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ABARE is a professional independent government economic research agency.

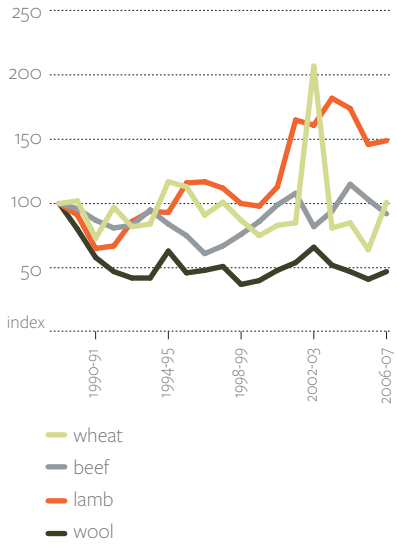
Financial performance of slaughter lamb farms, 2005-06 to 2007-08

Stephen Hooper

Strong growth in international demand for Australian lamb over the past decade has resulted in domestic prices rising to historically high levels (figure a). Over the same period wool prices rose until a peak in 2002-03, from which prices have now fallen back to those observed in the late 1990s. Australian broadacre sheep producers have responded to the high price of lambs relative to wool by changing their enterprise mix to boost the production of slaughter lamb. Over the past 10 years, the number of broadacre producers who sold lambs for slaughter increased by 33 per cent, boosting the number of lambs slaughtered by 35 per cent, even though sheep numbers had fallen by 27 per cent (table 1).

Increased use of non-merino rams to produce first cross lambs and a greater focus on finishing lambs prior to sale has resulted in the average slaughter weight of Australian lambs increasing by 8 per cent to around 21 kilograms a head over the past decade (table 1). Increased production and strong international demand for Australian lamb has resulted in lamb meat exports more than doubling to 193 000 tonnes in 2007.

a Commodity price indexes
1988-89=100



1 Sheep numbers and lamb production

	sheep numbers million head	lamb slaughter '000	slaughter weight a kg/hd	lamb meat production a kt	lamb meat exports a kt
1998	117	15 659	19.2	301	88
1999	115	16 346	19.5	319	101
2000	119	18 507	19.9	368	125
2001	111	17 897	19.7	353	125
2002	106	17 086	19.8	338	116
2003	99	16 430	20.1	330	123
2004	101	16 675	20.4	340	131
2005	101	18 228	20.6	375	170
2006	91	19 483	20.5	400	176
2007	86	21 154	20.8	439	193
% change between 1998 and 2007	–27	35	8	46	119

a Carcass weight.

Detailed estimates of production and farm financial performance are used to highlight the impact of the past two years seasonal conditions on slaughter lamb businesses. In particular, this report focuses on slaughter lamb producers' financial capacity to recover from the recent droughts and continue to expand lamb production, should seasonal conditions permit.

For the purposes of this report, broadacre farms are classified as being slaughter lamb producers if they have more than 400 sheep and sold more than 200 lambs for slaughter. To investigate the physical and financial performance of slaughter lamb producers of differing scales surveyed by ABARE have been classified into one of four groups based on the number of slaughter lambs sold:

- **small scale farms:** 200 to 500 lambs sold for slaughter;
- **medium scale farms:** 500 to 1000 lambs sold for slaughter;
- **large scale farms:** 1000 to 2000 lambs sold for slaughter; and
- **very large scale farms:** more than 2000 lambs sold for slaughter

Between 2000-01 and 2006-07, an average of 22 287 broadacre farms had more than 400 sheep and sold lambs for slaughter (table 2). Almost a quarter of these producers sold fewer than 200 lambs for slaughter, and accounted for just 3 per cent of the value of broadacre production of slaughter lambs. These producers, on average, generated less than 1 per cent of farm cash receipts from slaughter lambs and have been excluded from the analysis. In contrast, 6 per cent of producers sold more than 2000 lambs for slaughter during this period, and accounted for almost a third of the value of broadacre slaughter lamb production.

Characteristics of slaughter lamb producers

Broadacre slaughter lamb producers operate highly diversified farms, producing a mix of wool, lambs, sheep, beef cattle and crops. However, the decision of producers to increase their specialisation in the production of slaughter lambs, particularly

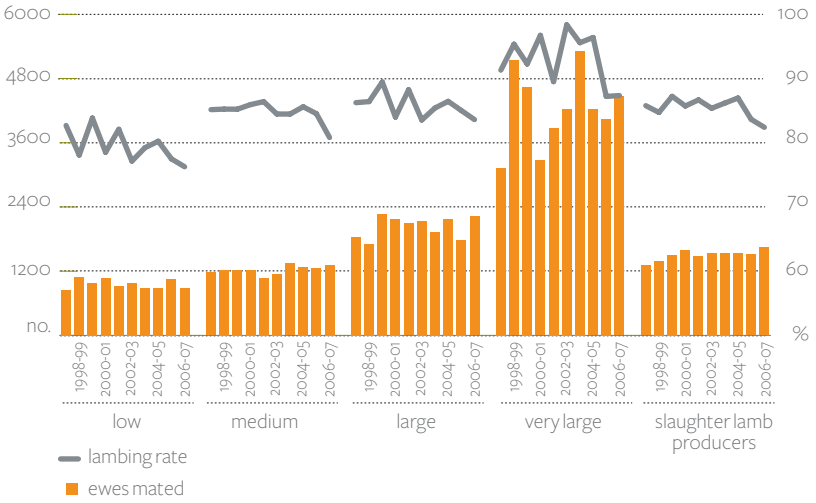
2 Distribution of broadacre slaughter lamb producers, 2000-01 to 2006-07 by number of slaughter lambs sold

	number of producers	share of producers	share of slaughter lamb value of production
	no	%	%
Less than 200 slaughter lambs	5 291	24	3
200 to 500 slaughter lambs	6 038	27	12
500 to 1000 slaughter lambs	6 100	27	26
1000 to 2000 slaughter lambs	3 423	15	27
More than 2000 slaughter lambs	1 436	6	32
Total	22 288	100	100

prime lambs, is associated with significant changes in animal and land management.

In the case of the sheep flock, the need to maximise the number of ewes available for breeding, rather than sheep for shearing, results in producers increasing the proportion of ewes in their flock and decreasing the proportion of wethers as their scale of slaughter

b Number of ewes mated and lambing rate, by number of lambs sold for slaughter



3 Physical characteristics, 2000-01 to 2006-07, by number of lambs sold for slaughter

Average per farm

		small	medium	large	very large
Area operated	ha	1 840	2 214	3 313	5 232
– sown to crops	ha	416	485	613	753
Number of beef cattle, 30 June	no	95	100	135	332
Number of sheep, 30 June	no	1 960	2 335	3 685	6 891
– rams	%	1	1	1	1
– ewes	%	56	60	61	66
– wethers	%	16	11	10	7
– lambs	%	27	28	28	26
Numbers of ewes mated	no	950	1 237	2 071	4 145
Lambs marked	no	749	1 047	1 763	3 829
Lambing rate	%	79	85	85	92
Number of sheep and lambs sold	no	758	1175	2 084	4 667
Number of lambs sold	no	364	717	1 397	3 598
– prime lambs	no	230	453	947	2 679
– other lambs for slaughter	no	113	251	418	904
– lambs not for slaughter	no	22	13	32	15
Number of sheep and lambs shorn	no	2 094	2 492	4 099	8 137
Wool production	kg	9 196	10 828	17 588	33 077
Wool cut per head shorn	kg/hd	4.4	4.3	4.3	4.1
Average price received					
Wool	c/kg	505	479	481	452
Adult sheep	$/hd	43.5	45.4	40.0	41.9
Prime lambs	$/hd	65.8	67.6	67.2	70.3

lamb production increases (table 3). Greater focus on lamb production is also associated with a significant increase in lambing rates (table 3, figure b). This reflects the impact of management practices such as increased use of non-merino rams that result in a higher incidence of twinning, a greater reliance on improved pastures and supplementary feeding to enhance ewe fertility rates and reduce lamb mortality rates. While very large scale producers have only three-and-a-half times more sheep than their small scale counterparts, they sell almost 10 times more lambs (table 3).

The production of lambs bred and finished for slaughter results in these animals realising price premiums. The average price received for a prime lamb among very large scale producers was, on average, 7 per cent higher in real terms than received by small scale producers in the six years to 2006-07 (table 3).

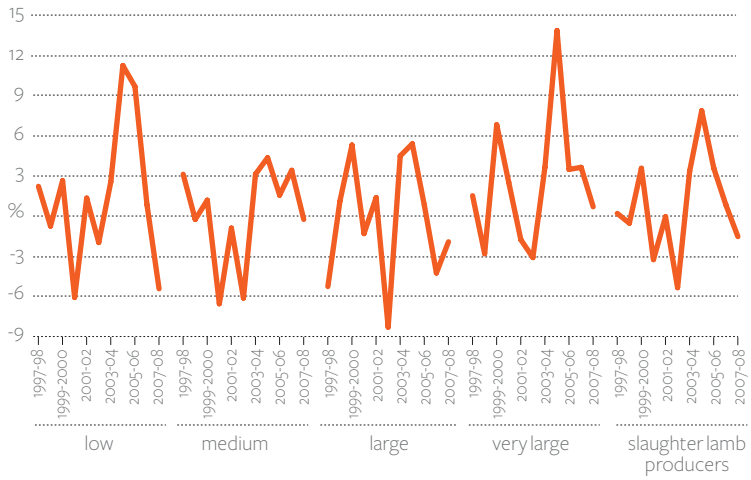
Increased specialisation in slaughter lamb production is also associated with a lower wool cut per head shorn and lower wool price received. Wool clips generally fall as producers increase their focus on the production of sheep meats rather than wool as a greater proportion of the sheep are shorn as lambs. In addition, first cross and other breeds of sheep produced for meat generally grow coarser, lower value wools. Consequently, very large scale slaughter lamb producers realised, on average, 7 per cent lighter wool clips and 10 per cent lower wool prices than their small scale counterparts between 2000-01 and 2006-07 (table 3).

Impact of drought on slaughter lamb production

In 2006-07, drought conditions throughout much of Australia resulted in poor pasture growth and tightening on-farm feed availability. Many sheep producers responded by increasing their turnoff of livestock in order to reduce numbers and limit fodder purchases. Nationally, sheep numbers are estimated to have fallen by 5 per cent to 86 million head (table 1).

In recent years, slaughter lamb producers have responded to strong lamb prices by reducing sheep turnoff rates in order to rebuild livestock number. In 2006-07, hot and dry seasonal conditions and reduced irrigation water allocations resulted in most producers reducing the rate at which sheep numbers were rebuilt (table 4 and figure c), from 3.6 per cent a farm in 2005-06 to 0.9 per cent in 2006-07. Many producers responded to the dry conditions by increasing their turnoff rate for lambs and wethers, and reducing their female turnoff rate. As a result, the proportion of ewes in the flock increased, on average, from 60 per cent in 2005-06 to 63 per cent in 2006-07. In addition, many slaughter lamb producers reduced beef cattle numbers (table 4) in order to focus on maintaining sheep numbers and slaughter lamb production capacity.

C Change in sheep numbers, by number of lambs sold for slaughter

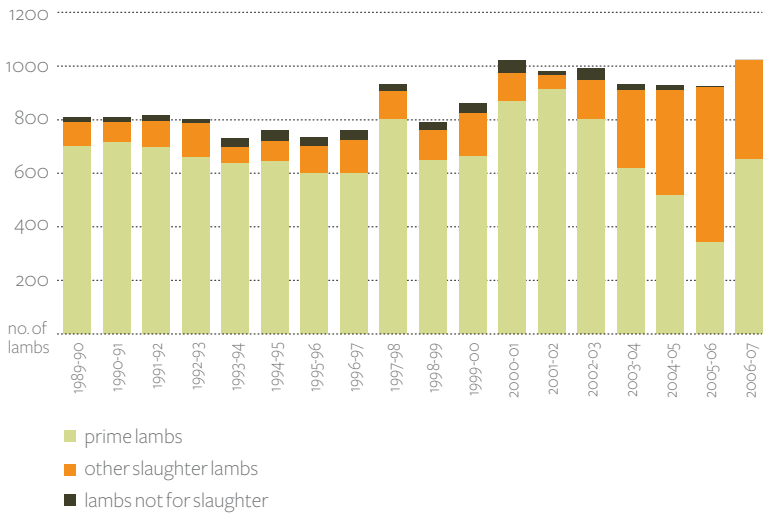


Although producers increased their turnoff of lambs, the dry conditions affected their ability to produce prime lambs. In 2006-07, on average, slaughter lamb producers increased the number of lambs sold for slaughter by 11 per cent to 1022 lambs per farm. Only 64 per cent of these lambs were sold as prime lambs, well below longer term pre-drought averages of almost 90 per cent (figure d). However, this proportion was significantly higher than in 2005-06, averaging just 37 per cent of lambs sold for slaughter.

4 Selected physical characteristics, slaughter lamb industry, by number of lambs sold for slaughter Average per farm

	change in sheep numbers	sheep and lambs	prime lambs sold	other slaughter lambs	area sown to crops	change in beef cattle numbers
	%	no	no	no	ha	%
Small						
2005-06	9.7	761	116	221	498	9.6
2006-07	0.9	758	207	148	410	−5.5
2007-08	−5.4	835	na	na	416	−1.7
Medium						
2005-06	1.6	1 187	214	491	484	5.8
2006-07	3.4	1 178	445	269	568	−2.7
2007-08	−0.2	1 164	na	na	332	−11.4
Large						
2005-06	0.8	1 918	561	783	533	11.4
2006-07	−4.2	2 337	887	579	763	−11.3
2007-08	−1.9	2 013	na	na	627	−12.5
Very large						
2005-06	3.5	4 501	1 326	1 976	606	5.2
2006-07	3.7	4 871	2 563	1 125	973	1.4
2007-08	0.7	4 235	na	na	744	−10.0
Slaughter lamb producers						
2005-06	3.6	1 459	343	580	508	8.0
2006-07	0.9	1 615	653	369	588	−4.2
2007-08	-1.5	1 478	na	na	454	−9.1

d Lamb sales, slaughter lamb industry



Ideal planting rains for the 2007-08 winter crops enabled many slaughter lamb producers to plant significant acreage to crops and to replenish dams and soil moisture levels. A return to hot and dry conditions during late winter and early spring adversely affected crop yields. While grain yields were below normal, they were, on average, higher than in 2006-07. Also, pasture growth and lambing rates benefited from an improvement in seasonal conditions during spring in many parts of mainland Australia.

Drought conditions worsened in Tasmania and parts of Western Australia and New South Wales resulting in producers in these areas increasing turnoff rates and reducing sheep and beef cattle numbers during 2007-08.

Overall, slaughter lamb producers are projected to reduce sheep numbers, on average, by 1.5 per cent and beef cattle numbers by 9.1 per cent in 2007-08 (table 4). The overall reduction in lamb turnoff rates is projected to result in fewer lambs being sold for slaughter. The proportion of prime lambs is projected to recover further, but remain below average.

Farm financial performance 2006-07 and 2007-08

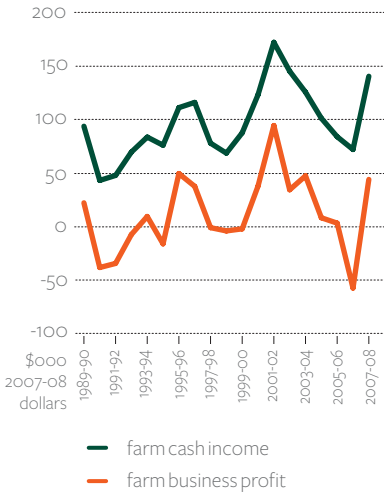
2006-07

In 2006-07, farm financial performance is estimated to have deteriorated markedly. Slaughter lamb producers are estimated to have realised a farm business loss of $55 820 per farm, compared with a profit of $3080 per farm in 2005-06 (table 5 and figure e). This is largely the result of farm cash costs increasing relative to receipts and a substantial reduction in farm trading stocks.

While farm cash receipts are estimated to have been similar to 2005-06 levels in 2006-07, averaging almost $387 000 per farm, the composition of farm receipts changed markedly. In 2006-07, increased lamb sales and a recovery in the proportion of lambs sold as prime lambs offset the impact of weaker lamb prices, resulting in prime lamb receipts more than doubling. Sheep receipts fell, on average, during 2006-07 as increased sales of older sheep and sheep in relatively poor condition resulted in the average price received falling by 25 per cent.

Reduced grain production and increased on-farm feed use of grain and hay because of the drought reduced crop sales during 2006-07. Consequently crop receipts fell, on average, by 24 per cent to around $129 000 per farm, despite grain and hay prices increasing to historically high levels.

e Financial performance, slaughter lamb industry



5 Financial performance of slaughter lamb producers, by number of lambs sold for slaughter

Average per farm

		small				medium				large			
		2005-06	2006-07 p		2007-08 s	2005-06	2006-07 p		2007-08 s	2005-06	2006-07 p		2007-08 s
Receipts													
Sheep and lambs	$	41 427	36 610	(5)	52 100	72 499	62 180	(4)	75 200	114 303	121 770	(4)	119 800
- adult sheep	$	20 044	15 050	(12)	na	24 431	15 920	(15)	na	26 308	32 380	(11)	na
- lambs	$	21 383	21 560	(4)	na	48 068	46 270	(4)	na	87 994	89 390	(4)	na
- prime lambs	$	8 091	14 340	(7)	na	15 670	32 080	(8)	na	36 282	62 570	(8)	na
- other slaughter lambs	$	13 292	7 220	(10)	na	32 398	14 190	(19)	na	51 712	26 820	(18)	na
- lambs not for slaughter	$	0	0	(216)	na	0	0	(53)	na	0	0	(0)	na
Beef cattle	$	28 970	26 970	(37)	23 900	29 999	29 420	(16)	34 000	35 446	70 800	(31)	45 500
Wool	$	45 345	38 490	(9)	45 400	43 444	62 710	(11)	64 900	62 188	110 460	(12)	90 600
Crops	$	156 795	83 190	(15)	139 100	146 113	113 970	(10)	133 800	202 459	169 180	(22)	272 300
Off farm share farming	$	1 535	2 410	(35)	na	11 456	2 600	(37)	na	2 880	2 260	(90)	na
Off farm contracts	$	3 941	3 740	(35)	3 641	13 794	6 550	(11)	11	15 008	5 030	(45)	5 031
Total cash receipts	$	296 661	211 160	(9)	338 900	338 359	304 970	(6)	339 600	452 713	576 840	(8)	566 000
Costs													
Beef cattle purchases	$	9 518	8 310	(71)	3 900	7 456	4 510	(20)	2 700	8 903	23 500	(46)	10 700
Contracts	$	8 040	5 080	(35)	na	10 569	5 330	(16)	na	27 533	14 520	(16)	na
Crop and pasture chemicals	$	19 528	15 480	(15)	21 000	23 848	18 890	(10)	16 900	27 659	32 570	(20)	35 000
Fertilisers	$	29 160	26 440	(10)	33 100	30 614	30 710	(8)	31 200	51 641	51 260	(20)	59 900
Fodder	$	4 537	9 320	(21)	2 000	4 480	12 220	(22)	6 100	8 141	24 960	(18)	8 400
Fuel, oil and grease	$	23 686	15 460	(7)	19 900	25 316	25 700	(8)	23 400	32 035	36 650	(10)	39 000
Handling and marketing	$	12 582	2 400	(19)	7 800	10 076	2 410	(14)	9 100	13 072	4 050	(17)	14 800
Hired labour	$	6 586	5 000	(27)	5 200	8 135	8 220	(20)	5 700	15 012	16 840	(22)	16 200
Interest	$	22 773	21 660	(12)	28 000	22 818	31 000	(14)	31 800	33 633	48 050	(12)	51 800
Repairs and maintenance	$	22 133	18 950	(7)	20 300	22 509	24 470	(12)	25 700	29 204	34 490	(7)	37 200
Shearing and crutching	$	8 750	6 970	(12)	7 100	9 980	10 840	(10)	10 600	14 393	21 660	(10)	16 600
Sheep purchases	$	9 991	4 470	(12)	4 500	12 168	9 910	(14)	8 400	22 284	19 140	(18)	9 200
Total cash costs	$	243 161	185 360	(9)	204 000	254 750	251 060	(7)	239 700	379 602	428 240	(9)	405 800
Financial performance													
Farm cash income	$	53 501	25 800	(38)	134 900	83 609	53 910	(31)	99 900	73 111	148 600	(18)	160 100
Farm business profit	$	- 13 893	- 61 620	(19)	65 000	8 235	- 68 420	(22)	18 900	- 12 140	- 36 400	(99)	16 900
Rate of return a													
- excl. cap. appreciation	%	0.6	-1.6	(33)	4.1	1.4	-0.9	(44)	1.9	0.8	0.5	(137)	1.7
- incl. cap. appreciation	%	5.5	4.8	(57)	na	5.7	5.4	(24)	na	2.3	5.2	(26)	na

a Rate of return to farm capital at 1 July. p Preliminary estimates. s Provisional estimates.
Note: Figures in parenthesis are relative standard errors (rse) expressed as a percentage of the estimate. The larger the sample size, the lower the rse is likely to be.

continued...

Producers responded to tightening cash flows and rising wool prices by running down on-farm stocks to boost wool sales. The combined impact of higher sales and prices resulted in wool receipts increasing by 37 per cent in 2006-07.

In 2006-07, farm cash costs are estimated to have increased by 3 per cent, principally because the drought boosted producers' dependence upon purchased fodder. Also, increased debt levels and higher interest rates resulted in interest payments increasing by 37 per cent. However, reduced crop production and sales are estimated to have resulted in reduced spending on some crop inputs, including fuel and chemicals, and lower marketing and handling charges.

5 Financial performance of slaughter lamb producers, by number of lambs sold for slaughter

Average per farm *continued*

		very large				slaughter lamb producers			
		2005-06	2006-07 p		2007-08 s	2005-06	2006-07 p		2007-08 s
Receipts									
Sheep and lambs	$	294 896	292 280	(9)	289 300	88 305	87 150	(3)	94 300
- adult sheep	$	59 946	42 610	(15)	na	26 031	21 460	(6)	na
- lambs	$	234 950	249 670	(9)	na	62 274	65 700	(4)	na
- prime lambs	$	89 988	192 170	(14)	na	23 363	47 340	(6)	na
- other slaughter lambs	$	144 945	57 490	(15)	na	38 910	18 360	(9)	na
- lambs not for slaughter	$	17	0	(0)	na	1	0	(12)	na
Beef cattle	$	114 804	139 880	(14)	127 500	37 011	47 550	(13)	40 800
Wool	$	124 412	175 870	(9)	204 900	54 164	74 260	(5)	75 200
Crops	$	253 671	271 780	(24)	351 700	170 159	128 980	(9)	181 100
Off farm share farming	$	4 433	3 220	(75)	na	5 859	2 520	(26)	na
Off farm contracts	$	3 978	7 180	(15)	15	10 272	5 270	(13)	28
Total cash receipts	$	836 481	946 880	(8)	1 048 900	387 303	386 870	(4)	444 300
Costs									
Beef cattle purchases	$	31 555	29 590	(31)	16 300	10 165	12 120	(26)	5 800
Contracts	$	24 166	33 160	(14)	na	14 656	9 790	(10)	na
Crop and pasture chemicals	$	33 572	44 470	(18)	50 100	24 065	22 830	(8)	24 700
Fertilisers	$	74 535	83 110	(19)	88 900	38 148	38 340	(7)	42 400
Fodder	$	27 026	68 330	(17)	17 600	6 958	19 200	(9)	6 100
Fuel, oil and grease	$	44 666	52 650	(13)	57 400	27 738	26 710	(5)	28 100
Handling and marketing	$	24 298	7 570	(11)	22 900	12 573	3 240	(8)	10 900
Hired labour	$	35 548	40 790	(13)	36 000	11 197	11 940	(10)	10 200
Interest	$	54 658	100 590	(15)	131 400	27 578	37 770	(7)	43 000
Repairs and maintenance	$	45 800	60 440	(11)	65 000	25 603	27 950	(5)	29 400
Shearing and crutching	$	33 523	41 750	(9)	40 000	12 298	14 580	(5)	13 100
Sheep purchases	$	75 213	61 230	(22)	33 700	18 334	14 790	(11)	9 400
Total cash costs	$	645 597	810 510	(9)	755 800	307 884	316 760	(4)	303 800
Financial performance									
Farm cash income	$	190 883	136 380	(16)	293 100	79 419	70 110	(12)	140 500
Farm business profit	$	98 785	- 29 840	(92)	126 400	3 080	- 55 820	(18)	44 100
Rate of return a									
- excl. cap. appreciation	%	2.7	1.2	(32)	3.6	1.2	-0.2	(106)	2.7
- incl. cap. appreciation	%	7.1	4.6	(23)	na	4.9	5.0	(17)	na

a Rate of return to farm capital at 1 July. p Preliminary estimates. s Provisional estimates.
Note: Figures in parenthesis are relative standard errors (rse) expressed as a percentage of the estimate. The larger the sample size, the lower the rse is likely to be.

Financial performance by scale of slaughter lamb production

Financial performance during 2006-07 deteriorated for producers of all scales of slaughter lamb production (table 5 and figure f). In 2006-07, slaughter lamb producers of all scales recorded their largest farm business losses, in real terms, since ABARE started collecting detailed information on slaughter lamb production in 1992.

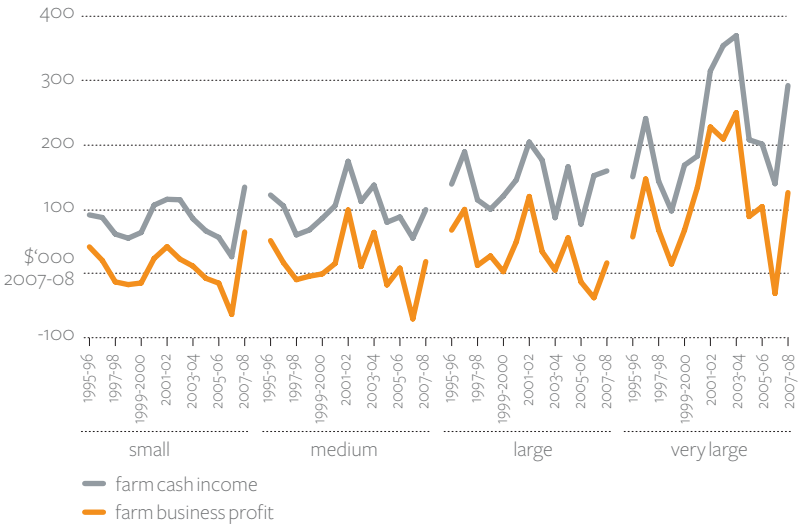
Between 2000-01 and 2005-06, producers selling more than 2000 slaughter lambs recorded an average annual farm profit of almost $170 000, compared with a loss of $30 000 per farm in 2006-07. The previous periods in which this group of producers realised a farm business loss were 1990-91 and 1991-92, following the deregulation of the wool industry, with average losses, in real terms, of $21 100 and $9700 per farm, respectively.

Large scale producers (1000 to 2000 lambs sold for slaughter) were the only slaughter lamb producers to realise an improvement in average farm cash income in 2006-07, as increased sales of sheep, lambs, beef cattle and wool offset the impact of lower crop receipts and higher costs (tables 4 and 5). However, the resultant run-down in the value of trading stocks led to these producers realising larger farm business losses in 2006-07.

2007-08

In 2007-08, farm cash receipts are projected to rise by 15 per cent as improved seasonal conditions boost the number of prime lambs sold and grain production. Total sheep and lamb receipts are projected to rise by 8 per cent in 2007-08, as higher prices offset the impact of reduced sales. Although the average number of lambs sold is projected to fall, improved on-farm feed availability

f Financial performance by number of lambs sold for slaughter



is expected to result in a greater proportion of lambs being sold as prime lambs. The resulting price premium is expected to help offset the financial impact of producers selling fewer lambs. In addition, increased grain production and reduced supplementary feeding is expected to result in increased grain and hay sales. With prices remaining at historically high levels, increased sales are projected to result in crop receipts rising by 42 per cent to $181 000 per farm.

In 2007-08, farm cash costs are projected to fall, on average, by 4 per cent as the improved seasonal conditions reduce outlays on purchases of fodder. Also, producers indicated at the time of ABARE's survey in November 2007 that they intended to rebuild animals in 2007-08 by reducing turnoff rates and retaining more lambs and calves, rather than purchasing animals. Consequently, outlays on cattle and sheep are projected to fall, on average, by 52 per cent and 36 per cent respectively. However, higher interest rates and increased debt levels are expected to result in interest payments rising by 14 per cent during 2007-08.

Farm cash income in 2007-08 is projected to average $140 500 per farm, double the average in 2006-07, as receipts rebound and costs fall. With producers projected to rebuild livestock numbers and hay and grain stocks, the value of trading stocks is expected to recover, resulting in slaughter lamb producers realising a farm business profit of $44 000 per farm in 2007-08.

The recovery in farm business profitability is expected to occur across all producer groups. However, very large producers are projected to realise the largest turn around in profitability, with

a projected average profit of $126 000 per farm in 2007-08, following an average loss of $30 000 in 2006-07.

Producers' ability to recover from drought

Producers' ability to increase incomes following the recent droughts will be influenced by the combined impact of past investments boosting farm size and productivity and producers' access to funds to expand crop and livestock production. Producers' funding options include using their farm business cash flows, debt facilities, farm liquid assets and off-farm income sources.

Past investments

New investments are an important means of boosting farm productivity and incomes, with productivity growth providing better prospects for farm business viability in the longer term. From the mid-1990s to 2002-03, an historically large proportion of producers acquired land to expand the scale of their farm operations, peaking at 15 per cent of slaughter lamb producers in 2001-02. However, since then, lower farm incomes because of drought and higher land values have resulted in a fall in the proportion of farms acquiring land (figure g).

In recent years, expenditure on new capital has been volatile, reflecting fluctuations in farm incomes as a result of recurring drought and the need to rebuild livestock numbers following these droughts. Although the proportion of producers acquiring land has declined in recent years, average per farm outlays on land purchases has increased, reflecting higher land prices (figure h).

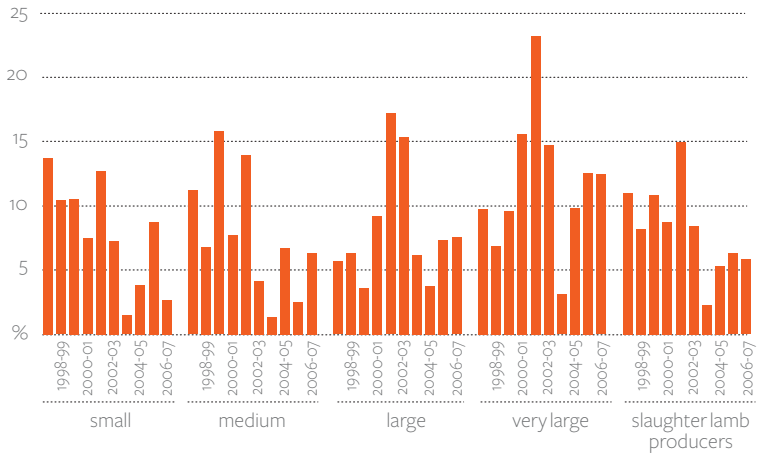
In 2006-07, the average slaughter lamb producer invested almost $90 000 in new capital. However, there were considerable differences in the level of investment undertaken by slaughter lamb producers of differing scales.

Smaller producers invested just $33 000 per farm, reflecting the impacts of reduced incomes and livestock rebuilding follow the drought. In contrast, very large slaughter lamb producers invested around $250 000 per farm. Around three-quarters of new investments by slaughter lamb producers was to acquire land, with the remainder largely comprised of new plant and machinery. This latter investment largely reflects the importance of the machinery-intensive crop industry to slaughter lamb producers' incomes.

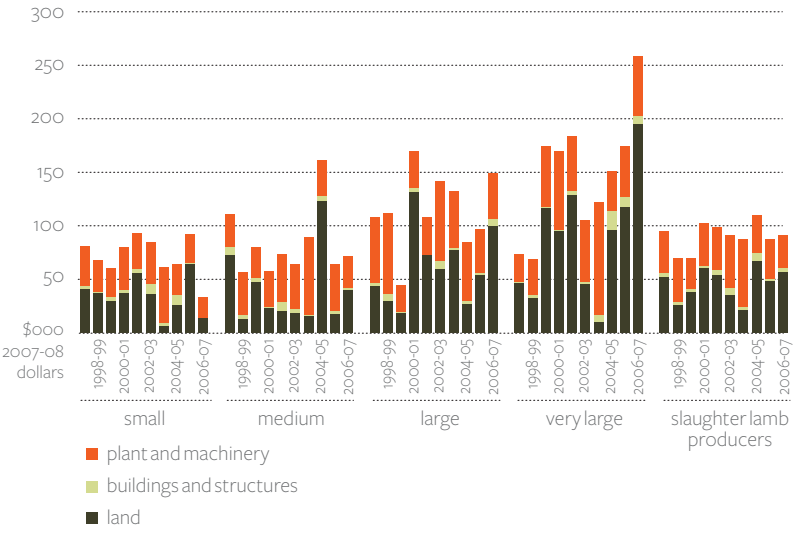
Use of farm debt

The historically high level of capital investment in the slaughter lamb industry has been associated with a steady increase in farm business debt, particularly amongst the large and very large

g Proportion of producers purchasing land and land values, by number of lambs sold for slaughter



h Composition of farm capital purchases, by number of lambs sold for slaughter

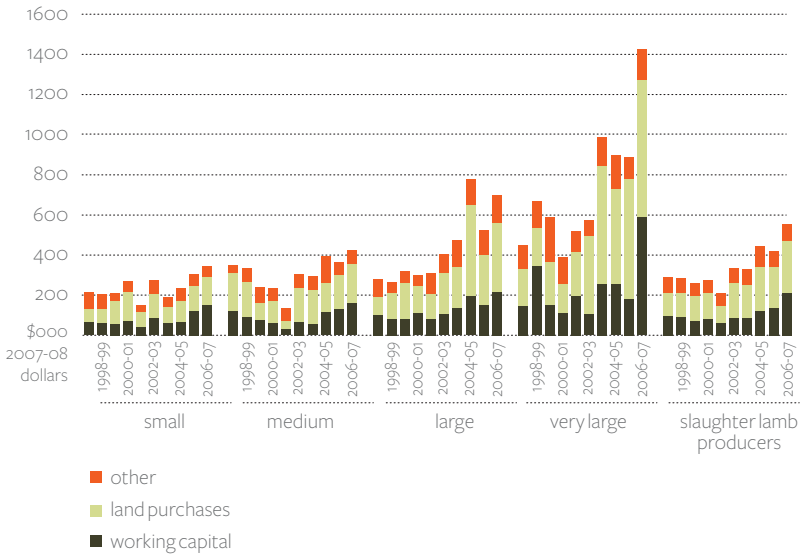


slaughter lamb producers (figure i). Since 2000-01, average farm business debt has doubled to average $544 000 per farm. In the early to mid 2000s, debt for land, plant and machinery increased steadily as producers acquired more land and cropping machinery. However, in recent years, producers have increasingly borrowed to fund working capital. That is, they have borrowed to fund the running of their farm business. In 2006-07, very large slaughter lamb producers increased debt, on average, by 60 per cent, or $537 000, to just more than $1.4 million per farm. Three-quarters of these additional funds was used as working capital.

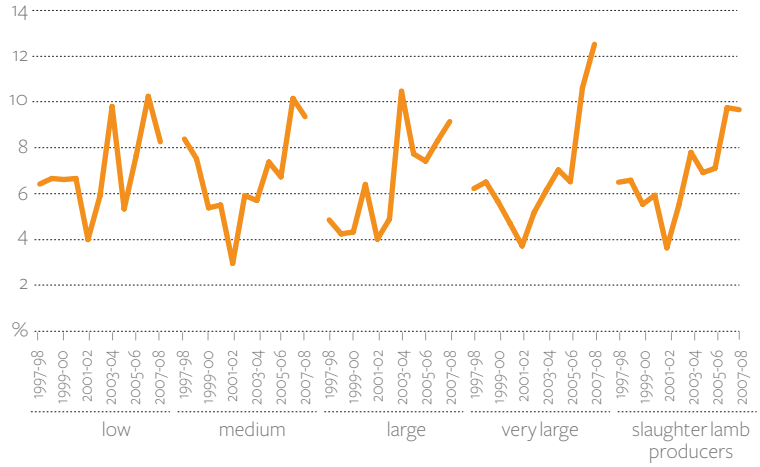
Higher debt levels and rising interest rates have led to a steady increase in producers' debt servicing commitments (figure j). In 2006-07, the average slaughter lamb producer used almost 10 per cent of farm cash receipts to pay interest obligations.

In 2007-08, the proportion of farm receipts used to meet interest payments is projected to be slightly lower for the average slaughter lamb producer. A strong recovery in farm receipts and reduced debt among small and medium sized producers is projected to result in debt servicing commitments falling sharply in 2007-08. Among large and very large producers, the strong recovery in incomes and high confidence levels concerning the future of the industry is expected to drive further capital investments, raising debt levels and interest commitments to historically high levels.

i Farm debt, by number of lambs sold for slaughter



j Debt servicing, by number of lambs sold for slaughter
as measured by the ratio of interest payments to total cash receipts



Use of liquid assets

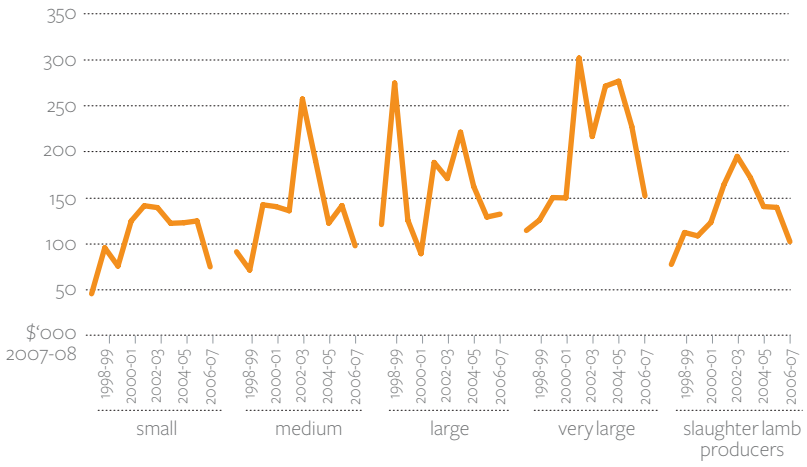
Over the past decade, producers' holdings of liquid assets have shown volatility as assets have been liquidated during droughts and rapidly rebuilt in subsequent years (figure k). However, since 2002-03, slaughter lamb producers have, on average, been running down their liquid assets to reduce their dependence on debt to fund capital investments and working capital needs. Since peaking at an average $195 000 per farm in 2002-03, liquid assets have fallen by 48 per cent to average $102 000 per farm in 2006-07.

In 2007-08, the strong recovery in farm cash flows and profitability is projected to result in producers rebuilding their liquid assets, particularly among the small to large scale producers. Very large scale producers are expected to continue to invest heavily in new capital and expanding animal numbers. These producers are projected to use their strong cash flows to partially fund these investments, rather than investing heavily in liquid assets.

Capacity to expand production

The slaughter lamb industry is in a strong position to expand agricultural production, including prime lambs. The industry's history of new capital investments in land, plant and machinery will enable the average producer to expand livestock numbers as well as the area cropped. Despite this investment to increase the area operated, most producers have significantly fewer sheep than they did at the start of the decade. For example, between 2000-01 and 2007-08, very large slaughter lamb producers have increased the area they operate, on average, by 25 per cent, but sheep numbers have contracted by 12 per cent.

k Liquid assets, by number of lambs sold for slaughter



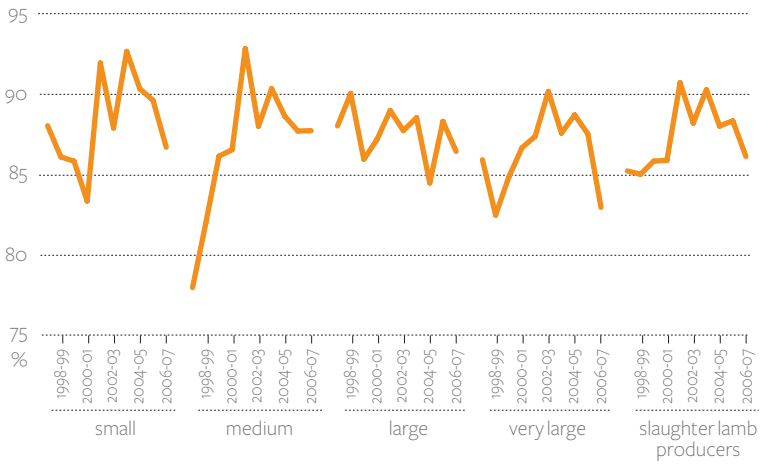
A return to average seasonal conditions and rising ewe numbers are expected to result in further recovery of lambing rates and expansion in lamb production. This will enable producers to retain lambs and boost sheep numbers on the new land as well as increase sales of prime lambs. Increased sheep numbers will also be associated with an expansion in wool production and higher wool receipts in coming years. The combined effect of increased production of prime lambs, sheep, wool and crops is likely to result in slaughter lamb producers realising significant growth in cash flow and profitability in the medium term.

In the shorter term, however, retention of lambs to boost livestock numbers is likely to come at the expense of farm cash incomes. While producers have been building debt and running down liquid asset levels in recent years, the strong growth in land values has maintained producers' equity levels at 85 to 90 per cent (figure I). This suggests that while land values remain high, most slaughter lamb producers could supplement farm cash flows with some additional working capital debt during their next phase of expanding farm output. While this is likely to increase debt servicing commitments in the short term, the resultant increase in incomes should facilitate a reduction in this burden and will enable some rebuilding of liquid assets in coming years.

Productivity in the sheep industry

Total factor productivity growth in Australia's broadacre and dairy industries is highly variable on a year-to-year basis, but has generally trended up over the past decade. Between 1977-78 and 2005-06 broadacre producers' productivity growth averaged 1.5 per cent a year, with cropping and mixed livestock-cropping farms recording the highest annual growth in productivity (table 6).

I Equity ratio, by number of lambs sold for slaughter



Productivity growth can be driven by producers generating the same amount of output with fewer inputs, increasing output with the same number of inputs, or increasing output at a faster rate than inputs. Over the past three decades, cropping farms in Australia realised annual productivity growth of 2.3 per cent. This was the result of producers increasing output by 3.7 per cent but only increasing inputs by 1.4 per cent. In contrast, sheep producers achieved annual productivity growth of 0.3 per cent, which was generated by a 1.6 per cent fall in inputs and a 1.3 per cent fall in outputs.

6 Average annual input, output and TFP growth in broadacre and dairy industries 1977-78 to 2005-06

	input growth	output growth	TFP growth
	%	%	%
Total broadacre	–0.5	1	1.5
Cropping	1.4	3.7	2.3
Mixed crop-livestock	–1.3	0.3	1.7
Beef	0	1.4	1.4
Sheep	–1.6	–1.3	0.3
Dairy a	4	5.1	1.2

a Dairy industry estimates are for the period 1988-89 to 2005-06 as data are not available for earlier years.

box 1 Measuring total factor productivity growth

Productivity reflects the ability to produce goods and services (outputs) given the available resources (inputs). Total factor productivity (TFP), also known as multifactor productivity, compares total outputs with the total inputs used in production of the output. Growth of TFP is derived by dividing an index of total outputs by an index of the total inputs used to produce this output combination. Alternatively, partial factor productivity (PFP) measures output relative to a single input factor such as labour, capital or land.

Growth in TFP over time is frequently used as a measure of technological progress (OECD 2001). TFP growth reflects either an increase in output volume relative to the level of resources used, or a reduction in input (resources) volume required to achieve a particular level of output. The driving forces of TFP growth include better applications of science and technology, improved management practices, efficient exploitation of economies of scale and improved allocative efficiency (efficiency improvements achieved by shifting resources into more productive businesses or industries).

Productivity is a key determinant of the growth, sustainability and competitiveness of businesses in a market economy. As such, TFP is frequently used as an indicator of economic performance at national, industry and business levels. ABARE derives productivity estimates from data collected through its farm surveys. Statistics on both TFP and PFP are produced for the broadacre sector — including broadscale cropping, mixed cropping–livestock, beef and sheep — and the dairy sector. These estimates are typically produced at the national and state or territory levels.

ABARE's TFP measurement uses a ratio of gross output and total inputs, where total inputs are a combination of capital, labour, land, purchased inputs and services. Productivity estimates are reported in this paper in the form of TFP growth (percentage change over time), rather than the level of TFP, to enable productivity improvements to be compared across states or territories, regions and industries.

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