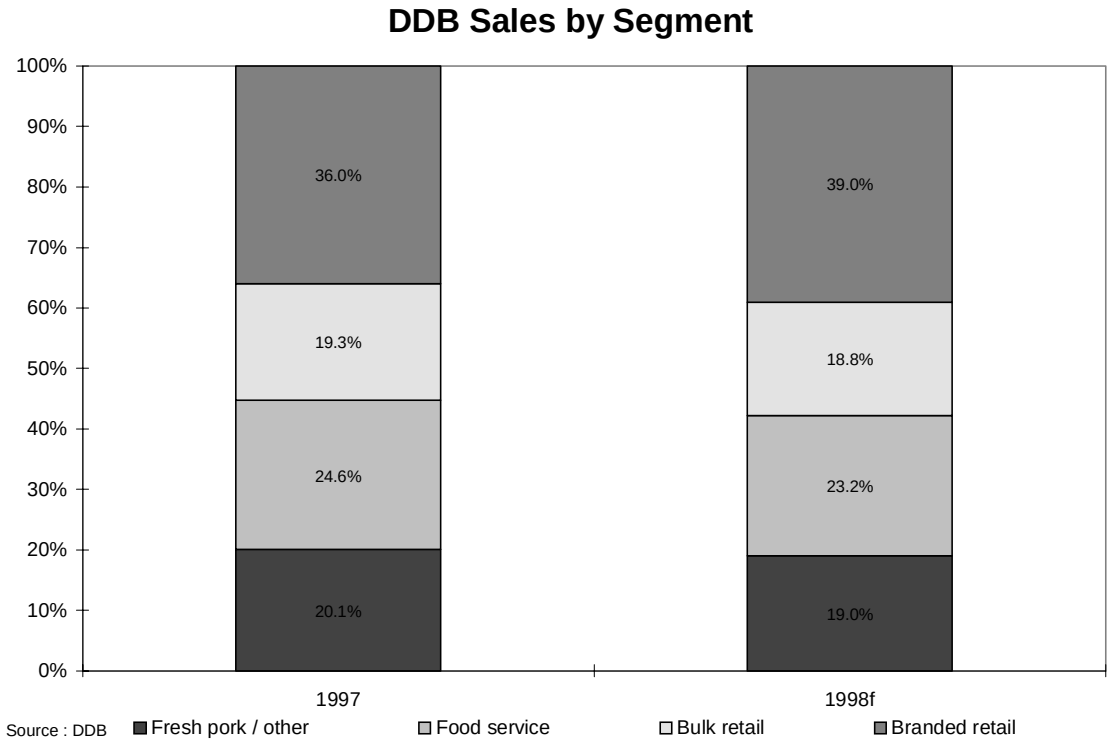
The factory was originally constructed in 1912 and rebuilt following a fire in 1924. It incorporated an abattoir, boning room and further processing facilities. Processing is carried out on two floors. Separate cold stores were built in 1985. The requisites store is stand alone and was erected in 1982. Engineering and maintenance factories operate out of stand alone facilities. The processing facilities have been the subject of continuous refurbishment over the years and remain in new condition.

3.6 Current products

DDB produces and supplies branded and unbranded pork products for the retail, food service and fresh pork markets. Its products include:

- ham, bacon and smallgoods ("further processed products") for the retail and food service markets. DDB produces approximately 150 product line items in pre-packs under the KR and Huttons brands and in bulk;
- unbranded boxed pork for retail and food service;
- fresh pork;
- frozen pork to other manufacturers; and
- dry grocery products under various brands including Spam, Hormel and Marrakesh Express, supplied through the KR Hormel partnership. DDB is discontinuing its previous practice of allowing the KR Brand to be used on imported canned ham.

The supply of branded ham, bacon and smallgoods to the retail sector represents the most profitable segment of DDB's business. A break up of DDB's sales by segment for 1997 and the budget for 1998, illustrated in the chart below, shows that DDB's product mix is expected to improve towards the higher margin branded retail segment:

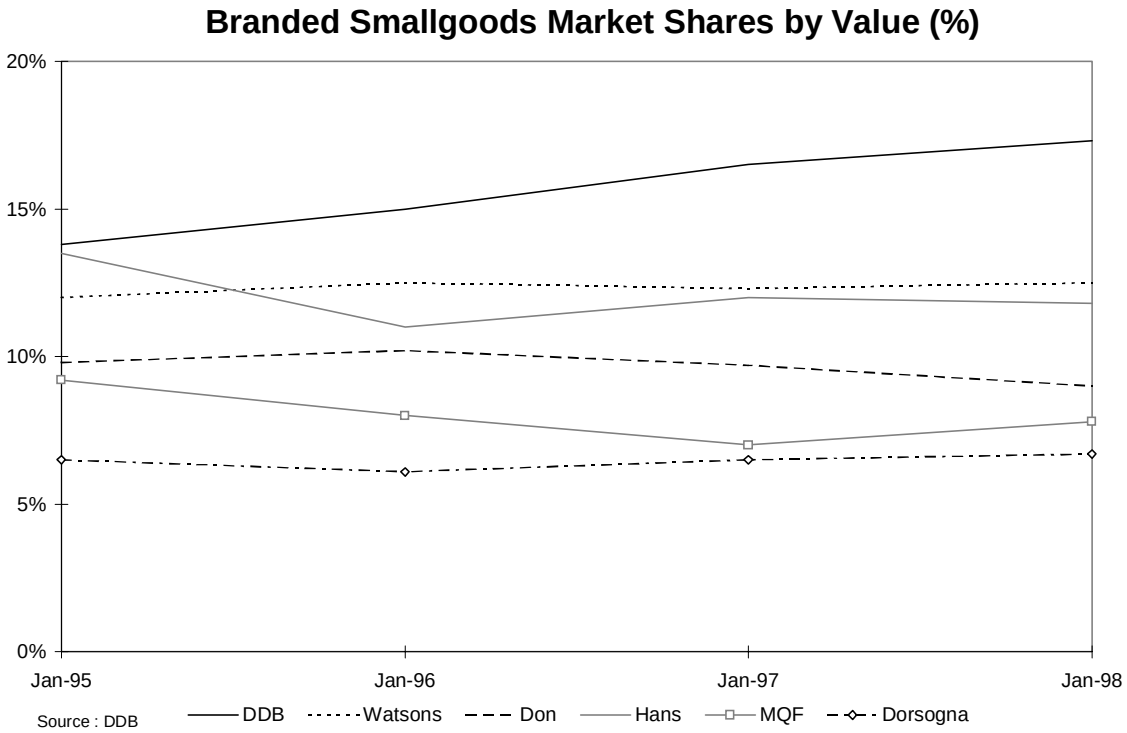


At present, DDB does not export any product due to its facilities not being export accredited, however exports are seen as a significant opportunity for the future.

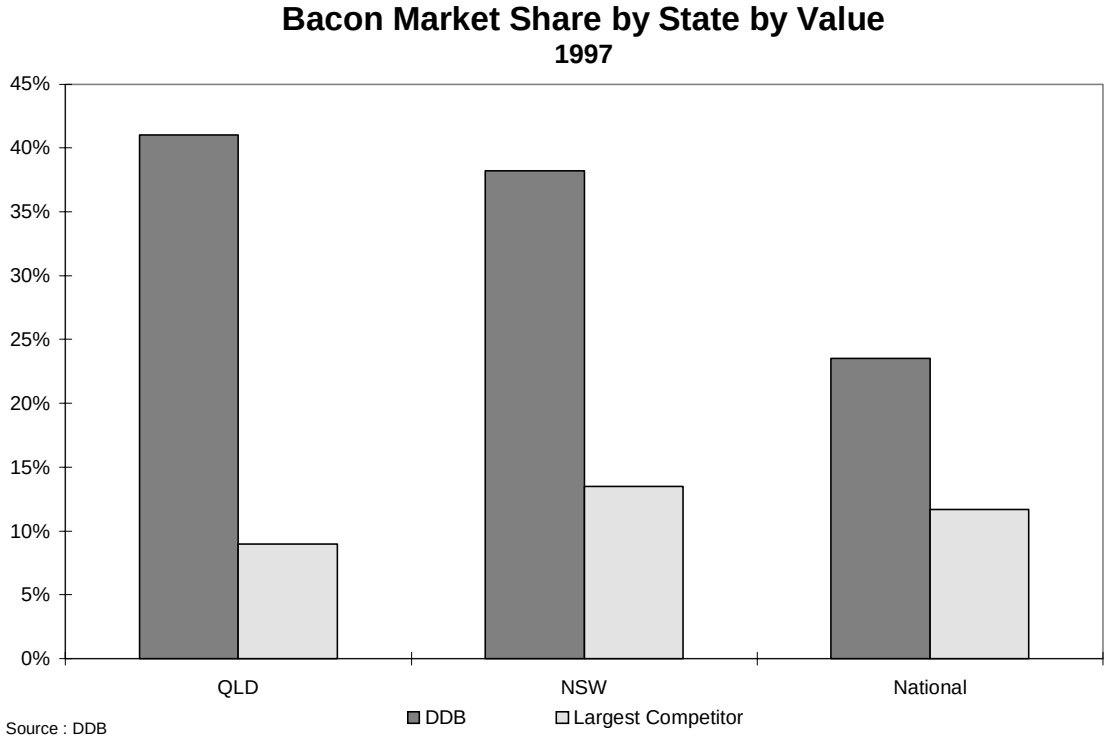
3.7 Market position

DDB is the market leader in Australia in sales of branded ham, bacon and other smallgoods to the retail sector with an overall national market share of 17.5%. This sector is the largest market segment and the most profitable for suppliers. Management believes that DDB is a market leader in other product/market segments but comparative information is not available in these sectors.

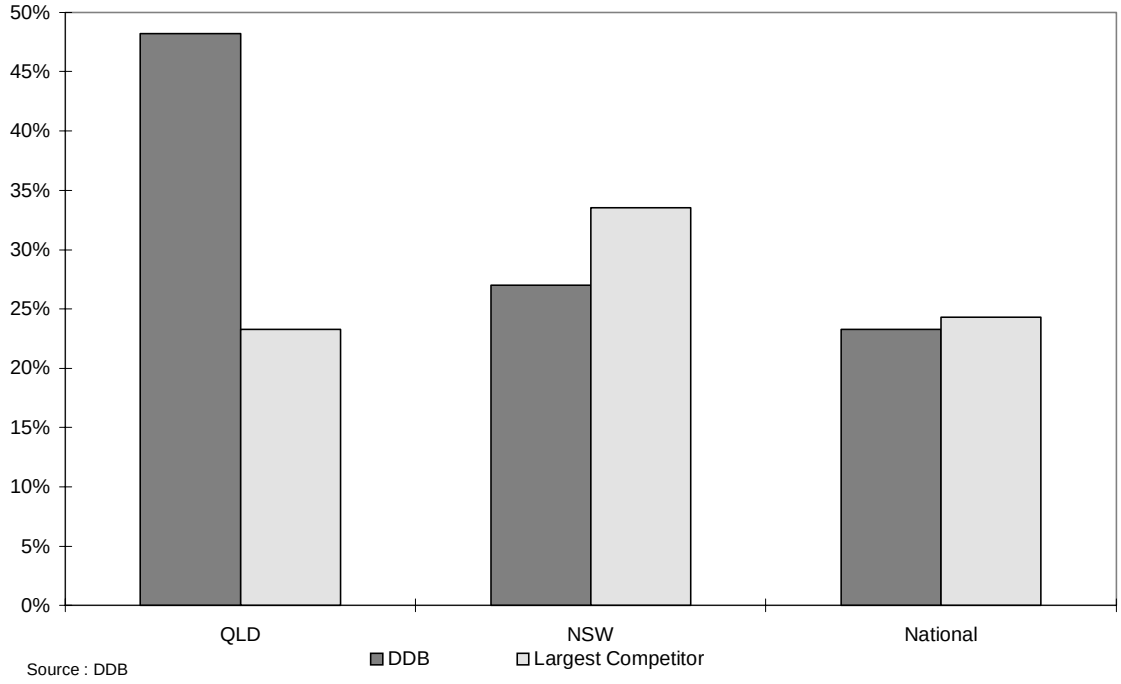
DDB's national leadership in branded smallgoods has been strengthening.



DDB has particular regional strength in Queensland and New South Wales:

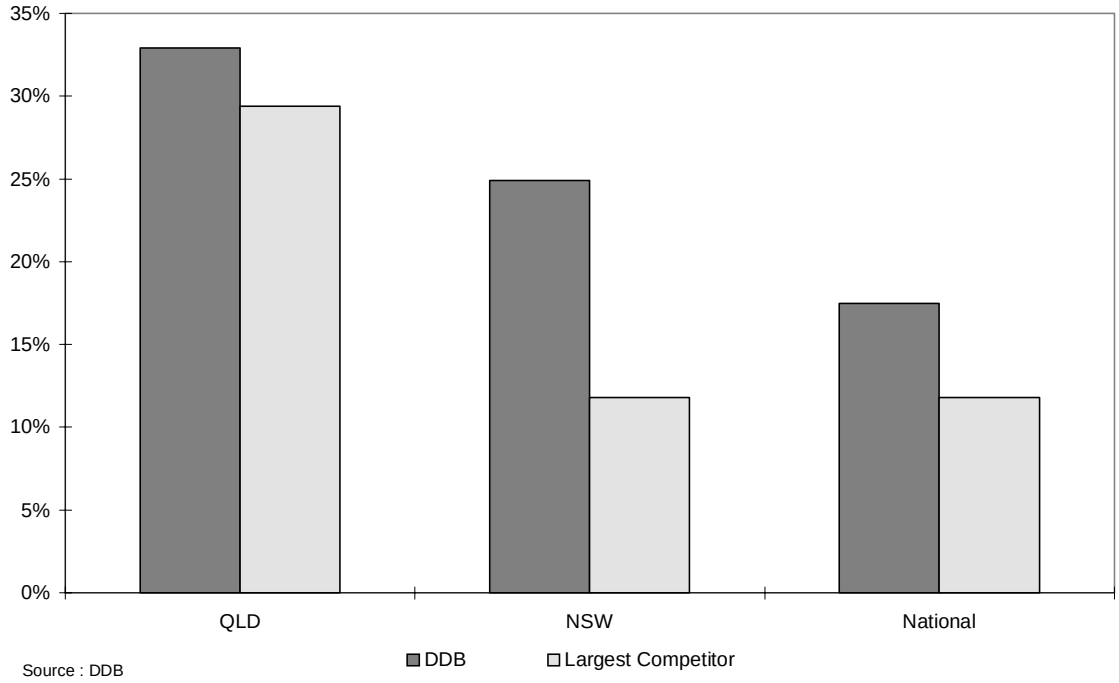


Ham Market Share by State by Value
1997



Source : DDB

Total Smallgoods Market Share by State by Value
1997



Source : DDB

3.8 Financial performance

The financial results of DDB for the five years ended 31 December 1993 are summarised in the following table:

Darling Downs Bacon Co-operative Association Ltd: Historical Trading Results 1989 to 1993

	1989	1990	1991	1992	1993
Sales ($'000)	158,391	176,583	173,232	122,996	102,268
Gross profit contribution					
Gross profit contribution %					
Distribution expenses					
Selling expenses					
Marketing					
Other overhead expenses					
Total operating expenses	47,106	47,000	58,815	33,205	30,136
Operating expenses to sales %	29.7%	26.6%	34.0%	27.0%	29.5%
Other income	262	(384)	(606)	(1,647)	(291)
EBIT before abnormals	**696**	**3,115**	**(1,634)**	**607**	**2,637**
EBIT before abnormals contribution %	0.4%	1.8%	-0.9%	0.5%	2.6%
Abnormal items	0	0	0	2,346	(985)
EBIT after abnormals	696	3,115	(1,634)	(1,739)	3,622
Interest expense	2,787	1,932	1,438	1,003	551
Operating profit before/(loss) tax ($'000)	(2,091)	1,183	(3,072)	(2,742)	3,071

Note: Abnormal items in 1992 and 1993 were redundancy payments and profit on sale of land respectively
Source: DDB management financial statements

The significant changes to DDB's operations during the period 1989 to 1993 included the closure of its cattle abattoir operation at Doboy in 1992 and the conducting of pork exporting in 1992 and in part of 1993. For most of the period 1989 to 1993, DDB achieved a relatively low level of earnings before interest, tax and abnormals (relative to sales) reflecting the co-operative nature of the operations. The loss in 1991 as reported in the Chairman's address in that year was contributed to by the importation of Canadian pork by competitors which adversely affected gross profit margins and a range of factors effecting the cattle abattoir operation.

The financial results of DDB for the four years and six months ended 30 June 1998 are summarised in the following table:

Darling Downs Bacon Co-operative Association Ltd: Historical Trading Results 1994 to Six Months ended 30 June 1998					
	1994	1995	1996	1997	Six Mths Jun 1998
Sales ($'000)	110,849	114,666	117,071	116,843	56,832
Actual gross profit contribution					
Gross profit contribution % Distribution expenses Selling expenses Marketing Other overhead expenses					
Total operating expenses	35,370	36,633	35,559	38,278	19,015
Operating expenses to sales %	31.9%	31.9%	30.4%	32.8%	33.5%
Other income	(323)	(200)	(1,101)	(1,293)	(482)
EBIT before abnormals ($'000)	**1,546**	**1,716**	**1,844**	**2,195**	**121**
EBIT before abnormals contribution %	1.4%	1.5%	1.6%	1.9%	0.2%
Abnormal items	63	78	272	33	15
EBIT after abnormals	1,483	1,637	1,572	2,161	106
Interest expense	481	646	542	669	212
Operating profit before/(loss) tax ($'000)	1,002	991	1,031	1,492	(106)
Source: DDB management financial statements					

The operating results have been relatively consistent during the four years ended 31 December 1997. Following this, the results for the six months ended 30 June 1998 have been adversely affected by the importation by competitors of Canadian pork. In consequence DDB has suffered a significant loss of gross margin on domestic pork sales. DDB has acted to mitigate this loss to some extent through the introduction of boxed pork as a product line and the sale of this product line to a major retailer. The effect of the Canadian imports are further detailed elsewhere in this submission.

3.9 Sales history

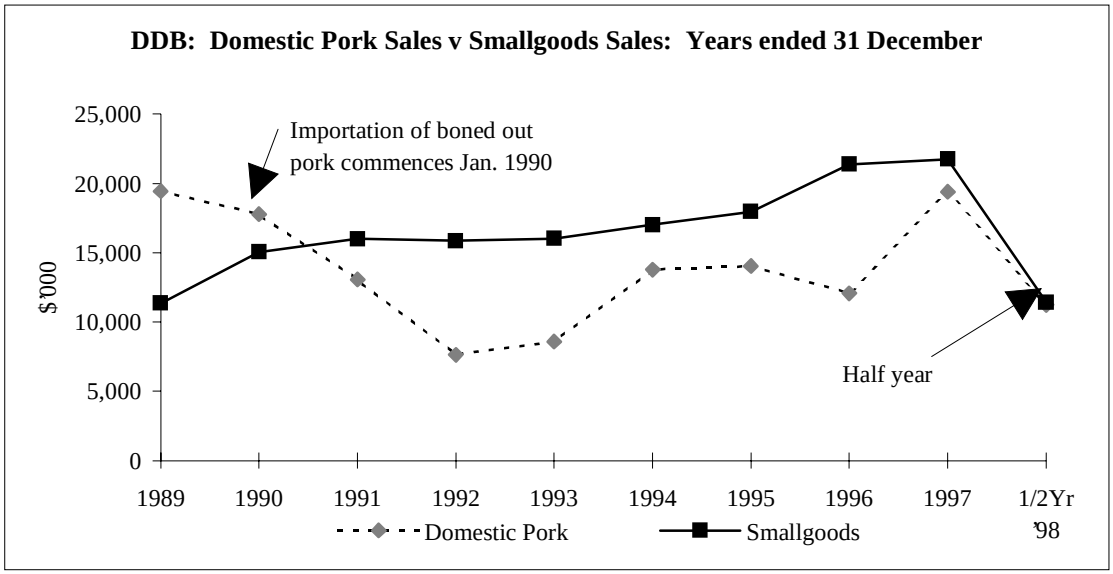
The sales results of DDB by product category for the five years ended 31 December 1993 are summarised in the following table:

Darling Downs Bacon Co-operative Association Ltd: Sales Results 1989 to 1993					
	1989 $'000	1990 $'000	1991 $'000	1992 $'000	1993 $'000
Smallgoods					
Pork local					
Ham and bacon					
Beef					
Canned meats local					
Canned meats export					
By-products					
Pork VSP/Export					
Other					
Total sales	**158,391**	**176,583**	**173,232**	**122,996**	**102,268**
Source: DDB management financial statements					

The sales results of DDB for the four years and six months ended 30 June 1998 are summarised in the following table:

Darling Downs Bacon Co-operative Association Ltd: Sales Results 1994 to 30 June 1998					
	1994 $'000	1995 $'000	1996 $'000	1997 $'000	Six Mths Jun 1998 $'000
Smallgoods					
Pork local					
Ham and bacon					
Beef					
Canned meats local					
Canned meats export					
By-products					
Pork VSP/Export					
Other					
Total sales	**110,849**	**114,666**	**117,071**	**116,843**	**56,832**
Source: DDB management financial statements					

Domestic pork sales and smallgoods sales are shown in the following chart:

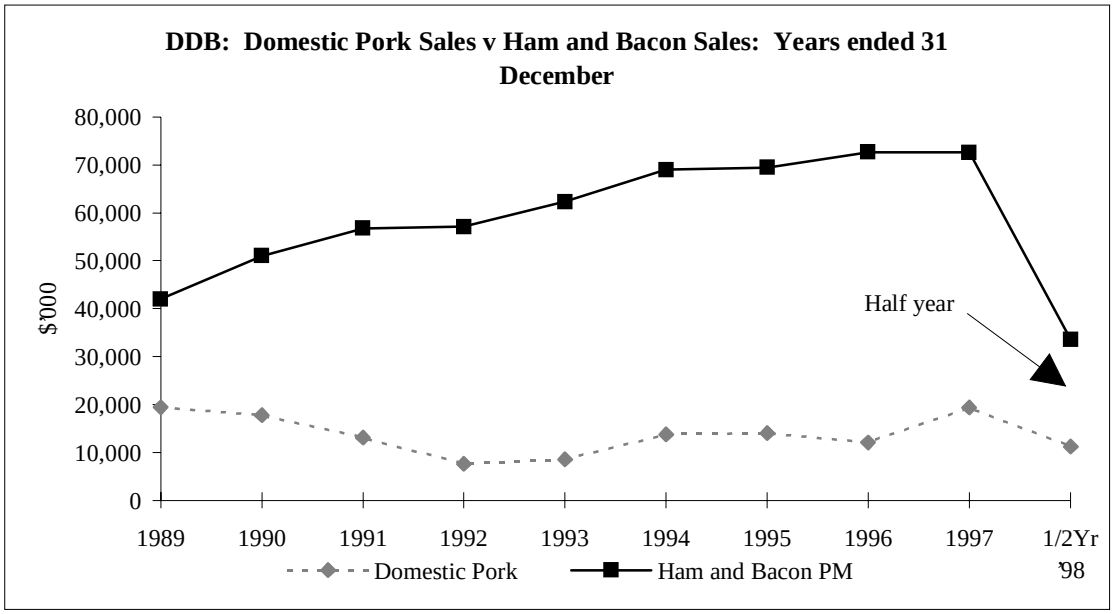


Over the period 1989 - 1993, domestic pork sales declined substantially whilst sales of small goods increased. This decline in pork sales was exacerbated by declining margins in this product line, which caused DDB to change product mix away from low margin products to higher margin products.

In 1996, DDB's cannery was closed which resulted in 750,000 to 1,000,000 kilograms of shoulders being available which could not be utilised in the production of the canned *SPAM* products. This resulted in the shoulders being switched to the domestic pork market and this largely contributes to the increased sales of domestic pork in 1997.

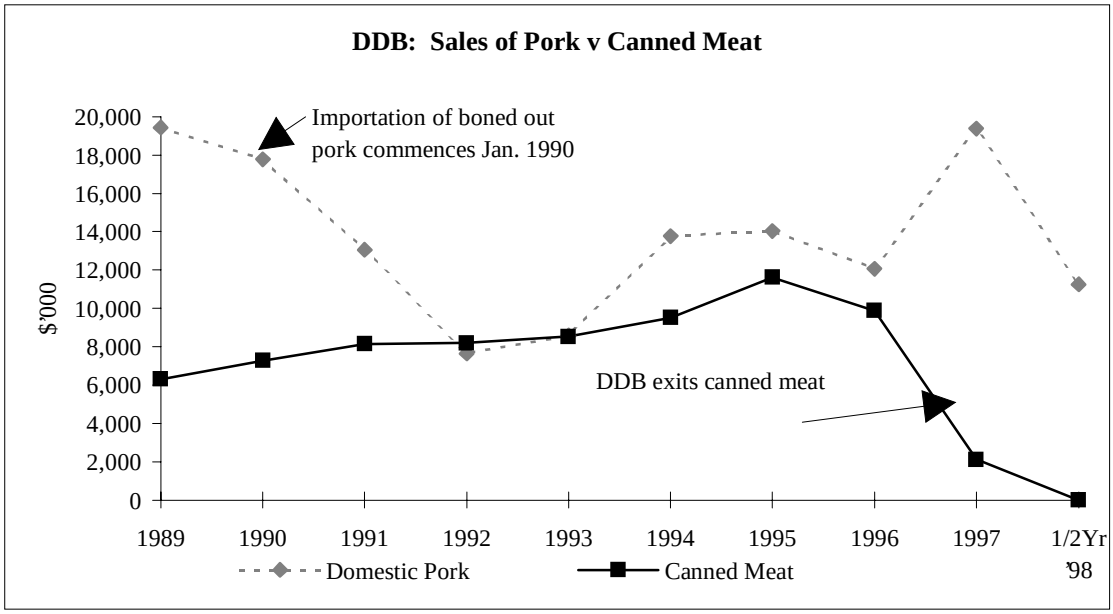
DDB's smallgoods sales have trended upwards during the period to 1997 through growth in market share taken from MQF (Mayfair, Dandy and Presto brands) among others. DDB's competitiveness during this period has been contributed to by product development and numerous new product releases.

Domestic pork sales and ham and bacon sales are shown in the following chart:



Like smallgoods, DDB has significantly improved ham and bacon sales during the period from 1989 to 1997. This is also as a result of new product development, such as DDB's *Shortcuts* which is now a market leader. This has also resulted in DDB aggressively taking market share from competitors, whilst per capita consumption has remained relatively stable.

Domestic pork sales and canned meat are shown in the following chart:



The above chart reflects the drop of canned meat *(SPAM)* and the switching of the pig shoulders into domestic pork sales, as mentioned previously.

3.10 Gross profit history

DDB's gross profits from its major product lines are shown in the following chart:

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DDB's gross margin from the sale of smallgoods has declined since the early 1990's hand in hand with the growth in sales volume. Sales growth during this period included sales of lower margin generic products, such as the Black and Gold to Australian Associated Retailers, and product branded, Blue and White to Coles, and sales of lower margin lines such as knobs and sausages to food service businesses.

Ham and bacon gross margins remained relatively stable from 1992 to 1996. The gross margin has significantly improved since then with the introduction of high gross margin shaved ham products.

Gross profit history for domestic pork is relatively consistent for many of the years shown in the above chart. The exceptions are 1992 and 1998. In 1992 DDB commenced exporting pork and achieved sales of in excess of $10 million in that year. Export sales continued until 1993 when regulatory requirements and market conditions forced DDB's exit from overseas markets. In 1992, DDB's management financial statements show a negative gross margin in domestic pork. Management's view is that this reflects a measurement problem in the allocation of costs between domestic pork and export product, and that the domestic pork gross margin in that year was in fact in the order of 10.5%, that is approximately that achieved in the preceding and succeeding year.

Gross margin on domestic pork was negative in 1998 and this is discussed in further detail in the following paragraphs.

In June/July 1996, Chisholm (Woolworths) abandoned their policy of using domestically sourced boneless leg ham (pork) and announced their decision to import this from Canada. DDB had previously supplied large quantities of boneless and bone-in legs to Chisholm. DDB's trade with Chisholm allows the co-operative to trade its surplus product and maintain levels of livestock intake without having to raise and drop with demand. DDB's sales to Chisholm were made at prices relative to the price of domestic pig meat which would enable DDB to earn a commercial margin through its abattoir and boning room.

DDB's sales to Chisholm in between 1995 and 1998 are summarised in the following table:

Pork: DDB's Sales to Chisholm				
	1995	1996	1997	1998
95 chemical lean Boneless	205mt /$1.3m	290mt /$1.9m	0mt / $0	0mt / $0
Bone-in legs	208mt /$0.8m	120mt /$0.4m	0mt / $0	0mt / $0
mt (metric tonne)				

Substantial imports of boneless leg ham were made by Chisholm in September 1997. However, during this period DDB as a co-operative continued to take pig inputs from its producer/suppliers. This resulted in a large inventory build up of pork in DDB's freezers which in previous years would have been sold to Chisholm.

In response to the serious damage to DDB's business resulting from the loss of sales to Chisholm, DDB has aggressively marketed boxed pork and has been successful in selling this product to a major retailer. DDB's gross profit earned on domestic pork excluding the benefit of boxed pork sales to the same major retailer is shown in the following chart:

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3.11 Quantification of the effects of Canadian imports on DDB

DDB's sales and gross profit performance in domestic pork is shown in the following table:

DDB: Sales of Domestic Pork 1989 to Half Year Ended 30 June 1998 ($'000)										
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1/2Yr '98
Sales of domestic pork										
Gross profit domestic pork										
Gross profit %										
Gross profit (running ave.) %										

The above table indicates DDB's gross profits have been trending downwards since 1989.

Over the years 1994 and 1995, DDB experienced a tightening of margins due to competitive pricing which occurred as a result of both domestic production and overseas imports. As domestic production tightened during 1996, DDB was able to achieve higher margins, however as a result of these domestic price increases, major consumers, including Chisholm and Primo, decided to import greater volumes of pigmeat. The flow on effect of these increased imports was greater price competitiveness in the domestic market in 1997 and 1998. The net effect of this price competitiveness was a reduction in margins achieved by DDB.

It appears average gross margin for DDB to be approximately between X% and X% over the period under review, excluding the 1992 operating results. The following table utilises this gross margin as the likely return DDB could have achieved in the absence of imports.

DDB: Loss of Gross Profit on Domestic Pork through Canadian Imports								
	Notes	1992	1993	1994	1995	1996	1997	1/2Yr '98
Sales of domestic pork ($'000)								
Gross margin %								
Gross profit would have earned		803	901	1,447	1,474	1,267	2,036	1,076
Actual gross profit	3	765	900	719	903	1,311	1,678	-252
Loss of gross profit to DDB		38	1	728	571	-44	357	1,328
Sum of losses ($'000)								**2,980**
DDB's WACC	4	12%	12%	12%	12%	12%	12%	12%
Years to present		5.5	4.5	3.5	2.5	1.5	0.5	0
Factor to calculate present value		86.5%	66.5%	48.7%	32.8%	18.5%	5.8%	0.0%
Present value of loss of gross profit		71	1	1,082	758	-52	378	1,328
Sum of losses if reinvested ($'000)								**3,568**

3 Gross profit in 1992 adjusted to correct DDB's internal mis-allocation of costs.

4 WACC is DDB's estimated pre tax weighted average cost of capital. It is assumed DDB would have reinvested the profits had they not been lost.

DDB therefore estimates that the loss of profits to DDB through the importation of Canadian pork is $2,980,000. If it is assumed that DDB would have efficiently reinvested these sums (if they had not been lost) then the damage is $3,568,000.

DDB's total shareholders' equity as at 31 December 1997 was $20,744,429. The damage represents 14.4% of shareholders' equity in terms of the loss of profits and 17.2% of shareholders' equity if the potential for reinvestment is considered. It is therefore submitted that DDB has suffered serious injury in consequence of the importation of Canadian pork.

4 Empirical Evidence

4.1 Introduction

This chapter attempts to address the questions identified by the Productivity Commission issues paper. Specifically, this chapter will address the steps the Commission will follow in the inquiry, and where possible provide information which identifies how imports have seriously injured DDB.

4.2 Step 1 - Have imports increased ?

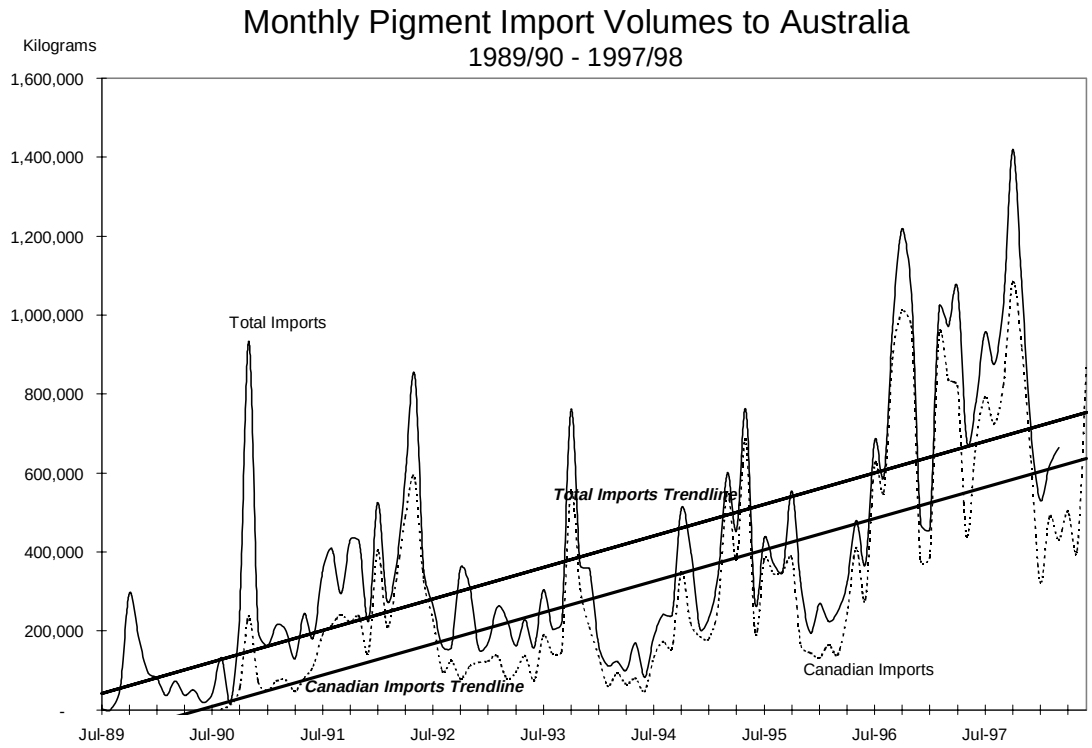
The principle issue in establishing the case for safeguard action is to identify whether or not imports of pigmeat have increased. The following table summaries the pigmeat imports, domestic production and imports as a percentage of domestic production.

Import of Pigmeat to Australia

	Pigmeat Imports from Canada (kg)	Total Pigmeat Imports (kg)	Domestic Production (kg)	Imports as % of Domestic Production
1989/90		895,300	317,090,000	0.3%
1990/91	1,009,025	2,720,900	311,487,000	0.9%
1991/92	4,002,700	5,097,400	326,246,000	1.6%
1992/93	1,584,300	2,616,700	329,969,000	0.8%
1993/94	2,040,700	2,967,000	344,260,000	0.9%
1994/95	3,486,300	4,450,900	351,111,000	1.3%
1995/96	3,221,300	4,132,100	333,967,000	1.2%
1996/97	8,649,900	9,985,100	325,590,000	3.1%
1997/97	7,985,100	n.a (1)	344,236,000	n.a

(1) Total pigmeat imports for 1997/98 is unavailable, however minimum estimate would be 9,648,900 kg, based on July 1997/March 1998 total pigmeat imports + Canadian imports for April, May and June 1998.
Source : Pigstats

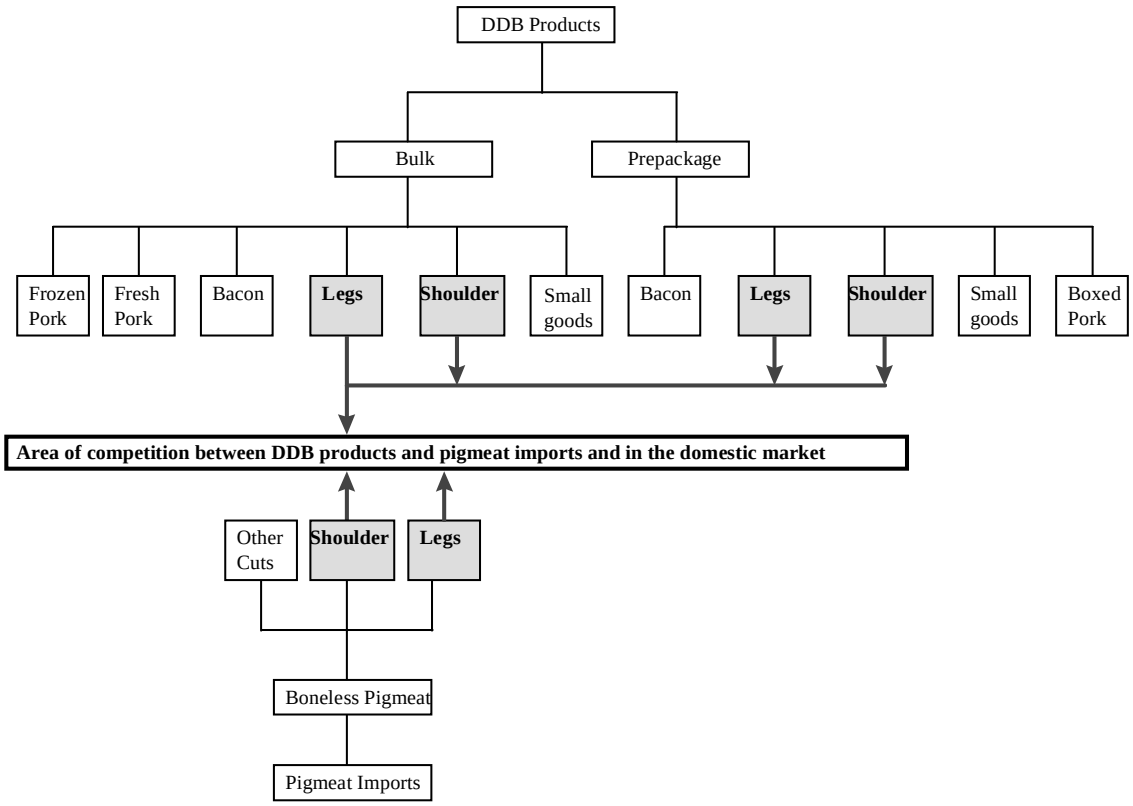
As shown in the above table and following graph, imports of pigmeat to Australia have been increasing since 1989/90, both in absolute terms and as a percentage of domestic production. This is clearly demonstrated by the upward sloping trendlines of both Canadian pigmeat imports and total pigmeat imports in the following graph.



4.3 Step 2 - What is the 'industry' ?

The Commission has identified that it must establish which producers in Australia produce like or directly competitive products to the imports of frozen, boned leg pigment which are subsequently processed as smallgoods in Australia.

As identified previously, DDB's operations involve killing, boning, processing and marketing domestic grown pork based products predominantly in Australia. Given this, it is our contention that imports of frozen, boned leg pigmeat directly compete and may act as a substitute for DDB boned leg pigmeat for processing. This is graphically explained in the following diagram.



4.4 Step 3 - Has the industry suffered, or is likely to suffer, serious injury ?

Purcell and Harrison (1998) contest there are two shocks to the market equilibrium that need to be considered when reviewing the impact of pig imports on the domestic market. The first shock occurred in January 1990 with the removal of quarantine restrictions on the importation of fresh, frozen, (FFP) bone-out pigmeat from Canada. This pigmeat could be used as a substitute product within the processed meat sector of the domestic pigmeat industry.

The second shock occurred in November 1997 with the removal of quarantine restrictions of the importation of fresh, frozen, bone-out pigmeat from Denmark and the approval for the importation of already processed pigmeat from Canada.

Key points identified in this study are :

- After 1990 there is a structural break which has induced volatility in producer prices that has made producer decisions more difficult because of long-term market instability.
- The removal of the long-run market equilibrium relationship as a result of the introduction of imports has meant that volatility in producer prices may persist with corresponding adverse effects on producers.
- The introduction of imports has fundamentally changed the dynamics of the supply response.

- Econometric modelling of the factors affecting producer prices over the period 1984:4 to 1997:2 indicates that for every additional 1,000 tonnes of pigmeat that was imported, domestic producer prices fell by between 9.8 and 30.5 cents per kilogram. This compares with the effect of domestic pig production, where every 1,000 tones of extra production dropped producer prices by between 1.4 and 3.8 centres per kilogram
- Approximately one-third of the variability in producer prices for baconers can be attributed to import volumes.
- Import volumes contribute about 40% to the variability in retail prices in pork.

Purcell (1998) examined further the factors affecting domestic pigmeat production in Australia to determine whether there has been an increase in production, or a persistent oversupply in domestic pigmeat, which could have contributed to an acute depression in producer prices over the period corresponding to the introduction of imports from Canada.

Key points identified in this study include :

- Econometric modelling indicates that there has been an underlying supply response of the domestic pig industry, and that production is in fact significantly below historical patterns.
- Every cent increase in the producer price drops domestic production by between 104 tonnes and 109 tonnes in the long run.
- Every cent increase in saleyard beef prices increases domestic production by around 87 tonnes.
- Every cent increase in retail pork prices increases domestic production by around 63 tonnes.
- Imports of pigmeat have a significant effect with every kilogram of imported product dropping domestic production by around 7 kilograms.
- Any oversupply in pigmeat production is likely to be very short-lived, and therefore the claims by the Department of Primary Industries and Energy, that there is an oversupply in pigmeat production causing a depression in pigmeat prices, do not appear to be supported.

In summary, import volumes and import prices have driven producer prices down, implying that imports are crowding out domestic production, import prices are driving producer prices down, and the accompanying depression in producer prices has driven production down further.

4.5 Step 4 - Are imports causing serious injury ?

4.5.1 Impact of Imports on Darling Downs Bacon

The above analysis has concentrated primarily on the impact of pigmeat imports on producers and retailers, while little to no comment being made on the impact of imports on wholesalers like DDB. Therefore, we have undertaken a range of econometric modelling to identify if any causal relationship exists between DDB's performance and pigmeat imports.

4.5.2 Econometric Modelling Technique

In econometric modelling using linear regression, one of the main assumptions held is that the variables we are measuring do not randomly move over time - that is, the variables exhibit stationary characteristics. Where a variable whose mean and/or variance (spread) moves over time, the relationship between variables identified by the regression analysis can be interpreted as either the true relationship between two variables, or a spurious relationship based on the random fluctuations of the variable away from its mean value. Through the process of differencing, usually first differencing, it is possible to transform a variable that is non-stationary to one that is stationary. Therefore, regression analysis on stationary variables ensures that we are identifying the correct data generating process underlying the dynamics of the variables.

4.5.3 Dataset used in the Analysis

Our analysis is based on monthly data for wholesale prices of pigmeat product lines of Darling Downs Bacon between March 1995 and June 1998, and import volumes and prices received for Canadian pigmeat. Specifically, the data used in this analysis are :

- Leg Ham Smoked Bone In (HSBI) ($/kg)
- Leg Ham Champagne Bone Out (HCBO) ($/kg)
- Processed Leg Ham (PLH) ($/kg)
- Shoulder Catering Ham (SCH) ($/kg)
- Processed Shoulder Ham (PSH) ($/kg)
- Processed Bacon (PB) ($/kg)
- Pork Frozen (PF) ($/kg)
- Imports of pigmeat from Canada (CANMVOL) (kgs)
- Import prices of pigmeat from Canada (CANMP) (cents/kg)

We note that import prices of pigmeat from Canada are in cents/kg, resulting in the coefficients of the regression models needing to be multiplied by 100 to get $/kg.

4.5.4 Granger Causality tests

Granger Causality determines the direction of the relationship, if any, between two stationary variables. That is, a variable W_t is said to GRANGER CAUSE a variable Z_t, ($W_t \Rightarrow Z_t$), if the prediction of the value of Z_t based on its own history, or lagged variables, can be improved by using the history, or lagged variables, of W_t (Granger 1969). In addition, the Granger tests also indicate bi-directional causality, or feedback effects, and indirect causality is implied through a process of transitivity where, if $W_t \Rightarrow Z_t$ and $Z_t \Rightarrow V_t$, then $W_t \rightarrow V_t$

Bivariate Granger causality tests were carried out between the stationary variables in the dataset with 2 lags chosen. The significant results are presented in the following table. The results suggest that import prices do have an effect on the prices of Processed Shoulder Ham and Champagne Leg Ham and the prices of the products produced by DDB do influence each other.

Granger Causality Tests	
Granger Causality	p-value
$\Delta SCH \Rightarrow \Delta_4 CANMP$	0.01931
$\Delta_4 CANMP \Rightarrow \Delta PSH$	0.09808
$\Delta_4 CANMP \Rightarrow \Delta HCBO$	0.08301
$\Delta_4 CANMP \Rightarrow \Delta_4 CANMVOL$	0.01095
$\Delta PLH \Rightarrow \Delta PSH$	0.07635
$\Delta PSH \Rightarrow \Delta HSBI$	0.02453
$\Delta PSH \Rightarrow \Delta HCBO$	0.03094
$\Delta PB \Rightarrow \Delta PLH$	0.021
$\Delta HSBI \Rightarrow \Delta PLH$	0.09951
$\Delta PF \Rightarrow \Delta HSBI$	0.07885
Source: KPMG Management Consulting, University of Queensland	

While the Granger bivariate causality tests indicate the direction of causality between two variables, to gain insights on the degree of strength of causal interactions between variables, it is necessary to use a multivariate framework

4.5.5 A Vector Autoregression Model of Darling Downs Bacon Wholesale Prices

The following analysis has attempted to determine the interactions between DDB wholesale prices and quantify the effect of imports on those prices.

Linear regression techniques are usually used to estimate the effect of an exogenous, or independent variable, on an endogenous, or dependent variable. This methodology is acceptable if there are no feedback mechanisms by which the data generating process of the exogenous variable is influenced by changes in the endogenous variable, such as if prices are dependent on production, but production is also dependent on prices.

In the situation where feedback mechanisms exist between variables, a simultaneous equation framework is usually used to capture the inter-relationships and dynamics of a system. A particular type of simultaneous equation is a Vector Autoregression (VAR), which does not impose an ad-hoc theoretical structure on the data generating process and allows the dynamics of the system to be accurately captured.

We have formulated a VAR model incorporating a 2 period lag of Darling Downs Bacon wholesale prices, assuming that the prices are stationary. We set wholesale prices as being endogenously determined within the model and import volumes and prices as being exogenously determined. In addition we have the intercept, time trend, seasonal dummies, and a structural break for November 1997 (reflecting the latest change in quarantine restrictions) also as exogenous variables. The numerical results of our analysis are presented in the following tables, which indicate these key outcomes with respect to the impact of imports on DDB products :

- The change in import protocols after November 1997 significantly depressed the price of **Smoked Leg Ham** by $1.66 ± 0.81/kg over the period November 1997 to June 1998;
- The change in import protocols after November 1997 significantly depressed **Champagne Leg Ham** prices by $1.13 ± 0.57/kg;
- Although changes in import volumes do not significantly affect the price of **Processed Leg Ham**, import prices do. Every $1.00 increase in the price of imports from Canada depresses the price for Processed Leg Ham by $0.88 ± 0.31/kg;
- Import volumes significantly affect the price of **Shoulder Catering Ham** with every 1,000 tonnes increase in imports of pigmeat from Canada resulting in a depression in price of $0.56 ± 0.21/kg;
- The model suggests that for every 1,000 tonnes increase in imports of pigmeat from Canada, the price for **Processed Shoulder Ham** falls by $0.20 ± 0.12/kg, and for every $1.00 increase in the price of imported pigmeat, the price for Processed Shoulder Ham falls by $0.22 ± 0.13/kg; and
- Price changes for **Processed Bacon** and **Frozen Pork** are not well determined within the specified VAR framework. The equations for both do not show any significant relationships between prices, even though the equations explain over 92% and 88% of the variations in Processed Bacon and Frozen Pork prices respectively. The equation for Processed Bacon shows significant heteroscedasticity suggesting other factors not included in the VAR framework are probably better determinates of the data generating process for Processed Bacon and Frozen Pork.

Vector Autoregression Model Output								
	HSBI		HCBO		PLH		SCH	
Regressor	Coeff	S.E.[p-value]	Coeff	S.E.[p-value]	Coeff	S.E.[p-value]	Coeff	S.E.[p-value]
$HSBI_{t-1}$	-0.50923	0.23154[.052]	-0.27512	0.16348[.123]	-0.03544	0.10877[.751]	0.010408	0.080013[.899]
$HSBI_{t-2}$	-0.64053	0.22833[.019]	-0.03107	0.16121[.851]	0.22463	0.10727[.063]	-0.01546	0.078903[.849]
$HCBO_{t-1}$	-0.57064	0.37958[.164]	-0.18208	0.26801[.512]	0.002698	0.17832[.988]	0.15231	0.13117[.273]
$HCBO_{t-2}$	-0.84268	0.38434[.053]	-0.15815	0.27137[.573]	0.25174	0.18056[.193]	0.26031	0.13282[.078]
PLH_{t-1}	-0.17277	0.62806[.789]	-0.89948	0.44344[.070]	0.16924	0.29505[.579]	0.15634	0.21704[.488]
PLH_{t-2}	0.31118	0.45479[.509]	-0.10649	0.3211[.747]	-0.28603	0.21365[.210]	0.26875	0.15716[.118]
SCH_{t-1}	-0.64256	1.1971[.603]	-0.02863	0.84521[.974]	1.0599	0.56238[.089]	0.009795	0.41368[.982]
SCH_{t-2}	1.7392	1.1042[.146]	-0.17464	0.7796[.827]	-1.0518	0.51873[.070]	-0.01086	0.38157[.978]
PSH_{t-1}	-1.2906	1.4176[.384]	-1.0599	1.0009[.315]	-1.4552	0.66599[.054]	-0.51322	0.48989[.319]
PSH_{t-2}	0.11749	1.3158[.931]	-0.6764	0.92901[.483]	-1.0531	0.61814[.119]	-0.16674	0.4547[.721]
PB_{t-1}	-0.6552	0.40352[.136]	-0.53753	0.28491[.089]	-0.02788	0.18957[.886]	0.20592	0.13945[.171]
PB_{t-2}	-0.46111	0.4556[.335]	-0.1626	0.32168[.624]	-0.10151	0.21404[.646]	0.10326	0.15744[.527]
PF_{t-1}	0.33751	0.40499[.424]	0.11185	0.28594[.704]	0.60855	0.19026[.010]	0.21018	0.13995[.164]
PF_{t-2}	0.68458	0.47262[.178]	0.31369	0.33369[.369]	0.15954	0.22203[.489]	-0.07145	0.16332[.671]
CONST	22.7975	12.2818[.093]	30.3386	8.6715[.006]	16.8646	5.7698[.015]	-1.997	4.2442[.648]
TIME	0.086688	0.040676[.059]	0.077503	0.028719[.022]	0.017934	0.019109[.370]	-0.02926	0.014056[.064]
S1	-0.71571	0.45558[.147]	-0.37629	0.32166[.269]	0.52488	0.21403[.034]	-0.01691	0.15744[.917]
S2	-1.8995	0.65529[.016]	-0.29882	0.46267[.533]	0.69941	0.30785[.046]	0.15787	0.22645[.502]
S3	-2.9365	0.68444[.002]	-0.15567	0.48325[.754]	0.62812	0.32154[.079]	-0.13193	0.23652[.589]
S4	-2.0934	0.5436[.003]	-0.60445	0.38381[.146]	0.45711	0.25538[.104]	-0.12691	0.18785[.515]
S5	-0.76139	0.46433[.132]	-0.47264	0.32784[.180]	0.6539	0.21814[.013]	0.128	0.16046[.444]
S6	-0.37021	0.63355[.572]	-0.00853	0.44732[.985]	0.60722	0.29764[.069]	-0.03688	0.21894[.870]
S7	-0.75498	0.70431[.309]	-0.8126	0.49728[.133]	0.889	0.33088[.023]	0.26132	0.24339[.308]
S8	-0.78967	0.67543[.269]	-0.54851	0.47689[.277]	0.4872	0.31731[.156]	0.18153	0.23341[.455]
S9	-0.78242	0.61082[.229]	-0.72094	0.43127[.126]	0.5626	0.28695[.078]	0.25837	0.21108[.249]
S10	-1.1844	0.69725[.120]	-0.71509	0.49229[.177]	0.49472	0.32756[.162]	0.36539	0.24095[.160]
S11	0.050153	0.49901[.922]	-0.29987	0.35233[.415]	-0.30058	0.23443[.229]	0.102	0.17244[.567]
$BREAK_{97}$	-1.6556	0.8088[.068]	-1.1281	0.57106[.076]	0.59455	0.37997[.149]	0.36956	0.2795[.216]
CANMVOL	-4.58×10^{-7}	6.02×10^{-7}[.465]	6.39E-07	4.251×10^{-7} [.164]	1.86×10^{-7}	2.828×10^{-7} [.526]	-5.61×10^{-7}	2.08×10^{-7} [.022]
CANMP	0.008917	0.0065779[.205]	-0.00509	0.0046443[.298]	-0.00878	0.0030902[.018]	0.001047	0.0022731[.655]
R^2	0.9049		0.78886		0.91986		0.78557	

Vector Autoregression Model Output						
	PSH		PB		PF	
Regressor	Coeff	S.E.[p-value]	Coeff	S.E.[p-value]	Coeff	S.E.[p-value]
$HSBI_{t-1}$	-0.03467	0.044564[.455]	-0.11365	0.17741[.536]	-0.10796	0.18913[.581]
$HSBI_{t-2}$	-0.03835	0.043945[.403]	-0.02468	0.17494[.891]	-0.10122	0.1865[.599]
$HCBO_{t-1}$	0.075444	0.073058[.326]	-0.26583	0.29084[.382]	-0.05664	0.31005[.859]
$HCBO_{t-2}$	0.12412	0.073974[.124]	0.10643	0.29449[.725]	0.27061	0.31394[.409]
PLH_{t-1}	-0.14575	0.12088[.256]	0.041881	0.48122[.932]	-0.32176	0.51301[.545]
PLH_{t-2}	0.1633	0.087531[.092]	-0.35374	0.34846[.334]	0.18821	0.37148[.623]
SCH_{t-1}	-0.17375	0.2304[.468]	0.41597	0.91723[.660]	-0.22518	0.97782[.823]
SCH_{t-2}	0.24732	0.21252[.272]	0.1889	0.84602[.828]	-0.39455	0.90191[.671]
PSH_{t-1}	-0.33386	0.27285[.249]	-0.12967	1.0862[.907]	0.21737	1.158[.855]
PSH_{t-2}	-0.75901	0.25324[.013]	-0.64048	1.0082[.539]	-0.82798	1.0748[.459]
PB_{t-1}	0.034862	0.077665[.663]	0.43982	0.30918[.185]	0.51889	0.32961[.147]
PB_{t-2}	-0.03383	0.087688[.708]	0.15716	0.34908[.662]	0.1325	0.37214[.729]
PF_{t-1}	0.17509	0.077947[.048]	-0.12574	0.3103[.694]	0.16075	0.3308[.637]
PF_{t-2}	0.1963	0.090964[.056]	0.31517	0.36212[.405]	0.36033	0.38605[.373]
CONST	7.0522	2.3638[.014]	6.7951	9.4104[.487]	3.8071	10.032[.712]
TIME	0.006581	0.0078288[.420]	0.037757	0.031166[.254]	-9.36×10^{-4}	0.033225[.978]
S1	0.15739	0.087684[.103]	-0.11436	0.34907[.750]	0.30231	0.37213[.435]
S2	0.13243	0.12612[.318]	-0.08258	0.50209[.873]	0.48116	0.53526[.390]
S3	0.009205	0.13173[.946]	-0.05486	0.52442[.919]	0.18591	0.55907[.746]
S4	-0.214	0.10463[.069]	-0.20257	0.41651[.637]	-0.6304	0.44403[.186]
S5	0.042394	0.089368[.645]	-0.00751	0.35577[.984]	-0.35739	0.37927[.368]
S6	0.16526	0.12194[.205]	-0.10096	0.48543[.839]	-0.08116	0.5175[.878]
S7	0.25431	0.13556[.090]	0.09037	0.53964[.870]	0.34875	0.5753[.558]
S8	0.11242	0.13[.407]	-0.09555	0.51752[.857]	0.020834	0.55171[.971]
S9	0.08871	0.11756[.468]	-0.33525	0.46801[.490]	0.086364	0.49893[.866]
S10	0.134	0.1342[.340]	0.19995	0.53424[.716]	0.33862	0.56953[.565]
S11	-0.02755	0.096043[.780]	0.16513	0.38234[.675]	-0.04376	0.4076[.917]
$BREAK_{97}$	0.0973	0.15567[.546]	-0.38628	0.61971[.547]	-0.63112	0.66065[.362]
CANMVOL	-1.997×10^{-7}	1.159×10^{-7} [.116]	-3.07E-07	4.613×10^{-7} [.521]	-2.58×10^{-7}	4.918×10^{-7} [.611]
CANMP	-0.00216	0.001266[.119]	8.65E-04	0.00504[.867]	-0.00282	0.005373[.611]
R^2	0.89018		0.92943		0.88608	

4.5.6 A Vector Error Correction Model of Darling Downs Bacon Wholesale Prices

VAR modelling assumes that the variables under consideration are stationary, and in the presence of non-stationary variables the VAR model can be transformed into a Vector Error Correction (VEC) model. A VEC model allows the long-run dynamics between variables lost in transforming non-stationary variables to stationary variables to be recaptured through the incorporation of cointegration.

When non-stationary variables are transformed into a stationary form the long-run dynamics are lost, as the stationary variable only contains information about changes between time periods. It is possible to recover information about the long-run dynamics if we have two non-stationary variables that move together over time, while the linear combination of them is actually stationary. Using this linear combination to form an Error Correction Mechanism (ECM), it is possible to identify the short-run deviations from the long-run equilibrium.

It is necessary to firstly determine whether a stationary linear combination of the wholesale prices exists which can be expressed as an error correction mechanism. We use the Johansen maximum-likelihood test to determine how many ECMs exist in our simultaneous modelling framework and then incorporate these ECMs into a Vector Error Correction (VEC) model of wholesale prices and imports.

The Johansen maximum-likelihood test for cointegration is carried out on a VAR model incorporating a two period lag with unrestricted intercepts and trends, with the non-stationary endogenous variables being :

- Leg Ham Smoked Bone In (HSBI) ($/kg)
- Leg Ham Champagne Bone Out (HCBO) ($/kg)
- Processed Leg Ham (PLH) ($/kg)
- Shoulder Catering Ham (SCH) ($/kg)
- Processed Shoulder Ham (PSH) ($/kg)
- Processed Bacon (PB) ($/kg)
- Pork Frozen (PF) ($/kg)

and the non-stationary exogenous variables being :

- Imports of pigmeat from Canada (CANMVOL) (kgs)
- Import prices of pigmeat from Canada (CANMP) (cents/kg)

The stationary exogenous variables were the 1st to 11th monthly dummy variables, and a dummy variable for the structural break in November 1997. The test statistics are presented in the following table.

Johansen ML Test for Cointegration					
H_0:	H_1:	Max-Eigenvalue	$LR_{crit, 0.05}$	Trace	$LR_{crit, 0.05}$
r = 0	r = 1	209.3174	54.94	209.3174	54.94
r≤ 1	r = 2	74.5363	49.29	74.5363	49.29
r≤ 2	r = 3	65.4285	42.94	65.4285	42.94
r≤ 3	r = 4	38.0802	37.08	38.0802	37.08
r≤ 4	r = 5	16.7939	30.92	16.7939	30.92
r≤ 5	r = 6	9.8206	24.18	9.8206	24.18
r≤ 6	r = 7	4.0237	17.14	4.0237	17.14
Source : KPMG Management Consulting					

The results indicate that the hypothesis of four cointegrating vectors is not rejected. The cointegrating vectors are also presented in following table.

Cointegration Vectors									
	HSBI	HCBO	PLH	SCH	PSH	PB	PF	CANMVOL	CANMP
β_1	-0.5261	-0.35324	-0.036879	1.9719	-2.584	-0.88364	0.85195	4.325×10^{-8}	0.00332
β_2	0.34377	0.14733	-0.34342	1.5069	-1.46	-0.47935	0.12617	4.477×10^{-7}	0.003576
β_3	0.057947	-0.77151	-0.80396	-0.4142	-0.63738	0.070683	-0.29232	4.688×10^{-7}	-0.00729
β_4	-0.04895	-0.33572	-0.25349	-1.6577	0.25599	-0.35169	0.33148	6.674×10^{-8}	0.002244
$\overline{\beta}_1$	-1	-0.67143	-0.070099	3.7482	-4.9115	-1.6796	1.6194	8.222×10^{-8}	0.006311
$\overline{\beta}_2$	-1	-0.42857	0.99898	-4.3833	4.2471	1.3944	-0.36701	-1.302×10^{-6}	-0.0104
$\overline{\beta}_3$	-1	13.314	13.874	7.1479	10.9993	-1.2198	5.0446	-8.091×10^{-6}	0.12578
$\overline{\beta}_4$	-1	-6.8585	-5.1785	-33.8644	5.2296	-7.1848	6.7718	1.363×10^{-6}	0.045851
Source : KPMG Management Consulting									

4.5.7 Results of the Vector Error Correction model

The results of our Vector Error Correction model, incorporating 2 lags and 4 error correction mechanism's is presented in the following tables.

The key points of these results include :

- While the price of Champagne Ham does not seem to be influenced by the prices of other Darling Downs Bacon products used in the regression model, imports do seem to play an important role in determining the changes in Champagne Ham prices. Imports of pigmeat from Canada significantly depress the price of Champagne Ham, with every 1,000 tonnes of imports resulting in a drop of $0.71 ± 0.38/kg. Increases in the price of imports allow Darling Downs Bacon to recover some of the price fall due to import volumes with every $1.00/kg increase in import prices resulting in a $0.57 ± 0.31/kg rise in the price of Champagne Ham. The introduction of new import protocols after November 1997 has also significantly affected Champagne Ham prices, with prices dropping by over $1.27 ± 0.33/kg between November 1997 and June 1998.

Vector Error Correction Model Output

	ΔHSBI		ΔHCBO		ΔPLH		ΔSCH	
	Coeff	S.E.[p-val]	Coeff	S.E.[p-val]	Coeff	S.E.[p-val]	Coeff	S.E.[p-val]
Intercept	20.91140	10.1291[0.06]	28.18010	6.052[0]	9.11120	5.1989[0.103]	-3.68300	3.4721[0.308]
Trend	0.02742	0.031553[0.401]	0.07519	0.018853[0.002]	0.02702	0.016195[0.119]	-0.01644	0.010816[0.152]
$\Delta HSBI_{t-1}$	0.25853	0.17073[0.154]	0.00559	0.10201[0.957]	-0.20474	0.087629[0.036]	0.03412	0.058524[0.57]
$\Delta HCBO_{t-1}$	0.59022	0.28065[0.056]	0.08672	0.16769[0.614]	0.05585	0.14405[0.704]	-0.07415	0.096204[0.455]
ΔPLH_{t-1}	-0.40271	0.50496[0.439]	0.31119	0.30171[0.321]	0.37975	0.25918[0.167]	-0.36106	0.1731[0.057]
ΔSCH_{t-1}	0.11788	1.04445[0.912]	-0.16412	0.62409[0.797]	0.74378	0.53612[0.189]	-0.27784	0.35805[0.452]
ΔPSH_{t-1}	0.37671	0.8921[0.68]	0.53905	0.53302[0.33]	-0.08433	0.45788[0.857]	-0.33155	0.3058[0.298]
ΔPB_{t-1}	0.61428	0.35912[0.111]	-0.10778	0.21457[0.624]	-0.03201	0.18432[0.865]	0.20967	0.1231[0.112]
ΔPF_{t-1}	-0.76012	0.31581[0.032]	-0.23221	0.18869[0.24]	0.38918	0.16209[0.032]	0.01980	0.10825[0.858]
$\Delta CANMVOL_{t-1}$	7.39500×10^{-7}	6.411×10^{-7}[0.269]	-7.03900×10^{-7}	3.831×10^{-7} [0.089]	-6.33200×10^{-8}	3.291×10^{-7} [0.85]	1.70400×10^{-8}	2.198×10^{-7} [0.939]
$\Delta CANMP_{t-1}$	0.0071501	0.005107[0.185]	0.0056893	0.0030514[0.085]	-0.0014804	0.0026213[0.582]	-0.0023193	0.0017506[0.208]
$ECM1_{t-1}$	0.96262	0.21386[0.001]	0.24716	0.12778[0.075]	-0.05480	0.10977[0.626]	0.03868	0.073309[0.607]
$ECM2_{t-1}$	0.80093	0.15314[0]	0.03765	0.091497[0.687]	-0.23614	0.078599[0.01]	0.02442	0.052493[0.65]
$ECM3_{t-1}$	-0.00494	0.025908[0.852]	-0.07061	0.01548[0.001]	-0.02152	0.013298[0.13]	0.02232	0.008881[0.026]
$ECM4_{t-1}$	0.00917	0.021743[0.68]	0.01020	0.012991[0.446]	0.01548	0.01116[0.189]	0.01173	0.0074533[0.14]
S1	-0.57388	0.43473[0.21]	-0.55814	0.25975[0.051]	0.36477	0.22313[0.126]	0.00295	0.14902[0.985]
S2	-2.22280	0.677[0.006]	-0.07375	0.4045[0.858]	0.49410	0.34748[0.179]	-0.05497	0.23207[0.816]
S3	-3.03890	0.65181[0]	0.27524	0.38945[0.492]	0.16875	0.33455[0.622]	-0.38112	0.22343[0.112]
S4	-1.96940	0.56374[0.004]	-0.18458	0.33683[0.593]	0.65935	0.28934[0.04]	-0.24427	0.19324[0.228]
S5	-0.76757	0.45179[0.113]	-0.18139	0.26994[0.513]	0.57458	0.23189[0.028]	0.03090	0.15487[0.845]
S6	-0.63832	0.56685[0.28]	-0.00170	0.33869[0.996]	0.01720	0.29094[0.954]	-0.10490	0.19431[0.598]
S7	-0.61411	0.45092[0.196]	-0.65919	0.26942[0.029]	0.42752	0.23144[0.088]	-0.07175	0.15457[0.65]
S8	-0.91854	0.60203[0.151]	-0.26486	0.35971[0.475]	-0.15191	0.309[0.631]	0.01435	0.20637[0.946]
S9	-0.78018	0.44343[0.102]	-0.51571	0.26494[0.074]	0.13654	0.22759[0.559]	0.01904	0.152[0.902]
S10	-1.19560	0.5038[0.034]	-0.43134	0.30102[0.175]	-0.13819	0.25858[0.602]	0.14012	0.1727[0.432]
S11	-0.71869	0.49068[0.167]	0.01739	0.29318[0.954]	-0.37182	0.25185[0.164]	-0.06251	0.1682[0.716]
$BREAK_{97}$	-0.85846	0.54396[0.139]	-1.27220	0.32501[0.002]	0.05876	0.27919[0.837]	0.31212	0.18646[0.118]
R^2	0.91226		0.87184		0.85680		0.67110	

Source : KPMG Management Consulting

Vector Error Correction Model Output						
	ΔPSH		ΔPB		ΔPF	
	Coeff	S.E.[p-val]	Coeff	S.E.[p-val]	Coeff	S.E.[p-val]
Intercept	4.26530	1.6577[0.023]	7.24950	7.0971[0.326]	-4.21580	7.6057[0.589]
Trend	0.02150	0.0051639[0.001]	0.02098	0.022108[0.36]	-0.00685	0.023692[0.777]
$\Delta HSBI_{t-1}$	0.09072	0.027941[0.006]	-0.08586	0.11963[0.486]	-0.02068	0.1282[0.874]
$\Delta HCBO_{t-1}$	0.09551	0.045931[0.058]	-0.03270	0.19664[0.87]	-0.18619	0.21073[0.393]
ΔPLH_{t-1}	-0.13466	0.082641[0.127]	0.25899	0.35381[0.477]	-0.10988	0.37916[0.777]
ΔSCH_{t-1}	-0.84335	0.17095[0]	0.16332	0.73187[0.827]	-0.20164	0.78431[0.801]
ΔPSH_{t-1}	0.00183	0.146[0.99]	0.71787	0.62507[0.271]	-0.08484	0.66986[0.901]
ΔPB_{t-1}	0.19297	0.058773[0.006]	-0.04941	0.25163[0.847]	-0.02455	0.26966[0.929]
ΔPF_{t-1}	-0.13515	0.051684[0.021]	-0.33814	0.22128[0.15]	-0.33536	0.23713[0.181]
$\Delta CANMVOL_{t-1}$	-2.69200×10^{-7}	1.049×10^{-7} [0.023]	-3.64700×10^{-7}	4.492×10^{-7} [0.431]	1.04500×10^{-7}	4.814×10^{-7} [0.831]
$\Delta CANMP_{t-1}$	-0.0028557	0.0008358[0.005]	0.0025736	0.0035784[0.485]	-0.0034666	0.0038348[0.382]
$ECM1_{t-1}$	0.17396	0.035[0]	0.13144	0.14985[0.396]	-0.11587	0.16058[0.483]
$ECM2_{t-1}$	-0.06456	0.025062[0.023]	-0.03477	0.1073[0.751]	0.01076	0.11499[0.927]
$ECM3_{t-1}$	-0.00295	0.0042401[0.499]	-0.01242	0.018153[0.506]	-0.01173	0.019454[0.557]
$ECM4_{t-1}$	-0.00302	0.0035585[0.411]	0.00270	0.015235[0.862]	-0.02868	0.016326[0.103]
S1	0.14643	0.071148[0.06]	-0.03634	0.30461[0.907]	0.14601	0.32643[0.662]
S2	0.15214	0.1108[0.193]	-0.03459	0.47435[0.943]	0.44569	0.50834[0.397]
S3	-0.07003	0.10667[0.523]	0.05522	0.4567[0.906]	0.16486	0.48943[0.742]
S4	-0.10161	0.09226[0.291]	-0.09985	0.39499[0.804]	-0.24061	0.4233[0.579]
S5	0.07160	0.073939[0.351]	0.13821	0.31656[0.67]	-0.32386	0.33924[0.357]
S6	0.10675	0.09277[0.271]	-0.05371	0.39718[0.895]	-0.38681	0.42563[0.38]
S7	0.01875	0.073797[0.803]	0.03178	0.31595[0.921]	0.18420	0.33858[0.596]
S8	-0.01392	0.098527[0.89]	0.02685	0.42183[0.95]	-0.21152	0.45205[0.648]
S9	-0.08496	0.07257[0.263]	-0.40752	0.3107[0.212]	-0.11443	0.33296[0.737]
S10	-0.02326	0.082451[0.782]	0.21528	0.353[0.552]	0.13386	0.37829[0.729]
S11	0.02667	0.080305[0.745]	-0.01727	0.34381[0.961]	-0.07191	0.36844[0.848]
$BREAK_{97}$	-0.10129	0.089023[0.276]	-0.23457	0.38113[0.549]	-0.37242	0.40844[0.378]
R^2	0.90181		0.61684		0.74205	
Source : KPMG Management Consulting						

- Imports of pigmeat from Canada play an important role in determining changes in prices for Processed Shoulder Ham. Every additional 1,000 tonnes of Canadian pigmeat imported results in the price for Processed Shoulder Ham dropping by $0.27 ± 0.11/kg. Increases in the price of imports does not result in corresponding increases in the price for Processed Shoulder Ham - unlike the price for Champagne Ham. Every $1.00/kg increase in the price of imports results in Processed Shoulder Ham prices dropping by $0.29± 0.08/kg.

4.5.8 Summary

The above analysis has indicated that the Australian pigmeat industry, at all levels - producer, wholesaler, and retailer, has been seriously injured by the importation of pigmeat.

More specifically, prices for DDB product lines have been shown to be significantly affected by imports with as-like products, such as Champagne Ham (bone-out) and Processed Shoulder Ham. These products registered declines in prices of $0.71 ± 0.38/kg and $0.27 ± 0.11/kg for every 1,000 tonnes of imports respectively. In addition, market conditions after the November 1997 quarantine restriction changes have resulted in Champagne Ham prices dropping $1.27± 0.33/kg.

The net impact of these prices changes on DDB's performance are presented in the following table.

Impact of Pigmeat Imports of DDB's Performance
Volume Impacts on Prices

Product	Year	DDB Production (kg)	Canadian Import Volumes ('000 tonnes)	Price Impacts	Lost Potential Sales Revenue
Champagne Ham	1995/96				$305,300
	1996/97				$819,900
	1997/98				$766,100
	Total				$1,891,300
Shoulder Ham	1995/96				$2,100,400
	1996/97				$5,982,500
	1997/98				$5,544,100
	Total				$13,627,000

Source : KPMG Management Consulting

Impact of Pigmeat Imports of DDB's Performance
Changes in Quarantine Restrictions on Prices

Product	Year	DDB Production (kg)	Price impacts of Change in Quarantine Restrictions	Lost Potential Sales Revenue
Champagne Ham	11/97 - 6/98			$120,700

Source : KPMG Management Consulting

Impact of Pigmeat Imports of DDB's Performance Summary of Lost Gross Profits			
Year	Lost Sales Revenue	Gross Margin	Lost Gross Profits
1995/96			$252,600
1996/97			$714,300
1997/98			$675,200
Total			$1,642,100
Source : KPMG Management Consulting			

As shown above, the impact of pigmeat imports on DDB's performance (utilising the results of the VEC model) has reduced profits by nearly $1.65 million over the last three financial years. This compares our financial analysis of DDB's performance which suggests a loss of profits of approximately $2,980,000 over the period January 1992 to June 1998, or $1,927,000 estimated for the period July 1995 to June 1998 . This difference is due to :

- the time periods under review;
- econometric analysis is based on limited product lines; and
- econometric analysis has not calculated financial impacts as a result of Granger Causality of products.

In any case, both the financial and econometric analysis have indicated DDB has recorded serious injury as direct result of pigmeat imports.

4.6 Step 5 - What safeguard measures would remedy serious injury ?

Consistent with industry organisations and bodies, DDB recommends the introduction of a tariff quote be implemented against imports for an initial four year period, with a staged reduction of the quota tariff each six or twelve months.

As per the issues paper, the safeguard measure quantitative restrictions may only limit imports to a level consistent with their average level over the past three years. Utilising the last three financial years data on Canadian imports, the tariff quota would be set at 6,618,800 kilograms, however given the impact of Chisholm's pigmeat import / export policies over the last two years, we would suggest the last three years should not be considered representative years.

Rather, DDB consider the three years prior to Chisholm's pigmeat import / export activities are representative years, that is, 1993/94 to 1995/96. This results in a tariff quota of 2,916,100 kilograms for Canadian pigmeat imports.

Where imports exceed this level, DDB recommend an out of quota tariff of A$2/kg be exercised on Canadian pigmeat.