

# Australian commodities

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Abbreviations

**a** ABARES macro assumption

**f** ABARES forecast

**s** ABARES estimate

# Economic overview

Jammie Penm and Neil Thompson

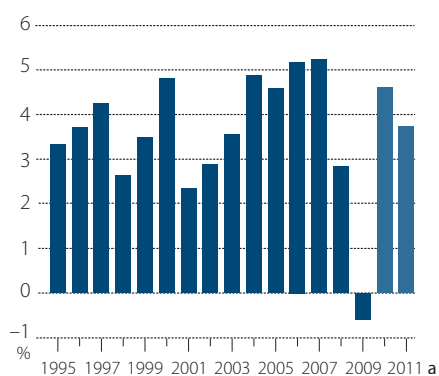
- World economic growth is assumed to moderate to 3.7 per cent in 2011, following an estimated rate of 4.6 per cent in 2010.
- Emerging economies, particularly China and India, are expected to remain the drivers of world economic growth, while there are concerns about the growth prospects for major OECD economies.
- Despite a significant appreciation of the Australian dollar, the value of commodity exports is forecast to rise by 23.4 per cent to \$211.1 billion in 2010–11.

## The global economy

After improving markedly in early 2010, the pace of global economic recovery has moderated in recent months. Emerging economies in Asia continue to underpin world economic growth, while weak private demand has placed considerable downward pressure on the recovery of major OECD economies.

Continued high unemployment and weakness in property markets have led to subdued consumer spending and business investment in major OECD economies. The significant increase in public sector debt, as a ratio of gross domestic product, in a number of advanced economies, including the United States, Japan and a number of European countries, has generated considerable concerns in world financial markets. Given these developments, economic growth in the OECD region is assumed to slow in 2011.

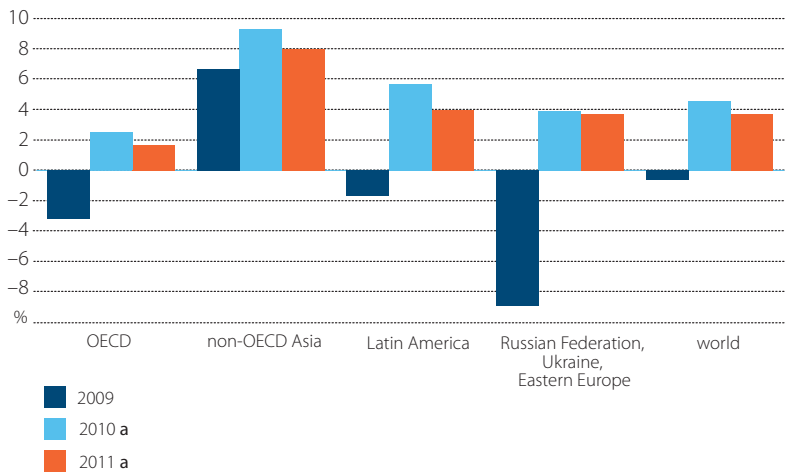
### World economic growth



In contrast, the outlook for many emerging economies, particularly China and India, remains positive. Although export performance in these economies could be adversely affected by slower OECD economic growth, stronger domestic demand and intraregional trade are expected to provide support for economic growth. However, inflationary pressures are emerging in a number of developing countries, which will require governments to tighten fiscal and monetary stances to ensure sustained economic growth.

Against this backdrop, the world economy is assumed to grow by 3.7 per cent in 2011, moderating from an estimated growth rate of 4.6 per cent in 2010.

## Regional economic growth



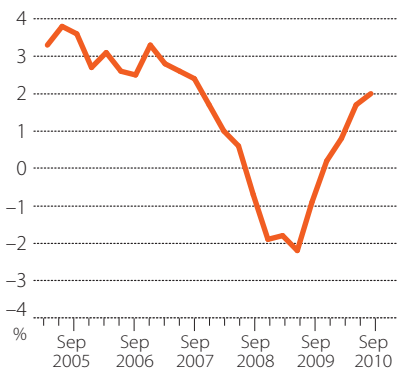
## Economic prospects in Australia's major export markets

*The United States*

After expanding strongly in early 2010 and late 2009, economic growth in the United States has moderated. Real gross domestic product is estimated to have expanded at an annualised rate of 2.5 per cent in the September quarter 2010, following growth of 1.7 per cent in the June quarter. This compares with 3.7 per cent in the March quarter 2010 and 5 per cent in the December quarter 2009. This moderation of economic growth largely reflects continued weak

growth in private sector demand and the winding back of fiscal stimulus, which was implemented in response to the global financial crisis.

## US consumer spending growth quarterly

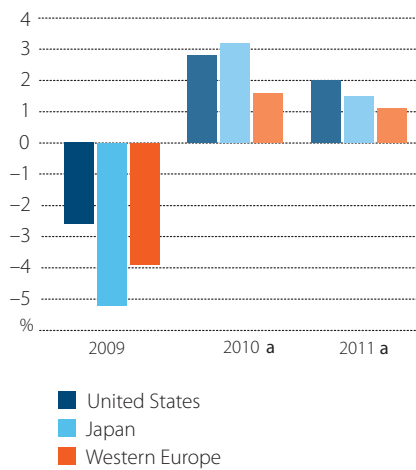


The recovery of private demand, and in particular consumer spending, which accounts for around 70 per cent of real gross domestic product, continues to be weak. Private consumption rose by 2 per cent year-on-year in the September quarter 2010 and 1.7 per cent in the June quarter, considerably less than the 3 per cent growth rate achieved before the global financial crisis. Partial indicators released recently suggest that consumer spending is likely to remain subdued in the near term, with the unemployment rate reaching 9.8 per cent in November 2010.

Despite a depreciation of the US dollar by around 10 per cent against other international floating currencies during the September quarter, real exports of goods and services only increased by a seasonally adjusted annual rate of 5 per cent. This compares with an increase of

## Economic overview

### OECD economic growth



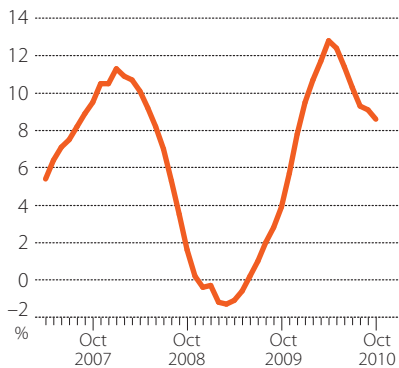
9.1 per cent in the June quarter. Industrial production remained largely unchanged between July and October 2010, after a significant increase in the first half of 2010. The weakening pace of manufacturing activity is unlikely to provide support for improving labour market conditions.

In an attempt to stimulate economic activity, the Federal Reserve recently announced an additional \$600 billion of 'quantitative easing' to inject capital into the economy by buying long-term US Treasury bonds. However, many market commentators have expressed their reservations about its effect on general economic activity. In preparing this set of commodity forecasts, economic growth in the United States is assumed to average 2 per cent in 2011. This compares with an estimated growth rate of 2.8 per cent in 2010.

### China

Economic growth in China has eased from the high achieved in early 2010, with real gross domestic product growing at a year-on-year rate of 9.6 per cent in the September quarter 2010, compared with 10.3 per cent in the June quarter and 11.9 per cent in the March quarter.

### Changes in house prices, China monthly, 70 major cities



Partial indicators released recently suggest that growth in private consumption and investment spending will underpin economic growth in the short term. Retail sales grew year-on-year by 18.3 per cent in the first 10 months of 2010, compared with 15.3 per cent over the same period in 2009. Growth in urban fixed asset investment remains strong. In particular, investment in residential development has been high, growing year-on-year by 36.5 per cent in the first 10 months of 2010, compared with 18.9 per cent over the same period in 2009. This rapid increase in residential development has led to market concerns about asset price bubbles. In response, the Chinese Government has tightened credit conditions to ease upward pressure on asset prices. As a result, inflation

in property markets slowed to a year-on-year rate of 8.6 per cent in October 2010 from a recent high of 12.8 per cent in April.

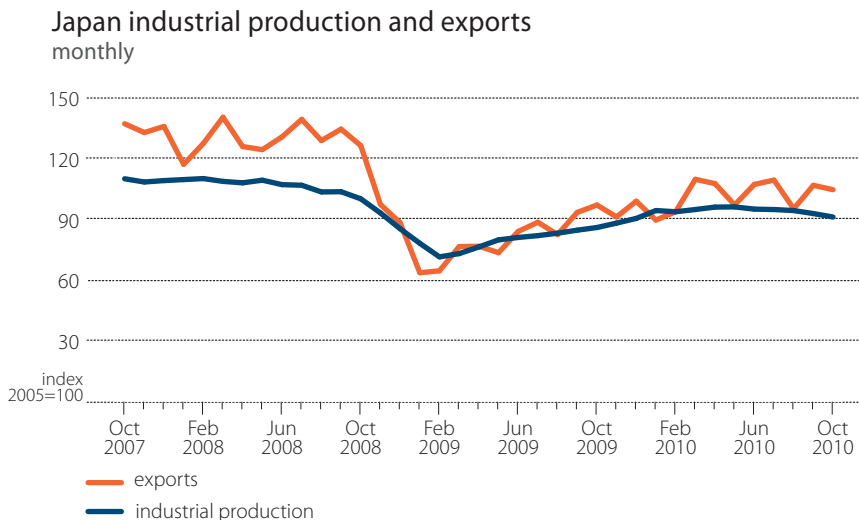
An emerging issue for the Chinese Government is sharply increasing consumer prices, especially food prices. Consumer prices rose by 4.4 per cent year-on-year in October 2010, significantly higher than the official target of 3 per cent. In response, the Chinese Government announced a number of measures to rein in inflation, increase food production and stabilise

energy supplies. These measures included a further tightening of credit conditions, a removal of road tolls for vehicles carrying fresh produce and seeking assurance from local authorities that they will reduce energy and transport prices for fertiliser producers.

In the short term, continued concerns about inflationary pressures and property market development could lead to further tightening measures to moderate economic activity. Against this backdrop, economic growth in China is assumed to average around 9 per cent in 2011, compared with an estimated rate of 10.2 per cent in 2010.

### Japan and Western Europe

In Japan, real gross domestic product rose at an annualised rate of 3.9 per cent in the September quarter 2010, following growth of 1.8 per cent and 6.6 per cent in the June and March quarters, respectively. Export growth was the main contributor to economic growth, while consumer spending rebounded slightly in the September quarter.



Partial indicators released recently suggest that economic growth in Japan is likely to ease. Reflecting weaker economic growth in other major OECD countries, export performance has been adversely affected, with a year-on-year increase of 7.8 per cent in October 2010, compared with a recent high of 45.3 per cent in February 2010. There are also indications that manufacturing activity is weakening, with the index of industrial production having stagnated since April 2010.

Looking forward, the assumed weaker economic growth in other major OECD economies, particularly the United States and Western Europe, and an appreciation of the Japanese yen against the US dollar are likely to further weaken export performance. Concerns about public sector debt and deflation in the Japanese economy could adversely affect private sector demand.

## Economic overview

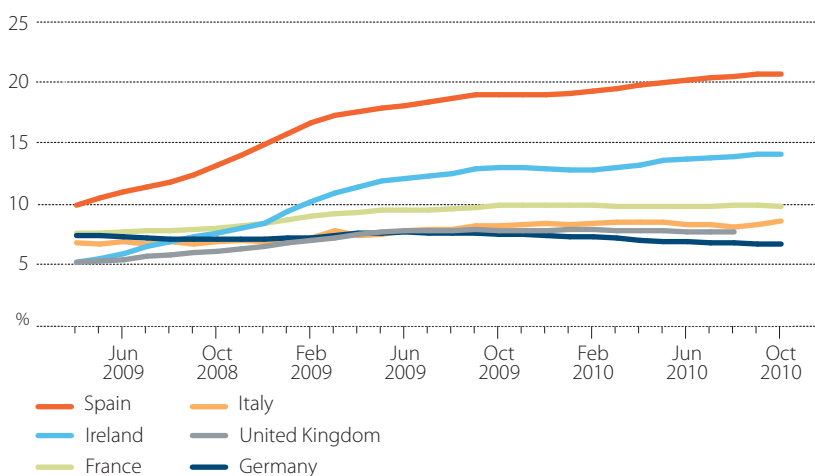
For 2011, economic growth in Japan is assumed to average around 1.5 per cent. This compares with assumed growth of 3.2 per cent in 2010.

In Western Europe, there have been significant differences in the pace of economic activity across the region. In Germany, economic growth has been relatively strong, with real gross domestic product growing year-on-year by 3.9 per cent in the September quarter 2010. In contrast, growth has been weaker in other regional economies, with a year-on-year rate of 1.8 per cent in France, 2.8 per cent in the United Kingdom and 1 per cent in Italy in the same quarter. In Greece, economic contraction continued, with a year-on-year decline of 4.5 per cent in the September quarter 2010.

Looking forward, high unemployment rates across the region and concerns about sovereign debt issues are expected to adversely affect economic activity. The unemployment rate was around 6.7 per cent in Germany in October 2010. This compares with rates of around 9.8 per cent in France, 20.7 per cent in Spain and 12.2 per cent in Greece.

For Western Europe as a whole, economic growth is assumed to be around 1.1 per cent in 2011. This compares with an estimated average of 1.6 per cent in 2010.

**European unemployment rates**  
monthly



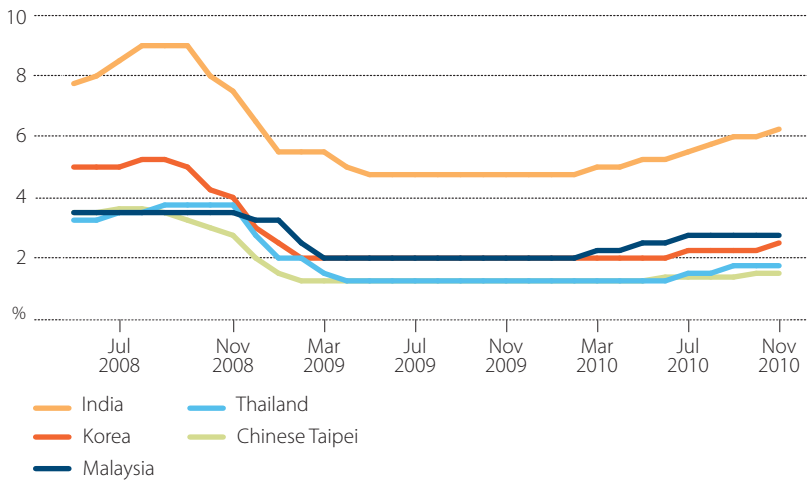
### Non-OECD Asia

Following strong growth in early 2010, economic activity in non-OECD Asia has also moderated. In Singapore, real gross domestic product grew at a year-on-year rate of 10.6 per cent in the September quarter 2010, after expanding by 19.5 per cent in the June quarter. In Indonesia, economic growth eased to a year-on-year rate of 5.8 per cent in the September quarter 2010, from 6.2 per cent in the June quarter.



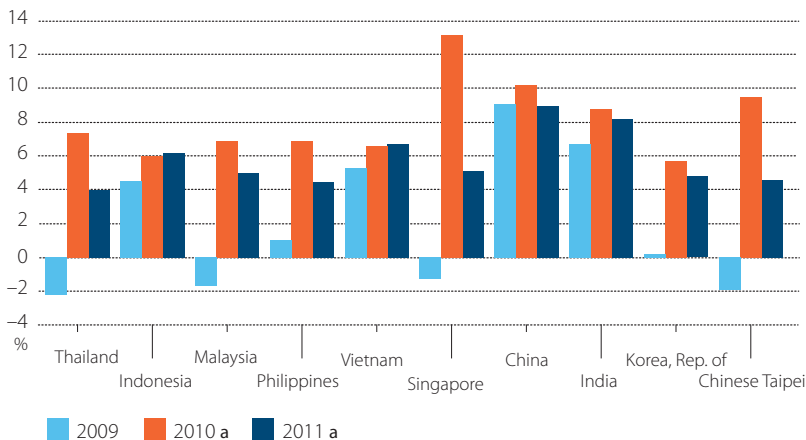
The slowdown in regional economic growth largely reflects the withdrawal of fiscal stimulus, the unwinding of accommodative monetary policy and slowing export growth. For example, exports from Chinese Taipei increased at a year-on-year rate of 21.9 per cent in October 2010, down from average growth of 49.6 per cent in the first half of the year. In Malaysia, the central bank has raised its benchmark lending rate by 75 basis points since March 2010, while the official interest rate in India has increased by 150 basis points over the same period.

### Official interest rate in selected Asian economies



Looking forward, governments in the region are expected to further tighten policies to ease inflationary pressures. For the export-oriented regional economies, there remains a downside risk to growth prospects because of the assumed weakening of import demand in major OECD economies. For non-OECD Asia as a whole (excluding Japan and the Republic of Korea), economic growth is assumed to average around 8 per cent in 2011. This compares with an estimated average of 9.3 per cent in 2010.

### Economic growth in Asia



## Economic overview

### Key macroeconomic assumptions

<b>World</b>		<b>2008</b>	<b>2009</b>	<b>2010 a</b>	<b>2011 a</b>
<b>Economic growth</b>					
OECD	%	0.2	-3.2	2.5	1.7
United States	%	0.0	-2.6	2.8	2.0
Japan	%	-1.2	-5.2	3.2	1.5
Western Europe	%	0.5	-3.9	1.6	1.1
- Germany	%	1.0	-4.7	3.1	1.6
- France	%	0.1	-2.5	1.4	1.3
- United Kingdom	%	-0.1	-4.9	1.7	1.5
- Italy	%	-1.3	-5.0	0.8	0.9
Korea, Rep. of	%	2.3	0.2	5.7	4.8
New Zealand	%	-0.1	-1.7	2.1	3.2
Developing countries	%	6.5	4.0	7.6	6.6
- non-OECD Asia	%	7.8	6.7	9.3	8.0
South-East Asia <b>b</b>	%	4.7	1.7	6.6	5.4
China <b>c</b>	%	9.6	9.1	10.2	9.0
Chinese Taipei	%	0.7	-1.9	9.5	4.6
Singapore	%	1.8	-1.3	13.2	5.1
India	%	7.5	6.7	8.8	8.2
- Latin America	%	4.3	-1.7	5.7	4.0
Russian Federation	%	5.2	-7.9	3.8	4.1
Ukraine	%	2.1	-15.1	4.3	4.0
Eastern Europe	%	3.0	-3.6	3.7	3.1
World <b>d</b>	%	2.8	-0.6	4.6	3.7
<b>Industrial production</b>					
OECD	%	-2.4	-13.1	7.6	3.4
<b>Inflation</b>					
United States	%	3.8	-0.4	1.6	1.3
<b>Interest rates</b>					
US prime rate <b>e</b>	%	5.1	3.3	3.3	3.3
		<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
<b>Australia</b>		<b>-08</b>	<b>-09</b>	<b>-10 <sup>s</sup></b>	<b>-11 <sup>a</sup></b>
Economic growth	%	3.8	1.4	2.2	3.25
Inflation	%	3.4	3.1	2.3	2.9
Interest rates <b>g</b>	%	7.7	6.3	6.0	6.7
<b>Australian exchange rates</b>					
US\$/A\$		0.90	0.75	0.88	0.95
TWI for A\$ <b>h</b>		70	60	69	72

**a** ABARES assumption. **b** Indonesia, Malaysia, the Philippines, Thailand and Vietnam. **c** Excludes Hong Kong. **d** Weighted using 2009 purchasing-power-parity (PPP) valuation of country GDPs by the IMF. **e** Commercial bank prime lending rates in the United States. **g** Large business weighted average variable rate on credit outstanding. **h** Base: May 1970 = 100.

**s** ABARES estimate.

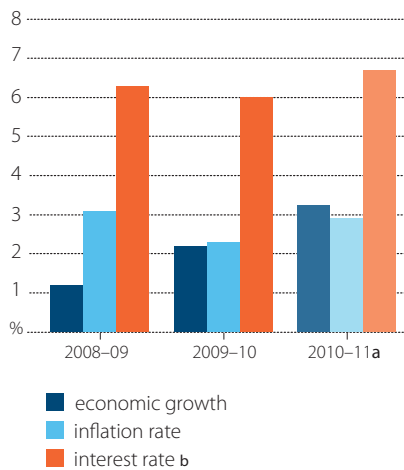
Sources: ABARES; ABS; IMF; OECD; RBA.

## Economic prospects in Australia

In Australia, real gross domestic product rose by a seasonally adjusted rate of 2.7 per cent in the September quarter 2010, after expanding by 3.1 per cent in the June quarter.

Looking forward, private sector activity is expected to strengthen gradually and export performance is likely to remain strong. Agricultural production is forecast to increase by 8.9 per cent in 2010–11. This compares with a fall of 1.1 per cent in 2009–10. For mine production, the index is forecast to rise by 10.2 per cent in 2010–11, following an increase of 2.7 per cent in 2009–10.

### Australian economic indicators



<sup>b</sup> Large business weighted average variable rate on credit outstanding.

Economic growth in Australia is assumed to average 3.25 per cent in 2010–11, compared with 2.2 per cent in 2009–10.

### Inflation

Inflationary pressures in Australia eased in the third quarter of 2010. The consumer price index rose year-on-year by 2.8 per cent in the September quarter, compared with an increase of 3.1 per cent in the June quarter. The most significant price rises in the September quarter were for tobacco, water and sewerage, electricity, property rates, and charges and rents. The effects were partially offset by lower prices for automotive fuel, vegetables, pharmaceuticals, audio visual and computing equipment, and soft drinks, waters and juices.

Looking forward, the inflation rate in Australia is not expected to increase markedly. For 2010–11 as a whole, Australia's inflation rate is assumed to average around 2.9 per cent.

### Australian exchange rate

Over the past few months the Australian dollar has appreciated both against the US dollar and on a trade-weighted basis. In early December 2010, the Australian dollar was trading around US98c and TWI 74. This compares with US94c and TWI 72 in mid-September and US82c and TWI 66 in early June.

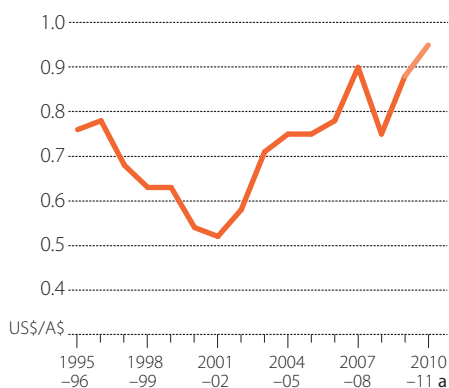
The recent appreciation of the Australian dollar against the US dollar mainly reflects changes in financial market sentiment toward the US dollar as a result of the 'quantitative easing' implemented by the Federal Reserve. While the Australian dollar has appreciated against the US dollar, its appreciation against other major international floating currencies has been significantly less. The Australian dollar was trading around €0.74 and ¥82 in early December. This compares with €0.72 and ¥80 in mid-September.

## Economic overview

In the short term, the value of the Australian dollar is likely to remain strong, especially against the US dollar. Given the weakening US economic outlook and a higher Australian interest rate structure, it is unlikely that the value of the Australian dollar will decline significantly against the US dollar in the short term.

In preparing this set of commodity forecasts, the Australian dollar is assumed to average around US95c and TWI 72 for the financial year 2010–11 as a whole. While the Australian dollar is assumed to remain relatively strong over the next six months, significant volatility is likely to

### Australian exchange rate



continue. This is because changes in financial market sentiment can significantly influence movements in the Australian dollar. Factors currently particularly important to financial market sentiment include the outlook for world economic growth, especially the growth prospects for major commodity consuming countries such as China and India, interest rate movements in Australia and major world economies and price movements for bulk commodities such as iron ore and coal. It remains important for primary producers and exporters to manage the risks associated with fluctuations in the Australian exchange rate.

## Outlook for Australia's commodity sector

### Commodity export prices

The index of export unit returns for Australian commodities, in aggregate, is forecast to increase by 18.4 per cent in 2010–11, following a decline of 20.1 per cent in 2009–10. The forecast increase in 2010–11 largely reflects the effect of higher commodity prices, especially for energy and minerals.

For farm commodities, the index of export unit returns is forecast to rise by 5.4 per cent in 2010–11, following a fall of 11.5 per cent in 2009–10. Higher world prices are forecast for many agricultural commodities, including wheat, barley, canola, raw cotton, sugar, beef and veal, lamb, wool and most dairy products.

Export unit returns for Australian mineral resources exports are forecast to rise by 20.8 per cent in 2010–11, after declining by 21.5 per cent in 2009–10. Unit returns for energy exports are forecast to increase by 17.6 per cent in 2010–11, following a fall of 35.1 per cent in 2009–10. Export unit returns for metals and other minerals are forecast to increase by 23.4 per cent in 2010–11, following a decline of 7.7 per cent in 2009–10.

### *Commodity export earnings*

Export earnings for farm commodities are forecast to be around \$30.2 billion in 2010–11, an increase of 5.9 per cent from \$28.5 billion in 2009–10. Export earnings are forecast to be higher for a number of agricultural commodities, including wheat, barley, canola, rice, raw cotton, beef and veal, lamb and wool.

Despite the adverse impact of recent rain on the quality of winter crops in the eastern states, the value of crop exports is forecast to increase by 8.7 per cent to \$16.5 billion in 2010–11. Export earnings from livestock and livestock products are also forecast to increase by 2.6 per cent in 2010–11, to be around \$13.7 billion.

For forestry and fisheries products, export earnings are forecast to be around \$3.5 billion in 2010–11, largely unchanged from the value in 2009–10.

Export earnings from minerals and energy commodities are forecast to be around \$177.4 billion in 2010–11, compared with \$139.1 billion in 2009–10. For energy commodities, export earnings are forecast to increase by 25.8 per cent to \$72.3 billion in 2010–11, largely reflecting higher negotiated prices for coal. For metals and other minerals, export earnings are forecast to rise by 28.8 per cent to \$105.1 billion in 2010–11, with increased shipments and prices for Australian iron ore being the main supporting factors.

The value of Australia's commodity exports, as a whole, is forecast to be around \$211.1 billion in 2010–11, an increase of 23.4 per cent from \$171.1 billion in 2009–10.

The forecast for commodity exports in 2010–11 has been revised down by \$3.8 billion compared with the ABARES September forecast. This reflects a reduction of \$1.2 billion in the forecast for farm exports, largely as a result of lower grain exports because of lower production and export volumes in Western Australia and the effect on grain quality of untimely rain during the harvest of the eastern states' crop. The forecast of minerals resources exports in 2010–11 has been reduced by \$2.5 billion compared with the ABARES September forecast. This is a result of a reduction in forecast growth in iron ore, gold and metallurgical coal exports, somewhat offset by stronger forecast export growth for copper. Despite the lowering of the forecasts, commodity exports are still expected to achieve a record \$211.1 billion in 2010–11.

### Proportion of agricultural and food production exported

Jammie Penm, Gwendolen Rees and Brian Moir

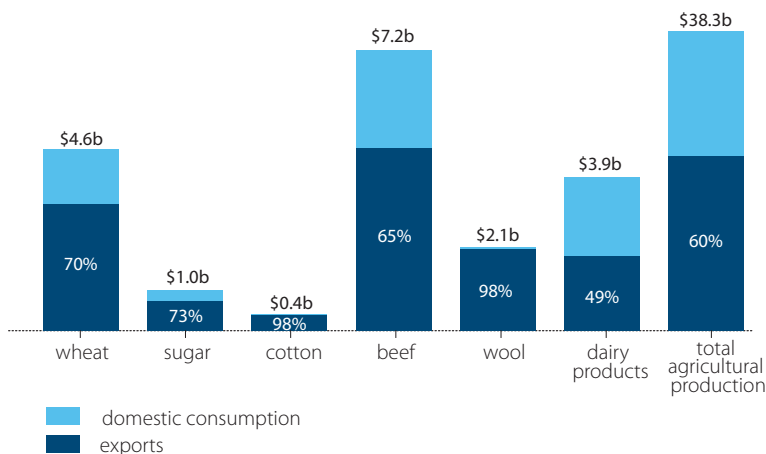
#### *Proportion of agricultural production exported*

In 2000, ABARE estimated that around 65 per cent of Australia’s agricultural production was exported at that time (ABARE 2000). The estimate was derived using published data from the Australian Bureau of Statistics (ABS) on the volume of farm production, the volume of farm exports and the gross value of farm production.

Because it is essential that exports and production be valued on a comparable basis for this calculation, the value of total agricultural exports is estimated using the same wholesale prices as for the value of farm production. The gross value of farm production is the value placed on recorded farm production at wholesale prices realised in the market place. Generally, the market place is defined for this purpose as the metropolitan market in each state and territory. Where commodities are consumed locally or where they become raw material for a secondary industry, these points of consumption are presumed to be the market place. Sales of production from one agricultural industry that are used as inputs into production for another agricultural industry are subtracted from the gross value of total farm production to avoid double counting. The methodology is explained in ABARE (2000).

Using the latest published data from the ABS, the share of agricultural production exported is now estimated to be around 60 per cent. This lower estimate as compared with that in 2000 mainly reflects the effect of adverse seasonal conditions on farm production and exports over the past years. However, given the higher farm production forecast for the current financial year, the share of agricultural production exported in 2010–11 is likely to be higher than the 60 per cent estimated using historical data. For example, based on ABARES current forecasts for agricultural production and exports, the share of agricultural production exported is estimated to be over 61 per cent in 2010–11.

**Percentage of agricultural production exported**  
average for 2006–07 to 2008–09



continued...

Proportion of agricultural and food production exported *continued***1** Percentage of food production exported

Based on gross value of production, 3-year average (2006–07 to 2008–09)

Farm	volume unit	production		exports		exports share
		volume	gross value \$m	volume	gross value b \$m	per cent
<b>Grains and oilseeds</b>						
Wheat	kt	15 270	4 644	10 671	3 245	70
Barley	kt	6 471	1 711	3 695	977	57
Other coarse grains and rice	kt	3 821	919	730	180	20
Pulses	kt	1 157	441	602	265	60
Canola	kt	1 210	632	577	301	48
<b>Industrial crops</b>						
Sugar cane c	kt	33 101	1 034	24 048	752	73
Wine grapes d	ML	1 644	1 192	1 045	758	64
Other crops e			10 836		3 140	29
<b>Livestock and livestock products</b>						
Beef g	kt	2 176	7 192	1 417	4 682	65
Sheep meat g	kt	679	1 934	381	960	50
Live cattle and sheep	'000	4 826	787	4 826	787	100
Dairy h	ML	9 398	3 912	4 576	1 905	49
Pig meat and poultry g	kt	1 213	3 057 i	104	238	8
Other livestock exports j					1 605	
Seafood			2 217		854	39
Gross value of food production			40 508			
less sales within the sector			2 297			
Gross value of food sales to other sectors			38 210			
Gross value of food exports					20 650	
Percentage of food production exported						54.04

b Obtained by multiplying the gross value of production by the percentage of production exported for each commodity.

c Export volume is converted from sugar to sugar cane equivalent. d Export volume is converted from wine to wine grape equivalent. e Includes vegetables, fruits, peanuts, sunflower seed, soybeans, safflower seed, triticale, maize, and other crops not elsewhere identified. g Export volume is converted from shipped weight to carcass weight. h Export volume is converted to liquid milk equivalent. i Production value includes honey and beeswax. j Include animal offal, hides and skins, honey, sausages, and canned and preserved meat.

Sources: Australian Bureau of Statistics; ABARES.

**Share of food production exported**

The same methodology is used to calculate the share of food production exported in Australia using the latest published data from the ABS and ABARES. For both food production and exports valued at wholesale prices, non-food commodities such as wool and cotton are excluded from the calculation, while seafood production and exports are included. Data for seafood exports are obtained from the ABS, while estimates of the gross value of seafood production are released regularly by ABARES.

continued...

**Proportion of agricultural and food production exported** continued

For food products, the value of exports at wholesale prices is equivalent to the gross value of production multiplied by the proportion of production volume exported. Estimates for each food product are then added to give an estimate for total food exports valued at wholesale prices. This estimate is different from food exports valued on board ships, as the latter includes substantial value adding in the form of domestic transport and downstream processing.

In calculating the proportion of production exported, the volume of exported food products is converted back to the equivalent unprocessed volume. For example, all meat export volumes are converted from shipped weight to carcass weight. Other examples include dairy products (converted back to their milk equivalents), raw sugar (to its sugar cane equivalent), wine (to its wine grape equivalent) and wheat flour (to its wheat equivalent). Again, sales between industries are subtracted from the value of total food production to avoid double counting.

Finally, the percentage of food production exported is calculated by dividing the value of total food exports (at wholesale prices) by the gross value of total food production (also at wholesale prices). As presented in table 1, it is estimated that around 54 per cent of food production in Australia is exported.

**Food exports and imports**

Trends in Australia's food exports and imports were examined in the June 2010 edition of *Australian commodities* (Kim, Thompson and Penm 2010). Australia's food exports were valued at \$28.1 billion on board ship in 2008–09, while the value of food imports was around \$10.4 billion in the same year. Recent data show that exports and imports declined to \$24.3 billion and \$10.1 billion, respectively, in 2009–10. These values do not reflect the actual physical quantities or the nutrient content of food in the trade.

A significant proportion of Australia's food exports consists of unprocessed or minimally transformed food products, such as wheat, coarse grains, oilseeds, live animals and fish and shell fish, that have relatively low unit values. In contrast to Australia's food exports, the substantially and elaborately transformed products with much higher unit values comprise most of food imports. These substantially and elaborately transformed products accounted for around 93 per cent of the value of imports in 2009–10 (table 2).

**2 International trade in food, Australia**  
2009–10

	exports	imports
	\$b	\$b
Minimally transformed	7 497	661
Substantially transformed	16 489	9 024
Elaborately transformed	361	434
Total	24 347	10 119

s ABARES estimate.

continued...



## Proportion of agricultural and food production exported continued

### References

ABARE 2000, 'Estimating the proportion of agricultural production exported', *Australian commodities*, vol. 7, no. 4, December quarter, p. 596.

Kim, M, Thompson, N and Penm, J 2010, 'Recent trends in Australia's food trade', *Australian commodities*, vol 17, no. 2, June quarter, pp. 347–359.

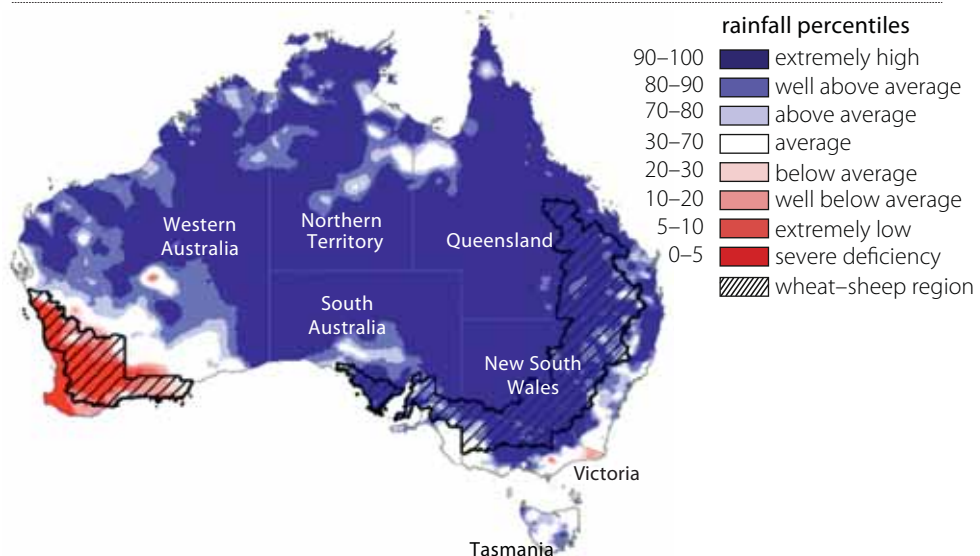
## Seasonal conditions and water availability

### Rainfall

November 2010 was Australia's eighth wettest on record, with high rainfall across most of eastern Australia and average rainfall over south-west Western Australia. Australia received its wettest spring (September to November) on record, according to the Bureau of Meteorology.

Heavy rainfall in early December across Australia's eastern winter cropping regions, especially in New South Wales and parts of Victoria, has substantially reduced the quality of the winter crop that had not been harvested prior to the rain. Despite the adverse effect of the recent rain, especially on the quality of crop (with substantial downgrades from milling to feed quality), relatively high grain yields are still expected to be achieved in the eastern grain belt.

### Australian rainfall percentiles, 1 September to 31 November 2010



Source: Bureau of Meteorology.

continued...

## Seasonal conditions and water availability continued

Average rainfall over south-west Western Australia in November 2010 was largely too late to assist crops, but should provide some pasture growth. In the eastern states, livestock prices have increased as a result of an increase in restocker activity. Large numbers of Western Australian stock continue to be transported east, reflecting the poorer seasonal conditions in the west.

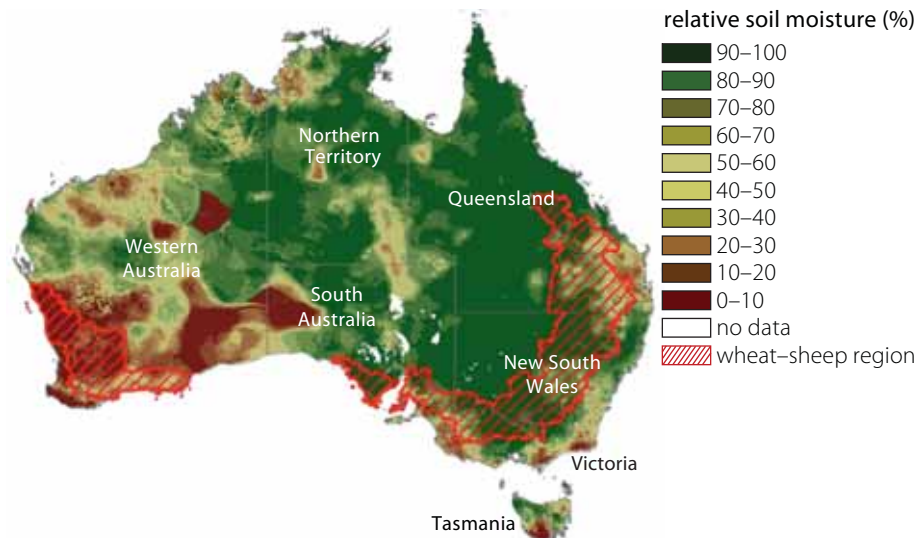
Despite some recent weakening, the current La Niña event remains well established in the Pacific Ocean with models indicating it will persist until at least early 2011. The seasonal outlook for December 2010 to February 2011 (summer) favours wetter conditions for most of the continent, particularly for areas of northern, eastern and western Australia.

### Relative soil moisture

Relative soil moisture in the upper layer of the soil profile was above average across most of Australia because of the generally wet conditions during November 2010. In south-west Western Australia, relative upper layer soil moisture remained below average because of a lack of rainfall. Relative soil moisture deficiencies decreased across coastal New South Wales, Victoria and Tasmania, but increased in south-east Queensland and parts of north-western Australia.

The bulk of plant roots occur in the top 30 centimetres of the soil profile and soil moisture data at the upper layer of the soil profile (0.2 metres) is the most appropriate indication of the availability of water, particularly for germinating plants. In some areas, soil moisture deficiencies are partly attributable to plants' use of water to grow (evapotranspiration).

### Upper layer soil moisture percentiles, November 2010



Source: Bureau of Meteorology.

These data come from a collaborative project between the Bureau of Meteorology, the CSIRO and the former Bureau of Rural Sciences to develop estimates of soil moisture and other components of the water balance at high resolution across Australia. The map shows soil moisture estimates relative to the long-term average for the reference period 1961 to 1990.

continued...

## Seasonal conditions and water availability continued

### Water storages

Regional water storage volumes in early December are summarised in the following table (current at 2 December 2010). Significant rainfall throughout spring has significantly increased storage levels, and storage in the Murray–Darling Basin (MDB) was at 80 per cent of capacity at 2 December 2010.

### Regional water storage volumes

current at 2 December 2010

region	total capacity		current volume		volume December 2009	
	GL		%		%	
Murray–Darling Basin (MDB) <sup>b</sup>	22 560		80		28	
Snowy Scheme	5 744		34		36	
Murray–Darling Basin Authority (MDBA)	9 352		75		23	
Queensland MDB	185		99		27	
Central Queensland	3 154		96		78	
South-east Queensland	3 517		85		45	
New South Wales MDB	13 918		88		25	
Coastal New South Wales	1 074		81		74	
Victoria MDB	8 488		66		33	

<sup>b</sup> This category included MDB water not managed by the MDBA.

### Water allocations

Water allocations are updated progressively throughout the season, in response to changes in water storage availability. Given the continued rainfalls across much of the southern MDB, it is anticipated that allocations in those catchments not yet at 100 per cent will continue to increase.

### Water allocations

early December 2010

	closing allocations 2009–10 (%)		allocations at 1 December 2010 (%)	
	high security <sup>b</sup>	general security	high security <sup>b</sup>	general security
NSW Murray Valley	97	27	97	64
NSW Murrumbidgee Valley	95	27	95	59
NSW Lower Darling	100	100	100	100
NSW Macquarie Valley	100	0	100	100
NSW Hunter Valley	100	100	100	100
NSW Lachlan Valley	10	0	100	20
NSW Border Rivers	100	4.4	100	100
NSW Peel Valley	100	100	100	82
Victoria Murray Valley	100	na	100	na
Victoria Goulburn	71	na	100	na
Victoria Campaspe	0	na	100	na
Victoria Loddon	3	na	100	na
Victoria Bullarook	19	na	100	na
Victoria Broken	17	na	100	na
SA Murray Valley	62	na	67	na

<sup>b</sup> In Victoria, this type of entitlement is referred to as 'high reliability'. **na** Not applicable.

continued...

### Seasonal conditions and water availability continued

#### *Water trading*

Because of the high rainfall and high water allocations currently being experienced across eastern Australia, the volume of water trades has been significantly below historical trends for the season. Water prices are also down, with the maximum price listed by [Waterexchange.com.au](http://Waterexchange.com.au) in the week of 2 December being \$40 per megalitre in the Goulburn 1A Trading Zone. This compares with a median price of \$172 per megalitre in the same period in 2009

## Major indicators of Australia's commodity sector

		2005	2006	2007	2008	2009	2010	change from	
		-06	-07	-08	-09	-10 <sup>s</sup>	-11 <sup>f</sup>	2009-10	2010-11
								%	%
<b>Commodity exports</b>									
Exchange rate	US\$/A\$	0.75	0.78	0.90	0.75	0.88	0.95	17.3	8.0
<b>Unit returns <sup>b</sup></b>									
<b>Farm</b>	index	100.0	105.3	117.0	117.6	104.1	109.7	-11.5	5.4
<b>Mineral resources</b>	index	100.0	110.0	115.0	155.6	122.1	147.5	-21.5	20.8
- energy minerals	index	100.0	91.4	104.4	176.3	114.5	134.6	-35.1	17.6
- metals and other minerals	index	100.0	125.5	123.8	139.4	128.6	158.7	-7.7	23.4
<b>Total commodities</b>	index	100.0	109.0	115.0	148.6	118.8	140.6	-20.1	18.4
<b>Value of exports</b>									
<b>Farm</b>	A\$m	27 824	27 900	27 530	32 052	28 514	30 190	-11.0	5.9
- crops	A\$m	13 996	13 086	13 027	16 886	15 165	16 490	-10.2	8.7
- livestock	A\$m	13 828	14 815	14 503	15 166	13 349	13 699	-12.0	2.6
<b>Forest and fisheries products</b>	A\$m	3 687	3 849	3 813	3 872	3 507	3 519	-9.4	0.4
<b>Mineral resources</b>	A\$m	92 616	107 976	117 635	161 758	139 089	177 399	-14.0	27.5
- energy minerals	A\$m	39 328	39 427	45 591	77 892	57 470	72 309	-26.2	25.8
- metals and other minerals	A\$m	53 288	68 549	72 043	83 865	81 619	105 090	-2.7	28.8
<b>Total commodities</b>	A\$m	124 127	139 725	148 978	197 682	171 110	211 108	-13.4	23.4
<b>Farm sector</b>									
<b>Gross value of farm production <sup>c</sup></b>	A\$m	38 689	36 709	43 567	42 092	41 005	45 607	-2.6	11.2
- crops	A\$m	20 893	18 457	24 052	22 817	21 995	25 875	-3.6	17.6
- livestock	A\$m	17 796	18 252	19 515	19 275	19 010	19 732	-1.4	3.8
<b>Farm costs</b>	A\$m	31 339	31 443	37 137	36 652	34 662	36 348	-5.4	4.9
<b>Net cash income <sup>d</sup></b>	A\$m	11 239	10 413	10 649	6 008	11 136	14 196	85.4	27.5
<b>Net value of farm production <sup>e</sup></b>	A\$m	7 349	5 266	6 431	5 440	6 342	9 259	16.6	46.0
<b>Farmers' terms of trade</b>	index	91.3	95.6	91.4	88.6	91.4	91.3	3.2	-0.1
<b>Volume of farm production</b>	index	110.9	95.0	104.3	108.5	107.3	116.8	-1.1	8.9
- crops	index	118.7	84.5	104.5	114.0	115.1	136.6	1.0	18.7
- livestock	index	102.4	105.2	102.5	101.0	97.8	96.5	-3.2	-1.3
<b>Crop area and livestock numbers</b>									
Crop area (grains and oilseeds)	'000 ha	22 324	21 186	23 237	24 084	23 937	23 645	-0.6	-1.2
Sheep	million	91.0	85.7	76.9	72.7	68.0	68.4	-6.5	0.6
Cattle	million	28.4	28.0	27.3	27.9	26.7	27.2	-4.3	1.9
<b>Minerals and energy sector</b>									
<b>Volume of mine production</b>	index	118.0	121.3	120.7	121.3	124.6	137.3	2.7	10.2
- energy	index	111.6	118.8	116.7	122.5	125.2	137.9	2.2	10.1
- metals and other minerals	index	124.2	124.2	124.7	119.9	124.0	136.5	3.4	10.1
<b>Gross value of mine production</b>	A\$m	88 912	103 657	112 929	155 288	133 526	170 303	-14.0	27.5
<b>New capital expenditure <sup>g</sup></b>	A\$m	19 659	23 621	29 201	37 977	35 185	na	-7.4	na
<b>Exploration expenditure</b>	A\$m	2 503	3 940	5 496	6 034	5 727	na	-5.1	na
- energy	A\$m	1 484	2 533	3 501	4 293	3 984	na	-7.2	na
- metals and other minerals	A\$m	1 018	1 407	1 995	1 741	1 742	na	0.1	na
<b>Employment</b>									
Agriculture, forestry and fishing	'000	348	350	353	358	369	na	3.2	na
Mining	'000	129	135	145	167	173	na	3.6	na
Australia	'000	10 088	10 374	10 644	10 767	11 027	na	2.4	na

**b** Base: 2005-06 = 100. **c** For a definition of the gross value of farm production see table 19. **d** Gross value of farm production less increase in assets held by marketing authorities and less total cash costs. **e** Gross value of farm production less total farm costs. **g** Mining industry (ANZSIC subdivision B) only. **s** ABARES estimate. **f** ABARES forecast. **na** Not available.

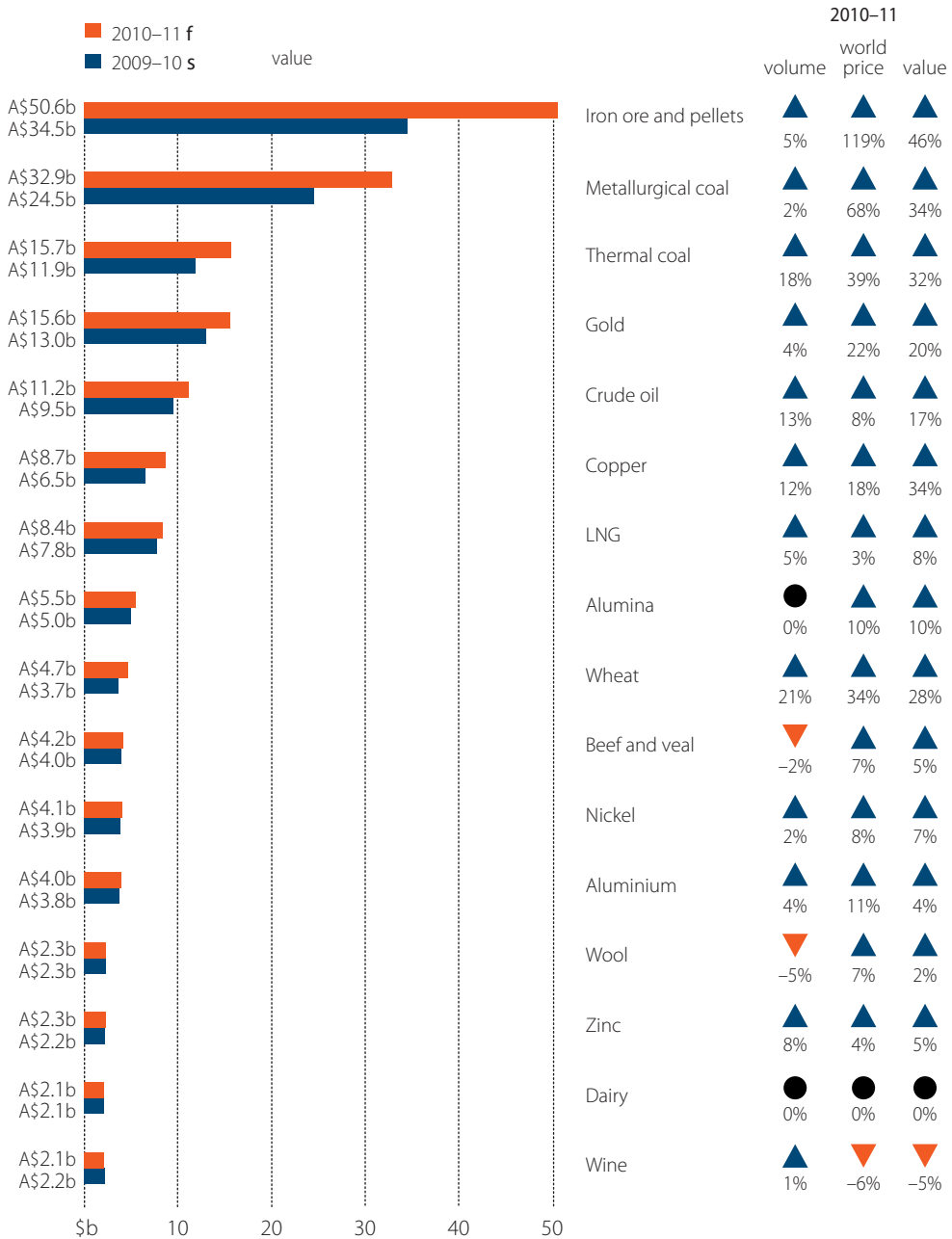
*Note:* ABARE revised the method for calculating farm price and production indexes in October 1999. The indexes for the different groups of commodities are calculated on a chain weight basis using Fishers' ideal index with a reference year of 1997-98 = 100.

*Sources:* ABARES; Australian Bureau of Statistics.

# Commodity outlook

## Major Australian commodity exports

LNG, alumina, wine, wool, beef and veal and dairy are export unit returns or domestic prices in \$A. All other commodities are world indicator prices in US\$. For export value, annual forecasts are the sum of quarterly forecasts. As a result, annual export values do not necessarily reflect variations in export volumes, world prices and exchange rates. Iron ore, metallurgical coal and thermal coal are average or annual negotiated contract prices for the Japanese Fiscal Year running from April 2010 to March 2011.



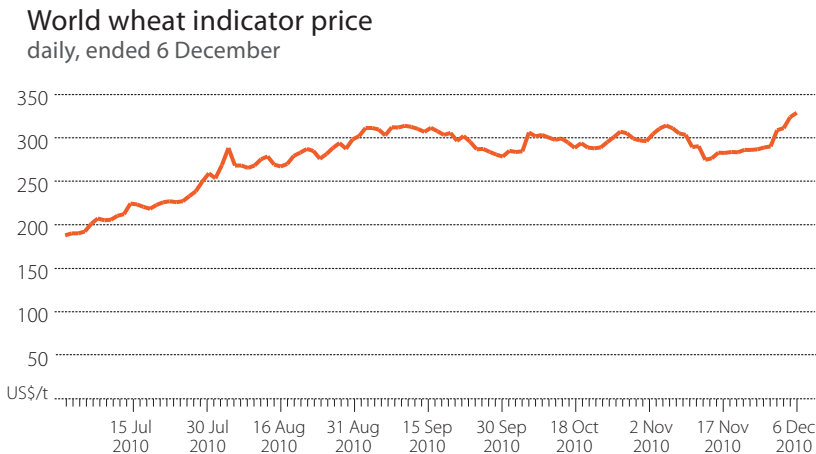
# Crops

## Wheat

James Fell

The world wheat indicator price (US hard red winter, fob Gulf) is forecast to increase by 34 per cent in 2010–11 to average US\$280 a tonne. This forecast price increase largely reflects expected lower world supplies, particularly from the Black Sea region, leading to a fall in world wheat stocks.

The world wheat price began 2010–11 (July–June) at US\$188 a tonne and rose to a high of US\$314 a tonne in early September. Subsequently, the world wheat indicator price fell to US\$279 a tonne in early October but rebounded back to US\$314 a tonne in early November. The world wheat indicator price reached a new peak of US\$329 a tonne in early December. While factors such as export restrictions implemented by the Russian Federation and Ukraine and lower than expected world cereal production have placed significant upward pressure on world wheat prices, it is expected that prices will begin to ease in early 2011, under the assumptions that the area planted for next season's northern hemisphere wheat crop will be considerably larger in response to the higher prices, and that the seasonal conditions in major producing regions will be more favourable.



The prospect of a La Niña weather system potentially affecting the wheat growing regions of Argentina with lower rainfall and the possibility of dry conditions in some winter wheat growing areas of the northern hemisphere are major upside risks to the price forecast in 2010–11. These circumstances could adversely affect world production and maintain upward pressure on world prices.

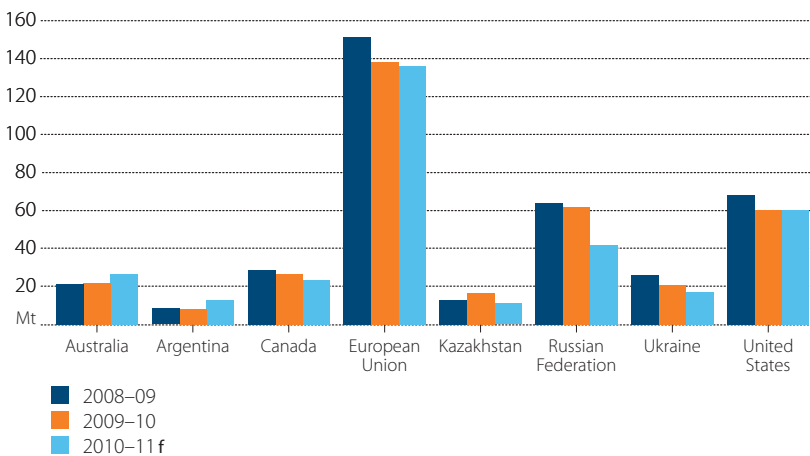
# Wheat

## World production to fall

World wheat production is forecast to decline by around 4 per cent in 2010–11 to 648 million tonnes. Lower winter wheat production in most northern hemisphere exporting regions largely accounts for the expected decline.

Wheat production in the Black Sea region (the Russian Federation, Kazakhstan and Ukraine) was affected markedly in 2010–11 by adverse seasonal conditions. Production is estimated to have decreased in the Russian Federation by 32 per cent to 42 million tonnes, in Kazakhstan by 33 per cent to around 11 million tonnes, and in Ukraine by 18 per cent to around 17 million tonnes.

### Production in key exporters



Canadian wheat production also fell in 2010–11, by around 4 million tonnes, to 23 million tonnes. Excessive moisture and frost damage adversely affected the crop in many parts of western Canada. Although growing conditions and crop quality were reported as generally good in eastern Canada, this area accounts for only around 10 per cent of Canadian wheat production.

Wheat production in the United States in 2010–11 is expected to be similar to last year's harvest, at around 60 million tonnes, despite a smaller area planted. Winter wheat production is estimated to be around 40 million tonnes and spring wheat production, including durum, around 20 million tonnes.

Wheat production in the European Union, the world's largest producing region, is estimated to have decreased by 3 million tonnes in 2010–11 to around 136 million tonnes. Production in China and India, the world's second and third largest producing countries, is estimated to be relatively unchanged in 2010–11.

Although wheat production in 2010–11 is forecast to be significantly higher than last season in both Australia and Argentina, this increase will only partially offset the shortfall in production

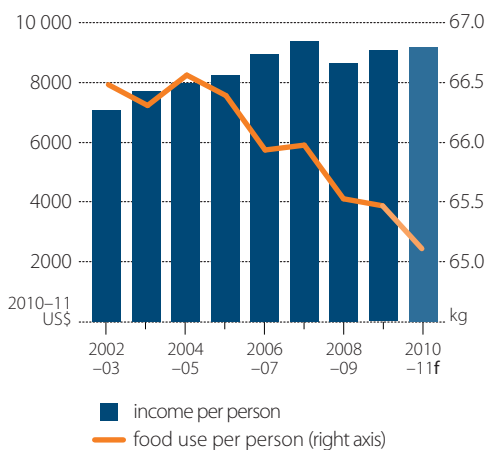


in the northern hemisphere. Argentina is forecast to increase its wheat production by around 50 per cent to approximately 12 million tonnes.

*Consumption to increase*

World wheat consumption is forecast to increase by 2 per cent in 2010–11 to around 658 million tonnes. This rise is consistent with the long-term trend increase in human wheat consumption, driven largely by population growth. Human consumption accounts for around 70 per cent of world wheat use. The positive effect of the rise in world population on wheat consumption has more than offset the fall in wheat consumption as per capita incomes grow.

**Food use and income per person**

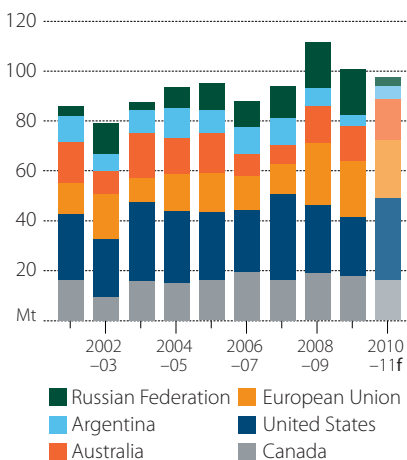


The use of wheat for feed is also forecast to rise by around 3 per cent in 2010–11 to 112 million tonnes. Although higher prices are expected to lower consumption in some regions, this is expected to be offset by higher consumption of feed wheat in China and the Russian Federation. The use of wheat in ethanol production is also forecast to increase marginally, particularly in Europe.

*Lower Black Sea wheat supplies to reduce trade*

World wheat trade is forecast to fall by 5 per cent in 2010–11 to around 120 million tonnes. This largely reflects lower exports from countries in the Black Sea region. Exports from the Russian Federation are forecast to fall by 81 per cent to around 4 million tonnes because of lower production and the current ban on grain exports between 15 August 2010 and 1 July 2011. Exports from Ukraine are forecast to fall by 57 per cent to around 4 million tonnes because of lower production and an export quota of 500 000 tonnes that is currently in place until 31 December 2010. Exports from Kazakhstan are forecast to fall by 31 per cent to around 6 million tonnes because of lower production.

**Exports from major exporters**



As a result of lower production and export bans in Black Sea countries, a major exporting region of feed wheat, importers of feed wheat have sought supplies from alternative sources. In response, world feed wheat export prices have also risen significantly. Many major feed wheat importers are in the Asian region and Australia is expected to fulfil part of the shortfall of feed wheat supplies to the Asian importers.

## Wheat

In contrast to the Black Sea countries, Australia, the United States and Argentina are forecast to increase exports in 2010–11. The United States is forecast to increase exports by 45 per cent to 34 million tonnes. Exports in Argentina are subject to a domestic supply target set by the government. As at early December, the Argentine Government will permit wheat exports of 6 million tonnes in 2010–11.

The higher forecast wheat price relative to rice is expected to result in reduced wheat import demand in some countries, particularly in the Middle East and East Asia. Wheat imports are forecast to fall by 4 million tonnes to around 18 million tonnes in the Middle East, and by 3 million tonnes to around 23 million tonnes in East Asia. China, the world's largest wheat consuming nation, is expected to reduce imports and become a net exporter in 2010–11.

### *Stocks to fall but remain relatively high*

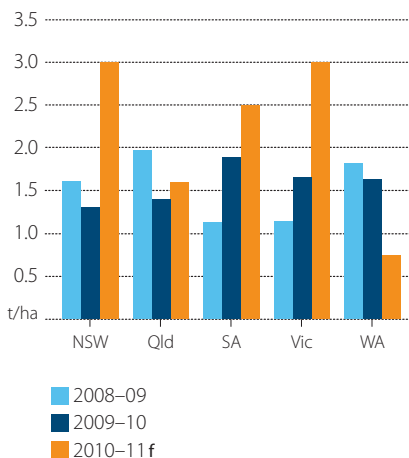
World wheat closing stocks are forecast to fall by 5 per cent in 2010–11 to 187 million tonnes. Although the stocks-to-use ratio is forecast to fall to around 28 per cent, it will still be at its second highest level since 2001–02.

The forecast fall in stocks is largely the result of the United States, Canada and the European Union drawing down stocks to increase exports in response to high world prices. Stocks in the Russian Federation, where consumption is expected to exceed production, are also forecast to fall. In contrast, stocks in Argentina are forecast to increase because of the Argentine Government policy limiting wheat exports. Australian wheat stocks are forecast to rise because of the forecast record wheat crop.

### *Wheat production in Australia*

Australian wheat production is forecast to increase by 22 per cent in 2010–11 to a record 26.8 million tonnes. This reflects exceptionally good growing conditions across the eastern wheat belt. Higher production from the eastern states is forecast to more than offset lower production from Western Australia.

#### Wheat yields by state



The eastern wheat belt received average to well above average rainfall in winter and spring, providing most areas with ideal growing conditions. However, the continuation of above average rainfall into late spring and early summer is expected to result in a substantial downgrading in grain quality in many regions in the eastern states and some loss of production. An important issue will be whether wheat quality for some crops reaches marketable grades. This will not be known until later in the season.

In contrast to the eastern states, wheat yields in Western Australia are forecast to be the lowest since 1969–70, with the western wheat belt receiving below average rainfall across the growing season. In early December, protein content of wheat harvested had reportedly been high, but screenings had been higher than usual.

Localised damage from plague locusts has been reported in south-eastern Australia; however, the effect on aggregate production is not expected to be significant. Dense crop canopies and increased pasture availability have helped to lessen locust damage to the wheat crop.

The average return in early December for the 2010–11 Australian premium white wheat pool (APW10) was around \$322 a tonne, representing a 29 per cent increase on the average return in 2009–10.

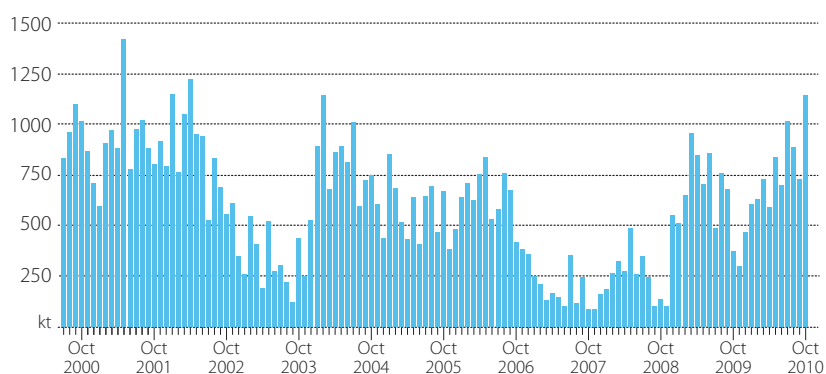
Despite the adverse effect of recent rain on the wheat crop, the gross value of Australian wheat production is forecast to rise by 8 per cent to \$5.7 billion in 2010–11. This forecast increase reflects higher wheat production for Australia as a whole and increased prices for both milling and feed wheat compared with the previous year.

### *Exports to rise in both volume and value*

Australian export shipments are forecast to rise by 21 per cent to 16.6 million tonnes in 2010–11. Exports from the eastern states are forecast to be around 12 million tonnes, with the remainder coming from Western Australia. These forecast annual shipments from the eastern states are in line with the progress of exports observed over recent months, in light of increased overseas demand for Australian wheat and higher export prices.

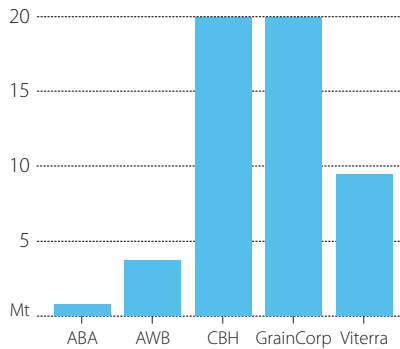
Monthly export volumes from the eastern states over the past 10 years have averaged around 600 000 tonnes. However, exporters in the eastern states have demonstrated the ability to export more than 1 million tonnes a month (see figure). For example, in October 2010, wheat exports in the eastern states totalled 1.1 million tonnes.

Monthly eastern states export volumes



# Wheat

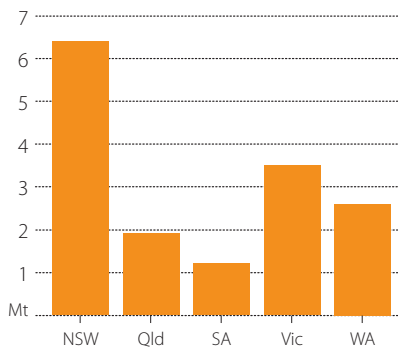
## Bulk handlers' storage capacity



In 2010–11, the value of Australian wheat exports is forecast to rise by 28 per cent to around \$4.7 billion. Although a substantial proportion of wheat exports are expected to be of feed grades, the adverse effect on total export earnings is expected to be significantly offset by higher world prices for both milling and feed wheat.

Australian wheat closing stocks are forecast to increase to 11.4 million tonnes for the 2010–11 marketing year, in response to the forecast increase in harvest. For Australia as a whole, the current grain storage capacity is estimated to be around 70 million tonnes, including 16 million tonnes of permanent on-farm storage and 54 million tonnes of bulk handler storage. Around 34 million tonnes of bulk handler capacity and 13 million tonnes of on-farm storage are located in the eastern states.

## On-farm storage capacity



## Wheat outlook

		2008 -09	2009 -10 s	2010 -11 f	% change
<b>World</b>					
Production	Mt	686	677	648	-4.3
- China	Mt	113	115	115	-0.1
- European Union 27	Mt	151	139	136	-1.9
- India	Mt	79	81	81	0.0
- Russian Federation	Mt	64	62	42	-31.9
- United States	Mt	68	60	60	-0.4
Consumption	Mt	638	648	658	1.6
- human	Mt	447	452	455	0.6
- feed	Mt	106	108	112	3.2
Closing stocks	Mt	169	198	187	-5.2
Stocks-to-use ratio	%	26	31	28	-6.7
Trade	Mt	136	127	120	-5.3
<b>Exports</b>					
- Argentina	Mt	7	5	6	22.4
- Australia	Mt	13	14	17	21.2
- Canada	Mt	18	18	18	-3.6
- European Union 27	Mt	25	22	22	-0.9
- Russian Federation	Mt	18	19	4	-81.4
- United States	Mt	27	24	34	44.7
Price	US\$/t	271	209	280	34.0
<b>Australia</b>					
Area	'000 ha	13 530	14 028	13 374	-4.7
Production	kt	21 420	21 923	26 824	22.4
Exports <b>b</b>	kt	13 410	13 705	16 612	21.2
- value	A\$m	5 028	3 686	4 732	28.4
APW 10 net pool return <b>c</b>	A\$/t	324	249	322	29.3

**b** June–July years. **c** Australian premium white wheat, 10 per cent protein. From 2008–09, the pool return is an estimated average across major companies offering grain pools.

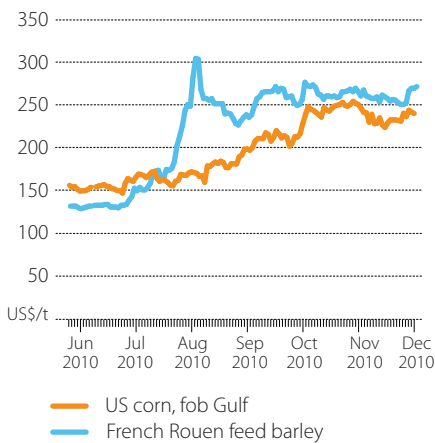
Sources: Australian Bureau of Statistics; International Grains Council; ABARES; US Department of Agriculture.

# Coarse grains

Henry To

The world coarse grains indicator price (US corn, fob Gulf) is forecast to rise by 33 per cent in 2010–11 to US\$217 a tonne. This forecast higher price reflects an expected fall in the stocks-to-use ratio as world coarse grains consumption is expected to again exceed production. The stocks-to-use ratio is forecast to fall to its lowest since 1973–74.

**World coarse grains prices**  
daily, ended 7 December 2010



Domestic feed and malting barley prices are forecast to increase in 2010–11 to average around \$220 a tonne and \$300 a tonne, respectively. The forecast increases reflect higher world prices because of an expected reduction in world barley supplies, stemming from adverse seasonal conditions in other major producing countries. Additionally, malting barley supplies are expected to be lower in 2010–11 because of quality downgrades in Australia, Europe and Canada, which will lead to an increase in feed barley supplies.

## *Production to decline in 2010–11*

World coarse grains production in 2010–11 is forecast to decline by 2 per cent to just less than 1.1 billion tonnes. The forecast decline is being driven by a sharp fall in world barley production across a number of northern

hemisphere countries. World barley production in 2010–11 is forecast to be around 124 million tonnes, 17 per cent lower than in 2009–10.

Barley production in the European Union is estimated to have declined by 13 per cent in 2010–11 to around 53 million tonnes because of a smaller area planted. The quality of the EU barley crop was also below expectations because very wet conditions late in the season resulted in some of the crop being downgraded to feed barley.

Barley production in the Black Sea region is estimated to be substantially lower in 2010–11 than in 2009–10 as a result of dry conditions in the Russian Federation and Ukraine. Production in the Russian Federation and Ukraine is estimated to have fallen by around 53 per cent and 24 per cent to around 8.5 million tonnes and 9 million tonnes, respectively.

Canadian barley production is estimated to have fallen by 13 per cent in 2010–11 to around 8 million tonnes because of a smaller area planted. Excessive wet conditions during the spring planting window, combined with producers' expectations of continuing low prices at that time, resulted in the area planted to barley falling by 400 000 hectares to 2.5 million hectares.

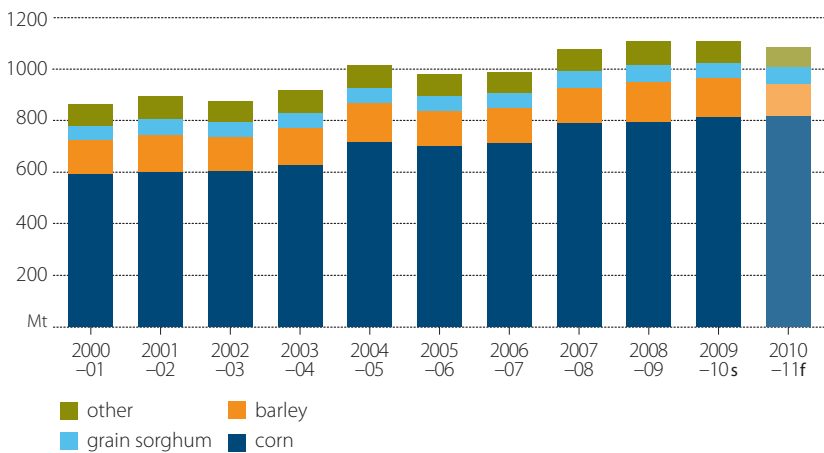
In contrast to barley, world corn production is forecast to remain largely unchanged at 818 million tonnes. Higher corn production in Argentina and China is expected to offset lower production in the United States.

In the United States, the corn harvest for the 2010–11 season is complete and production is estimated to have declined by around 4 per cent to 319 million tonnes. Increased corn plantings in the United States this season were offset by lower yields, which are estimated to have declined by around 6 per cent to 9.69 tonnes a hectare.

Producers in Latin America are currently planting the 2010–11 corn crop and plantings in Argentina are forecast to rise by 19 per cent to 3.2 million hectares. Production in Argentina is forecast to increase by 11 per cent to 25 million tonnes. In contrast to Argentina, corn plantings in Brazil are forecast to be similar to last season at around 13 million hectares. Despite the recent rise in corn prices, producer returns in Brazil for corn are still lower than for soybeans. Assuming a return to average yields in Brazil, corn production is forecast to decline by around 9 per cent to 51 million tonnes.

Corn production in China is estimated to have risen by 6 per cent to 168 million tonnes in 2010–11, reflecting a record area planted and a recovery in yields after last season’s drought. China is the world’s second largest producer of corn behind the United States, but has a very limited role in world trade.

**Coarse grains production**



*Consumption continues to rise*

World consumption of coarse grains is forecast to rise by 2 per cent in 2010–11 to more than 1.1 billion tonnes. This increased consumption is expected to be largely driven by increased use of ethanol in transport fuel in the United States and higher global feed grain consumption.

The industrial use of coarse grains is forecast to rise by 4 per cent in 2010–11 to around 470 million tonnes. In the United States, the Energy Independence and Security Act 2007 mandates annual increases in the use of ethanol in transport fuel until 2022. Around 49 billion litres of ethanol is mandated to be blended in 2010, of which a maximum of 45 billion litres may be produced from corn. In 2011, these mandates rise to 53 billion litres and 48 billion litres, respectively.

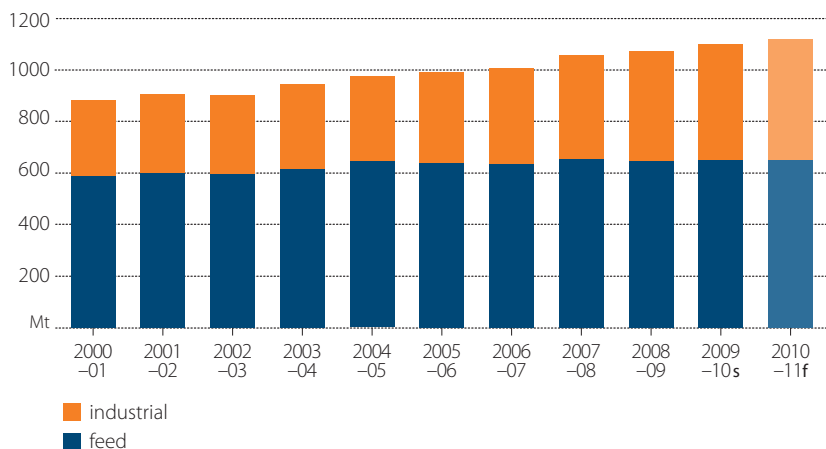
## Coarse grains

In line with the mandated increase, the amount of corn used for ethanol production in the United States is forecast to rise by 5 per cent in 2010–11 to 120 million tonnes. However, in 2010–11 the rate of growth of corn used in ethanol production is expected to be lower than in previous years as corn-based ethanol production approaches its mandated limit of 57 billion litres, which is expected to be reached by around 2015.

Global feed consumption of coarse grains is forecast to increase in 2010–11, driven by expanding livestock industries in many developing countries. This reflects a long-term trend increase in per capita meat consumption in these countries. Feed corn consumption in Brazil and China, for example, is forecast to increase by 3 per cent and 1 per cent to 41 million tonnes and 113 million tonnes, respectively.

Feed corn consumption in the United States is also forecast to rise in 2010–11, by 3 per cent to 134 million tonnes. While the number of US cattle placed on feed in November 2010 was 3 per cent higher than at the same time last year, higher corn prices are expected to moderate any further increases in US feed consumption in 2010–11.

### World coarse grains consumption



### *Closing stocks to decline in 2010–11*

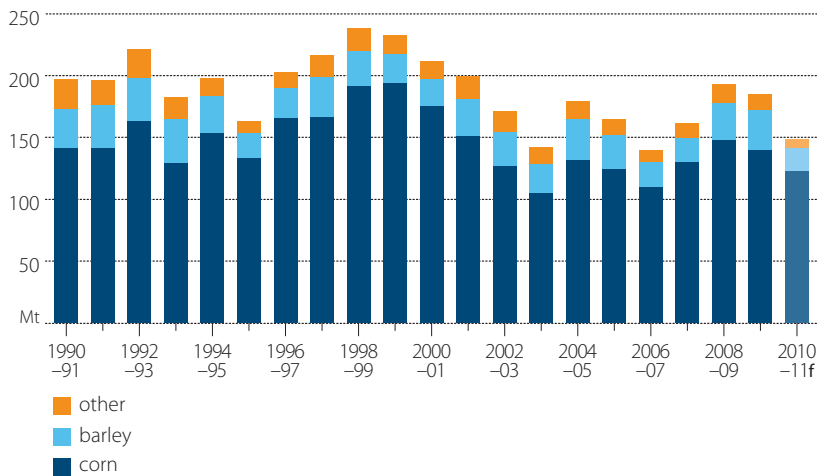
World stocks of coarse grains are forecast to decline by 22 per cent in 2010–11 to 148 million tonnes, as world consumption again exceeds production.

Global corn and barley stocks are expected to decline by 12 per cent and 44 per cent to 123 million tonnes and 18 million tonnes, respectively. Corn stocks in the United States, the world's largest corn exporter, are expected to decline by 51 per cent to 21 million tonnes and barley stocks in the Black Sea region, the European Union and Canada are also forecast to decline significantly.

The forecast decline in stocks is expected to result in a stocks-to-use ratio of around 13 per cent in 2010–11, which, if realised, would be the lowest since 1973–74. This will maintain upward pressure on prices in 2010–11 in advance of new season production in the northern hemisphere.



## World closing stocks



### World trade to rise

World trade in coarse grains is forecast to rise by 2 per cent in 2010–11 to 121 million tonnes. A decline in barley exports is expected to be more than offset by higher corn exports, particularly from the United States and Argentina.

Global barley exports are forecast to decline by 6 per cent in 2010–11 to 16 million tonnes as a result of lower world barley production and export restrictions in the Russian Federation and Ukraine. Currently, export bans in the Russian Federation are in place until 1 July 2011, while export quotas in Ukraine are in effect until 31 December 2010. The decline in barley exports from the Black Sea region is expected to be only partially offset by higher barley exports from the European Union, Canada and Australia.

World corn exports are forecast to rise by 4 per cent in 2010–11 to 96 million tonnes. Exports from the United States and Argentina are expected to increase by 1 per cent and 17 per cent to around 51 million tonnes and 18 million tonnes, respectively. Although the Argentine Government requires that domestic demand be met before exports are permitted, it has given early indications that it may increase the export quota on corn in 2010–11 following the higher corn plantings this season.

### Higher Australian barley production

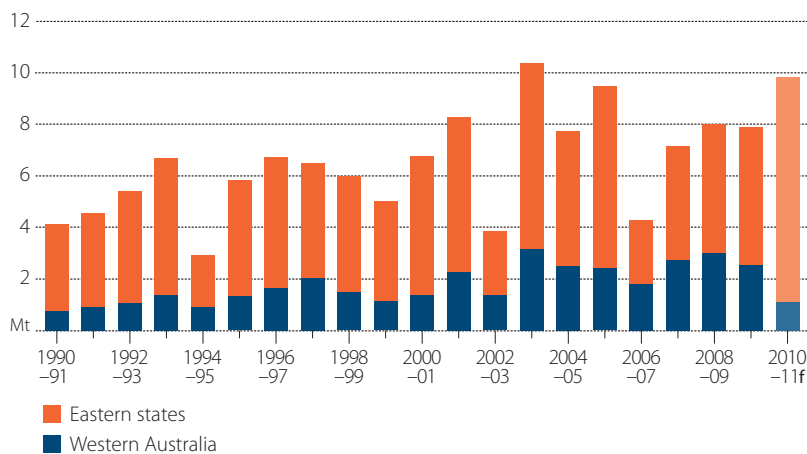
Australian barley production is estimated to rise by 24 per cent in 2010–11 to 9.8 million tonnes, with higher production in the eastern states expected to more than offset a decline in Western Australia. Production in New South Wales is expected to increase by around 1.7 million tonnes to around 3 million tonnes. Higher production is also expected in Victoria, South Australia and Queensland. However, heavy rainfall during the harvest season is expected to significantly reduce the quality of the crop, with high levels of feed quality barley expected relative to

## Coarse grains

malting barley production. Persistent dry conditions over the grains belt in Western Australia are expected to result in a 57 per cent decrease in production to 1.1 million tonnes.

The spring rainfall has replenished soil moisture profiles in the summer cropping regions of Queensland and northern New South Wales. Grain sorghum plantings are forecast to increase by 35 per cent in 2010–11 to 697 000 hectares. Spring planting was restricted because of the substantial rainfall in September, but planting is expected to continue until late February in central Queensland. Production of grain sorghum is forecast to increase by 22 per cent to almost 2 million tonnes in 2010–11.

Barley production in Western Australia compared with eastern Australia

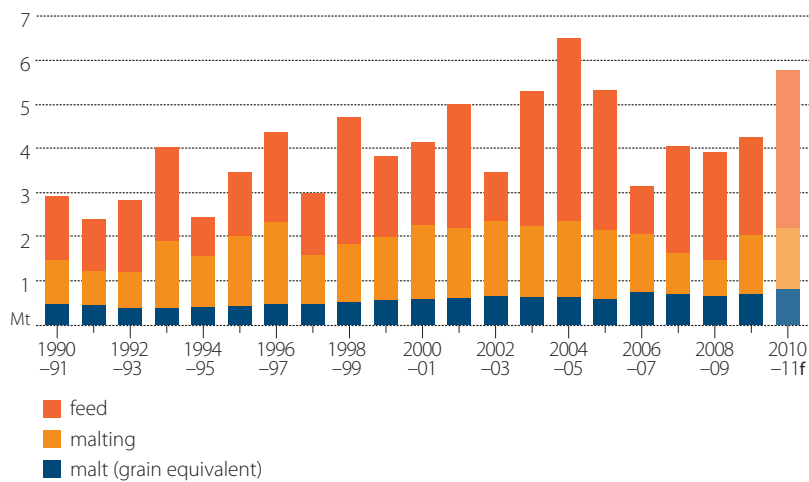


### *Australian export earnings to rise because of higher world prices*

The forecast increase in Australian barley production and higher world prices are expected to lead to the value of barley exports rising by 59 per cent to \$1.7 billion in 2010–11. Barley export shipments are forecast to rise by 35 per cent to 5.8 million tonnes in 2010–11. Owing to the adverse effect of recent rainfall on the quality of crops, the majority of the forecast increase in export shipments from the eastern states is expected to be feed grade.

The total export shipment of coarse grains is forecast to increase by 30 per cent to 6.5 million tonnes in 2010–11, with the export value forecast to increase by 52 per cent to \$2 billion.

## Barley exports from Australia



## Coarse grains outlook

		2008 -09	2009 -10 s	2010 -11 f	% change
<b>World</b>					
Production	Mt	1 100	1 102	1 085	-1.5
- barley	Mt	155	150	124	-17.3
- corn	Mt	795	814	818	0.5
Consumption	Mt	1 076	1 097	1 121	2.2
Trade	Mt	113	119	121	1.7
Closing stocks	Mt	189	190	148	-22.1
Stocks-to-use ratio	%	18	17	13	-23.5
US corn price (fob Gulf, Sep-Aug)	US\$/t	173	163	217	33.1
<b>Australia</b>					
Area	'000 ha	7 039	6 236	6 104	-2.1
- barley	'000 ha	5 015	4 446	4 077	-8.3
- grain sorghum	'000 ha	767	516	697	35.1
Production	kt	12 587	11 560	14 659	26.8
- barley	kt	7 997	7 909	9 813	24.1
- grain sorghum	kt	2 692	1 598	1 951	22.1
Exports <sup>b</sup>	kt	5 560	4 995	6 507	30.3
- value	A\$m	1 820	1 286	1 957	52.2
Feed barley price	A\$/t	227	190	220	15.8
Malting barley price	A\$/t	290	240	300	25.0

<sup>b</sup> June-July years.

# Oilseeds

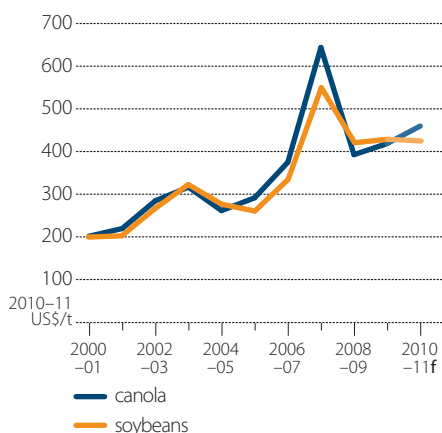
Joseph Moloney

## Mixed price outlook for oilseeds

The world indicator price for soybeans (cif Rotterdam) is forecast to remain largely unchanged in the 2010–11 marketing year (October to September) and average around US\$425 a tonne. The second highest world soybean production on record and large carryover stocks are expected to balance the effect on prices of forecast strong demand for soybeans in 2010–11.

In contrast to soybeans, the world indicator price for canola (cif Hamburg) is forecast to increase by 10 per cent in 2010–11 to around US\$460 a tonne. This forecast increase is a result of lower production in Canada, the European Union and China, combined with rising demand by processors for high oil bearing seeds. The canola price is forecast to be higher than the soybeans price for the first time in two years.

### World indicator prices for soybeans and canola



### Oilseed production almost unchanged

Total world oilseed production is forecast to be almost unchanged in 2010–11, at around 440 million tonnes. Production for each of the major oilseeds—soybeans, canola and sunflower seed—is forecast to decrease, but is expected to be offset by increases in the production of peanuts and cottonseed. For soybeans, the forecast decline in production follows last season's record crop.

A downside risk to the production forecast is the La Niña weather event occurring in Latin America, which increases the risk of below average rainfall in the key oilseed producing areas of Brazil, Argentina and Paraguay.

World soybean production is forecast to fall by around 3 million tonnes in 2010–11 to 257 million tonnes. The fall in world production is primarily the result of a forecast 4 per cent decrease in production in Latin America to 129 million tonnes. Lower rainfall and, consequently, lower yields are assumed for Brazil and Argentina, which are expected to more than offset the effect of an expected record planted area. In contrast, the United States has produced a record soybean crop this year, estimated to be around 92 million tonnes. This is 440 000 tonnes higher than in 2009–10 and is primarily the result of a record planted area of 31 million hectares for this season.

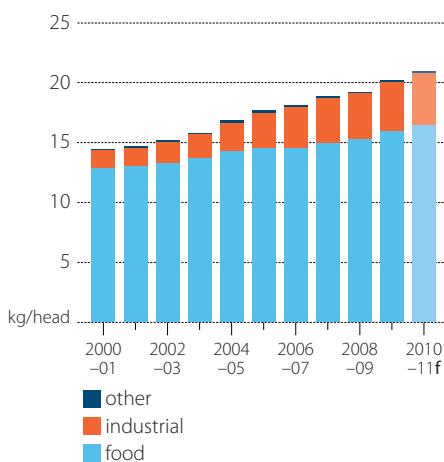
Global production of canola is forecast to fall by 3 million tonnes in 2010–11 to a three-year low of 57 million tonnes. Decreases in production by the world's three largest producers, Canada, the European Union and China, are expected to more than offset production increases in Australia and India. Production in Canada is estimated to have fallen by 11 per cent to 11 million tonnes after unfavourable weather delayed plantings and frosts reduced yields. Production in the European Union was also hampered by poor weather that reduced yields in Germany, France and Poland. Australia and India are expected to increase production by 7 per cent and 9 per cent to 2.1 million tonnes and 7 million tonnes, respectively.

World sunflower production is forecast to fall by 1 per cent in 2010–11 to 30 million tonnes. This forecast marginal decline in world production is primarily attributed to declines in the Russian Federation and the European Union more than offsetting an increase in Argentina and several other smaller producers. Despite a large expansion in planted area, the Russian Federation experienced unfavourably dry weather that reduced yields and production fell by 14 per cent to 5.5 million tonnes. However, Ukraine has enjoyed better yields and production is expected to remain largely unchanged at 6.5 million tonnes, despite a decline in planted area. In Latin America, Argentina is expected to increase planted area by more than 10 per cent in response to higher prices and is forecast to increase production by 22 per cent to almost 3 million tonnes.

### *Oilseed crush continues to increase*

The world oilseed crush is forecast to increase by 5 per cent in 2010–11 to 374 million tonnes. Over the past decade, the total volume of oilseeds crushed has increased at an average annual growth rate of 4 per cent. High profit margins from oilseed crushing have led to increased investment in crusher infrastructure and expanded processing capacity, especially in China and Latin America. In 2010–11, China and Latin America are forecast to account for around 24 per cent and 22 per cent of world oilseed processing, respectively.

### **Global per capita consumption of vegetable oils**



### *Consumption of vegetable oil continues to rise*

World vegetable oil consumption is forecast to increase by 5 per cent in 2010–11 to 145 million tonnes, mainly as a result of growth in human consumption. Per capita consumption of vegetable oil is forecast to increase by 3 per cent to 16.5 kilograms, primarily because of growing incomes, particularly in Asia.

Global industrial consumption of vegetable oils is forecast to increase by 7 per cent in 2010–11 to more than 30 million tonnes. This is slower than the average annual rate of 14 per cent achieved over the past decade, primarily because of weaker growth in demand for biodiesel.

## Higher world oilseed meal consumption

World oilseed meal consumption is forecast to increase by 6 per cent in 2010–11 to 249 million tonnes. China, the world's largest consumer of protein meal, is expected to account for around 48 per cent of this growth because of its rapidly expanding livestock industries. This demand is expected to be met largely by the domestic crushing industry in China. In the European Union, a reduced supply of other feed meals is forecast to lead to a 7 per cent increase in consumption of soybean meal. The European Union is forecast to import more than 28 million tonnes of protein meal in 2010–11, mainly from Argentina.

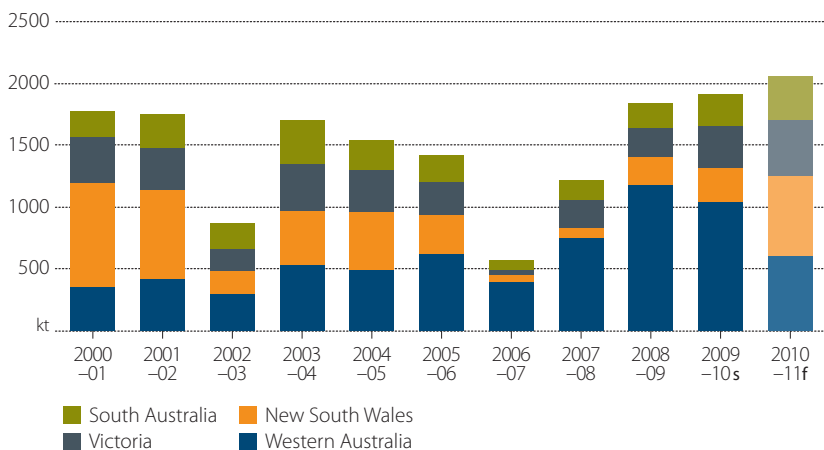
## Ending stocks expected to decline for high oil bearing seeds

World oilseed stocks are forecast to decline slightly by 1 per cent in 2010–11 to 71 million tonnes. Despite this, stocks remain historically high. Canola and sunflower seed stocks are forecast to decrease by 27 per cent and 26 per cent, respectively. This is expected to be the third consecutive year that sunflower seed stocks will fall. In contrast, soybean stocks are forecast to increase by 2 per cent to more than 61 million tonnes in 2010–11, the second highest level on record.

## Australian canola production to rise

Australian canola production is forecast to rise by 7 per cent in 2010–11 to 2.1 million tonnes. Canola production in New South Wales is expected to increase by 132 per cent to around 650 000 tonnes because of an increase in planted area and above average yields. Production in South Australia and Victoria is expected to increase by 33 per cent and 36 per cent to 350 000 tonnes and 455 000 tonnes, respectively. Favourable spring conditions in both states are expected to provide above average yields. However, heavy rainfall during the harvest period may affect production. The dry seasonal conditions in Western Australian are forecast to result in the second lowest yield on record and canola production in that state is forecast to decrease by more than 40 per cent to 600 000 tonnes in 2010–11.

**Australian canola production**



The production of Australian canola oil is forecast to increase by 5 per cent in 2010–11 to a new record of 323 000 tonnes. Canola oil production has increased by an average of 7 per cent a year over the past five years. This is in line with an increase in the processing capacity of the Australian domestic industry as a result of investment in crushing infrastructure.

### *Australian canola exports to rise*

Exports of Australian canola seed are forecast to increase by 12 per cent in 2010–11 to 1.4 million tonnes, the third highest level on record. Australian canola seed exports are forecast to account for around 15 per cent of world canola trade in 2010–11, which is expected to make Australia the world's second largest canola exporter behind Canada. The value of Australian canola exports is forecast to increase by 21 per cent to around \$708 million in 2010–11. The value of Australian canola oil exports is forecast to rise by 6 per cent to \$104 million in 2010–11.

### Oilseeds outlook

		2008 –09	2009 –10 s	2010 –11 f	% change
<b>World</b>					
Production	Mt	396	441	440	–0.2
Consumption	Mt	401	424	443	4.5
– oilseed meal	Mt	223	234	249	6.4
– vegetable oil	Mt	130	138	145	5.1
Closing stocks	Mt	56	72	71	–1.4
Stocks-to-use ratio	%	14	17	16	–5.9
Soybeans indicator price	US\$/t	421	429	425	–0.9
<b>Australia</b>					
Total production	kt	2 478	2 609	3 473	33.1
– winter	kt	1 858	1 933	2 069	7.0
– summer	kt	620	676	1 404	107.7
<b>Canola</b>					
Production	kt	1 844	1 920	2 055	7.0
Exports <sup>b</sup>	kt	973	1 238	1 390	12.3
– value	\$m	595	583	708	21.4
Price (Nov–Oct) (delivered Melbourne)	A\$/t	525	440	483	9.8

<sup>b</sup> June–July years.

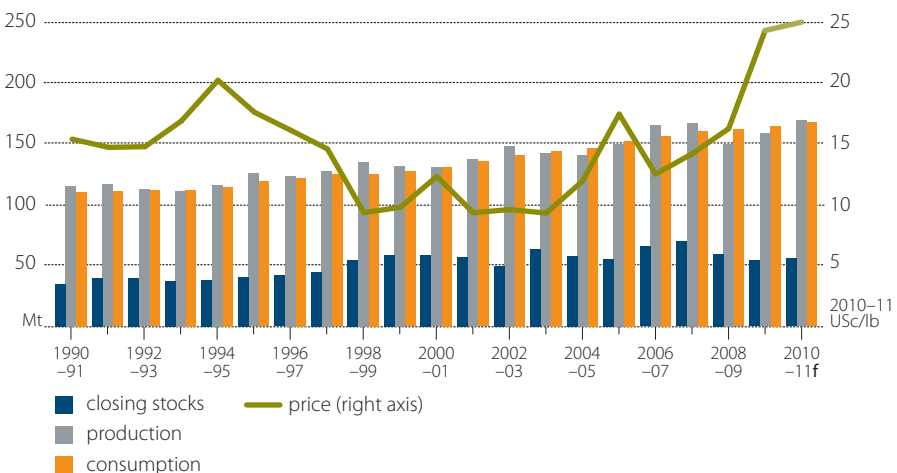
# Sugar

Max Foster

## *Strong sugar prices in 2010–11*

The world sugar indicator price (Intercontinental Exchange, no. 11 spot, fob Caribbean) is forecast to increase by 4.2 per cent in 2010–11 (October to September) and average US25c a pound. The forecast increase reflects the expectation that world sugar production will slightly exceed consumption in 2010–11, allowing a modest increase in world sugar stocks.

### World sugar indicators



World sugar prices rose sharply in the second half of 2010, reaching just less than US40c a pound in early November 2010. The rising prices were in response to low world stocks and concerns about the adverse effects of unfavourable seasonal conditions on sugar production in Brazil, Australia and India. As at 7 December 2010, the sugar indicator price had declined to US33.8c a pound and it is forecast to ease further as sugar from the Indian cane harvest becomes more readily available from December 2010. The forecast easing of prices is supported by the price profile for the no. 1 futures contract for sugar on the Intercontinental Exchange. This has the March 2011 contract settling at US28.41c a pound on 7 December 2010, compared with the October 2011 contract price of US21.16c a pound.

## *Record world sugar production in 2010–11*

World sugar production is forecast to increase by 8.9 million tonnes in 2010–11 to reach a record 169.4 million tonnes. If realised, this new record will be 2.3 million tonnes higher than the previous record set in 2007–08. Large production increases are forecast for India and Brazil, the main producers of sugar from cane. However, these increases are expected to be partially offset by lower beet sugar production in the European Union.

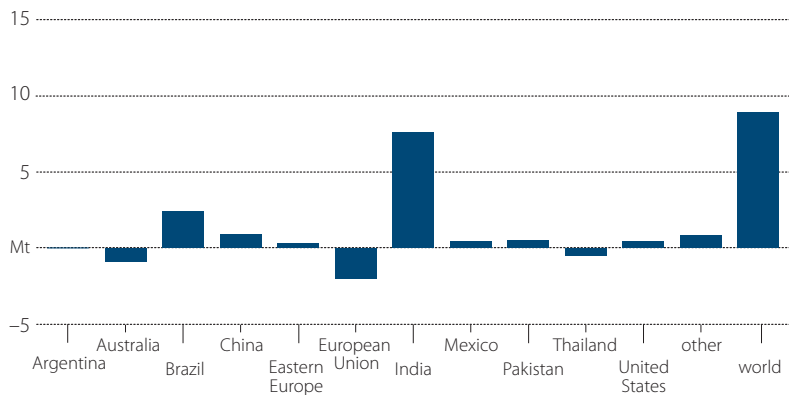


**World sugar indicator price**  
daily, ended 6 December 2010



Brazilian sugar production is forecast to increase by 6.6 per cent in 2010–11 (October to September) to 42 million tonnes. Yields for cane harvested between March and September 2011 are expected to be adversely affected by a dry period from March to August 2010.

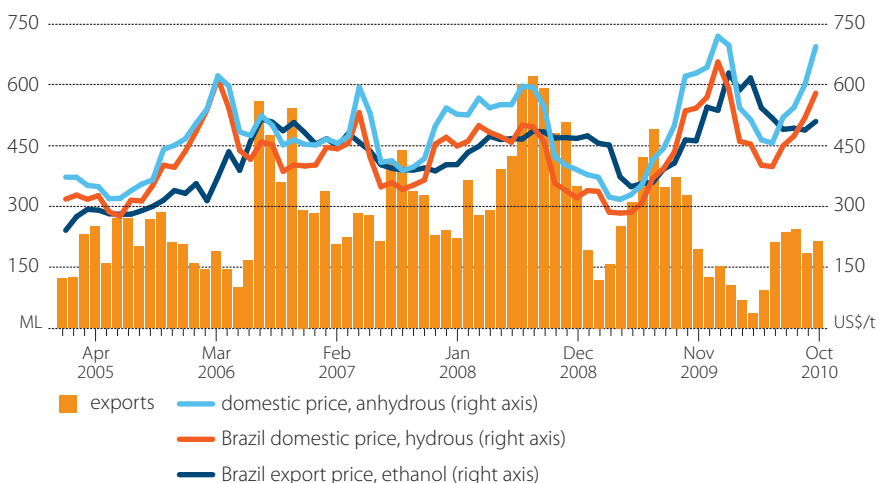
**Forecast change in world sugar production in 2010–11**  
by region



Ethanol prices help determine the proportion of the Brazilian cane crop that is used in sugar production. In Brazil, domestic ethanol prices have improved in 2010 but export returns for ethanol have declined. With these price movements, it is expected that the proportion of Brazilian sugar cane devoted to sugar production may increase in 2010–11 to around 45 per cent. This compares with 44.2 per cent in 2009–10.

Indian sugar production is forecast to increase by 7 million tonnes in 2010–11 to 27 million tonnes. Higher prices have encouraged a 10 per cent increase in cane plantings in 2010–11 and yields have benefited from above average rainfall during the monsoon season.

### Brazilian ethanol prices and exports



Sugar production in the European Union is forecast to decline by 1.6 million tonnes in 2010–11 to 15.8 million tonnes, largely reflecting dryer conditions and a return to more normal yields. Sugar production in the Russian Federation is forecast to decline by nearly 0.6 million in 2010–11 to 2.9 million tonnes, despite an 8 per cent increase in plantings.

US sugar production is forecast to increase by 3.3 per cent in 2010–11 to 7.5 million tonnes. This mainly reflects increased beet production, which will make up an estimated 58 per cent of total US sugar production in 2010–11. A US court ruling that prevents further plantings of genetically modified (GM) beet sugar until an appropriate environmental assessment is undertaken is not expected to affect the 2010–11 crop significantly, although it could have a more significant effect on future crops if this issue is not resolved. GM varieties now comprise more than 90 per cent of US sugar beet plantings.

#### *Growth in world sugar consumption in 2010–11*

World sugar consumption is forecast to grow by 1.8 per cent in 2010–11 to 167.3 million tonnes, despite the dampening effect of higher world sugar prices. The main drivers of the increase in demand for sugar are population increases and growing consumer incomes, particularly in China and India.

#### *World sugar exports to decrease in 2010–11*

World sugar exports are forecast to decrease by 4.2 per cent in 2010–11 to 50.7 million tonnes, despite increased shortfalls in domestic production in key importing countries such as the Russian Federation, China and the United States. Brazil and India are forecast to dominate export supplies in 2010–11, with India forecast to re-emerge as a major exporter. To date in 2010–11, Brazil has supplied the bulk of world import demand. However, with Brazil entering a period of seasonal decline until its next harvest starts in March 2011, importers will turn to India, where 2010–11 production started to become available from November 2010.

India is forecast to export 3.3 million tonnes of sugar in 2010–11 because of increased sugar production, a marked turnaround from importing 3.7 million tonnes in 2009–10. India may reimpose a 40 per cent tariff on raw sugar imports after having lowered the tariff to zero in 2009–10 to contain increases in domestic sugar prices. Because sugar is a major food item in India, the Indian Government allowed tariff-free imports of sugar to maintain stocks throughout 2009–10. Indian season ending stocks of sugar are forecast to increase by 0.5 million tonnes in 2010–11 to 7.1 million tonnes.

Lower production is forecast in Thailand and Australia, the third and fourth largest sugar exporting countries, and this is forecast to result in reduced sugar exports from these countries in 2010–11.

Current sugar production in the United States suggests that import requirements will be 1.5 million tonnes, which will exceed the quota on imports of 1.2 million tonnes that are subject to a zero tariff. Low Mexican sugar production will limit tariff-free exports of sugar under the North American Free Trade Agreement arrangements.

Poor harvests in China and the Russian Federation are forecast to result in increases of sugar imports of 1.35 million tonnes and 0.55 million tonnes, respectively.

World season ending stocks are forecast to increase by 2.1 million tonnes in 2010–11 to 59.4 million tonnes, as a result of a modest world production surplus.

### *Lower Australian production and cane returns in 2010–11*

Australian mill-gate returns to cane growers are forecast to decline by \$9 a tonne in 2010–11 to \$39 a tonne. This reflects a forecast return for the seasonal pool of Queensland Sugar Limited of \$430 to \$480 a tonne in 2010–11, International Polarity Scale (IPS), down from \$508.77 a tonne, IPS, in 2009–10. Australian sugar production is forecast to fall by 0.9 million tonnes in 2010–11 to 3.6 million tonnes, despite increased plantings, the lowest output since 1991–92. The harvest, which typically runs from June to December, has been adversely affected by excessive rainfall. This has reduced the area harvested and lowered the sugar content of cane. The forecast assumes that the harvest will extend into 2011 but that some 3 million tonnes of cane intended for harvest in 2010–11 is stood over until next season because of wet conditions.

**Strong molasses demand and prices**

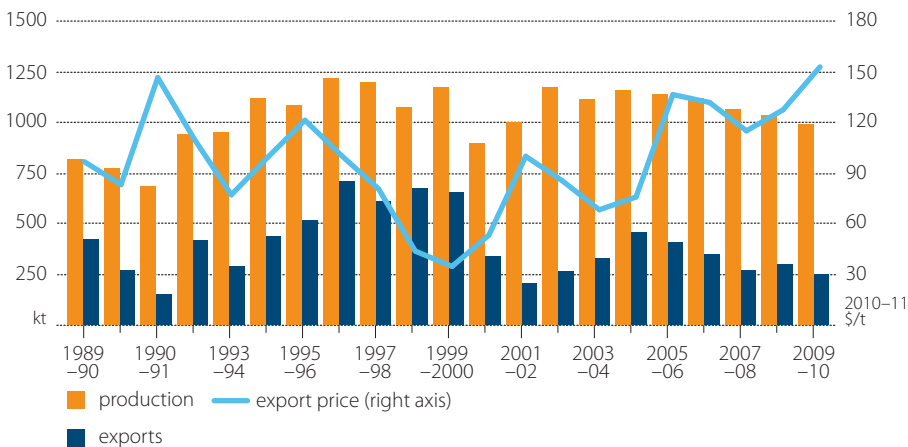
Molasses is a by-product of the sugar milling process. It is valuable as a human food, as a high energy feedstuff for livestock and as a feedstock in fermentation processes to produce ethanol, yeast and monosodium glutamate. Cane molasses is rich in calcium, iron, magnesium and potassium, making it a sought-after health food.

Australian molasses production was estimated at 990 000 tonnes in 2009–10. Around two-thirds of Australian molasses production is used as a feedstuff for stock. Molasses is also used for producing around 60 megalitres of ethanol a year. Roughly 3.8 kilograms of molasses are used to make one litre of ethanol. Australia provides around 4 per cent of world molasses exports.

A number of developments could influence the ethanol-related demand for molasses. There are mandates for blending ethanol with petrol in various Australian states, which will boost ethanol use. In New South Wales, there has been a requirement since 1 October 2007 that ethanol make up 2 per cent of vehicle fuel use and, from 1 January 2011, there will be a requirement that all regular grades of petrol be 10 per cent ethanol. It is reported that the Queensland Government intends to introduce a 5 per cent blending requirement at the end of 2011.

There are arrangements that deliver a competitive advantage to ethanol produced in Australia over ethanol imports; however, these are to be phased out. The effective excise paid on domestically produced ethanol will be raised by 2.5c a litre a year, from the current rate of zero, until it reaches 12.5c a litre in 2015. At the same time, the excise duty payable on ethanol imports will be lowered from the current level of 38.123c a litre, to 25c a litre on 1 July 2011, then to 12.5c a litre by 2015.

**Australian molasses production, exports and export prices**

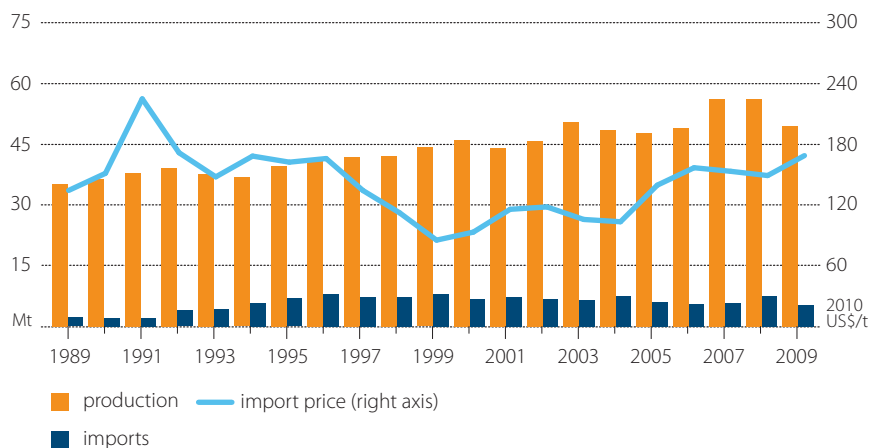


Growing demand has seen world molasses prices increase steadily over the 2000s, despite world production also rising since 2000. Mandated use of biofuels (mainly ethanol and biodiesel) in vehicle fuels, particularly in the European Union and the United States, has been an important driver of the increased demand. Ethanol use in fuel is also mandated in Brazil (currently 22 per cent). However, Brazil does not use molasses as the feedstock for ethanol production.

continued...

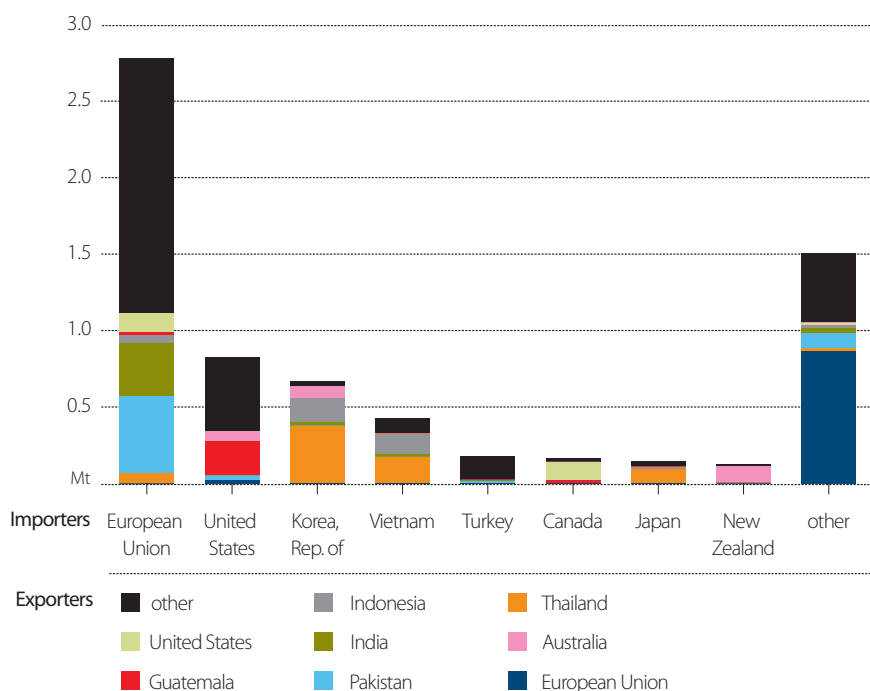
Strong molasses demand and prices continued

World molasses imports and import prices



World production of molasses averaged 52 million tonnes a year over the five years to 2009. Around 13 per cent of this production entered world trade. The European Union is the main exporter and importer of molasses (excluding intra-EU trade). The other major exporters are Thailand, Pakistan and India.

Pattern of world molasses trade



Note: Annual average of five years to 2009. Excluding intra-EU trade.

# Sugar

## Sugar outlook

		2008	2009	2010	%
		-09	-10 s	-11 f	change
<b>World</b>					
Production	Mt	150.0	160.5	169.4	5.5
- Brazil	Mt	35.1	39.4	42.0	6.6
Consumption	Mt	160.3	164.3	167.3	1.8
Exports	Mt	47.9	52.9	50.7	-4.2
Closing stocks	Mt	59.8	57.3	59.4	3.7
Change in stocks	Mt	- 10.0	- 2.5	2.1	
Stocks-to-use ratio	%	37	33	35	6.1
Price	USc/lb	15.9	24.0	25.0	4.2
<b>Australia</b>					
Area	'000 ha	391	386	372	-3.6
Production	kt	4 634	4 519	3 582	-20.7
Exports	kt	3 268	3 249	2 396	-26.3
- value	A\$m	1 338	1 791	1 258	-29.8

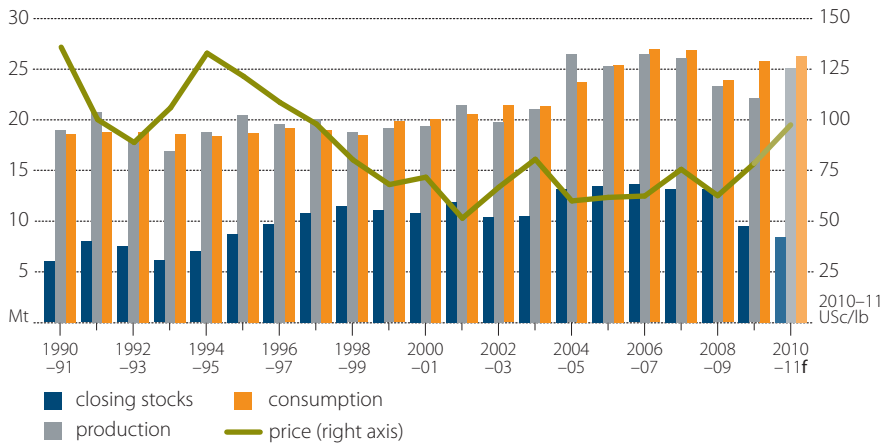
# Cotton

Max Foster

## Buoyant world cotton prices in 2010–11

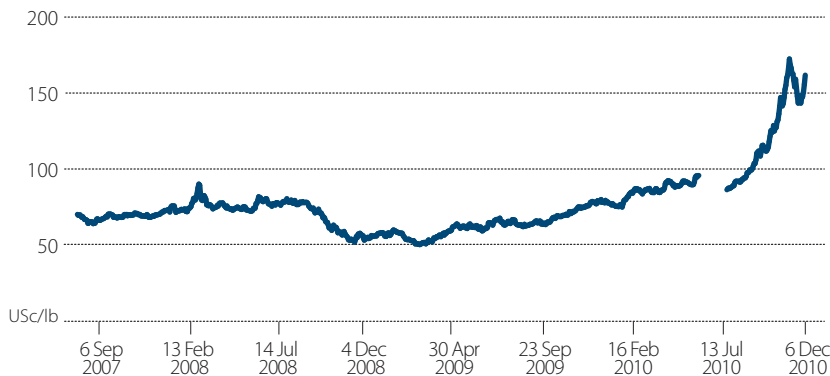
The world indicator price for cotton (the Cotlook 'A' index) is forecast to average US97.4c a pound in 2010–11 (August to July), up from around US77.5c a pound in 2009–10. Despite an expected increase in world cotton production in 2010–11, cotton prices are expected to remain higher as world cotton consumption is forecast to exceed world production for the sixth consecutive year.

### World cotton indicators



### World cotton indicator price

daily, ended 6 December 2010



## Cotton

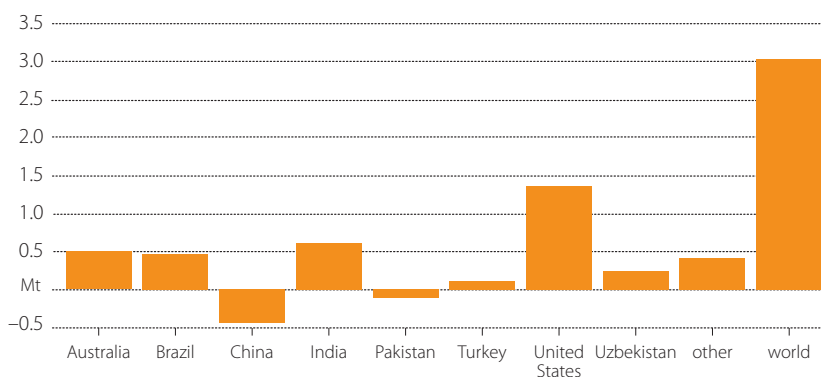
World cotton prices have been rising steadily as demand for cotton has improved. While the cotton indicator price increased to a high of US172.6 cents in early November 2010, it then eased to US159 cents a pound on 7 December 2010. The cotton indicator price is expected to decline further over the remainder of 2010–11 in response to higher harvests in both the northern and southern hemispheres. This expectation is reflected in the price for the no. 2 futures contract for cotton on the Intercontinental Exchange, where, at 7 December 2010, the March 2011 contract closed at US130c a pound while the July 2011 contract price closed at US118c a pound.

### *Higher world cotton production in 2010–11*

World cotton production is forecast to increase by around 14 per cent in 2010–11 to 25.1 million tonnes in response to the relatively higher returns from cotton compared with alternatives such as corn and soybeans.

#### Change in cotton production

2010–11, by country



Larger cotton harvests are forecast for all major cotton producing countries, with the exceptions of China and Pakistan. In the United States, for example, the cotton harvest is complete and US production is estimated to have increased by 1.3 million tonnes in 2010–11 to 4 million tonnes.

The Indian harvest is around 60 per cent complete and cotton production is forecast to increase in 2010–11 by around 10.6 per cent to a record 5.7 million tonnes. This expected increase mainly reflects an increase in the area planted to cotton, especially increased plantings of higher yielding cotton varieties.

In both Pakistan and China, weather events have adversely affected this season's cotton production to varying degrees. Despite severe floods in some cotton producing regions in Pakistan, cotton production in that country is forecast to decrease by only 0.1 million tonnes in 2010–11 to 2 million tonnes. Chinese cotton production in 2010–11 is estimated to decline by 0.5 million tonnes to 6.5 million tonnes, which would represent China's lowest lint output since 2005–06.

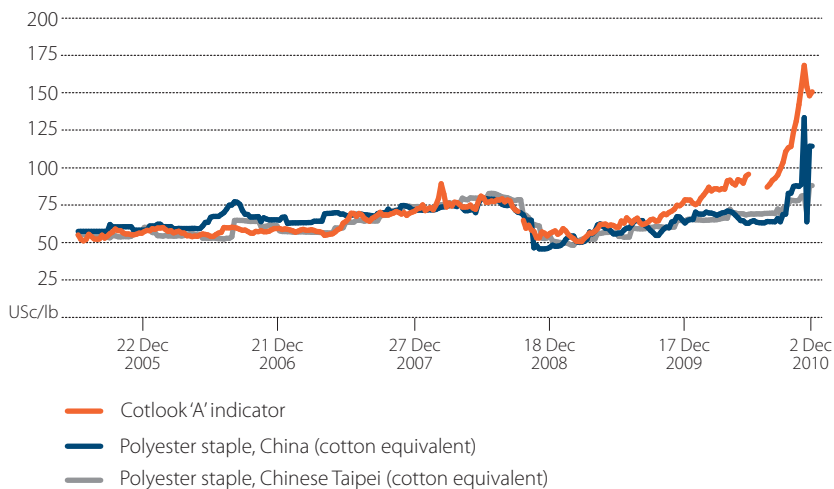


### Stronger demand for cotton in 2010–11

Despite forecast higher cotton prices, world cotton consumption is forecast to increase by around 1.9 per cent to 26.3 million tonnes in 2010–11. The gap between cotton and polyester prices that opened up in mid-2010 has narrowed in recent months, as polyester prices have risen in line with higher naphtha prices and as cotton prices have eased.

A factor influencing world cotton consumption in 2010–11 has been export restrictions imposed on raw cotton by the Indian Government. The restrictions aim to keep domestic cotton prices in India relatively low for its large textile industry, which exports around 15 per cent of its production. These restrictions are helping to maintain higher cotton prices on world markets.

**World apparel fibre prices**  
weekly, ended 2 December 2010



### Further decline in world cotton stocks in 2010–11

With world cotton consumption forecast to again exceed production in 2010–11, world cotton stocks are expected to decline by a further 1.1 million tonnes to 8.4 million tonnes. Consequently, the world cotton stocks-to-use ratio is forecast to fall to 31.8 per cent in 2010–11, its lowest since 1989–90.

### Favourable Australian cotton prices in 2010–11

Returns to Australian cotton growers at the gin gate are forecast to increase by \$50 a bale of lint to \$550 a bale (including the value of cottonseed and net of ginning costs) in 2010–11. The forecast increase represents the highest grower return since 2003–04 in real terms.

Forward cash prices on offer to Australian cotton growers on 1 December 2010 were around \$600 a bale for 2011 (2010–11 crop) delivery and \$498 a bale for 2012 delivery. It is estimated that around 70 per cent of Australia's cotton production in 2010–11 has been sold forward at an

## Cotton

average price of around \$520 a bale of lint. Growers are limited in the extent to which they can forward sell their cotton because of uncertainty about yields, especially with dryland cotton.

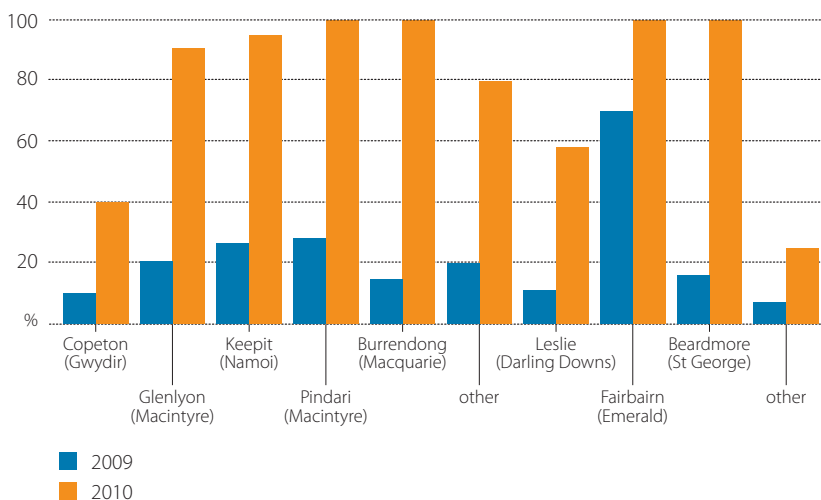
### *Australian cotton production in 2010–11*

Australian cotton production is forecast to increase by 131 per cent in 2010–11, to 894 000 tonnes, based on a forecast 168 per cent increase in cotton plantings. The forecast increase reflects the combined effect of high cotton prices, a marked recovery in irrigation water supplies and favourable soil moisture levels for dryland cotton crops. This forecast depends on estimated dryland cotton plantings of around 203 000 hectares. The planting window for 2010–11 cotton effectively closed at the end of November 2010, because of restrictions placed on the use of the genetically modified cotton varieties that now make up around 95 per cent of total Australian cotton plantings.

As at 1 December 2010, the storage level of the public dams serving the cotton regions was 78 per cent of capacity, compared with 32 per cent in mid-June 2010 and 20 per cent in early December 2009. The markedly higher water availability should ensure adequate irrigation water to finish irrigated crops in all regions.

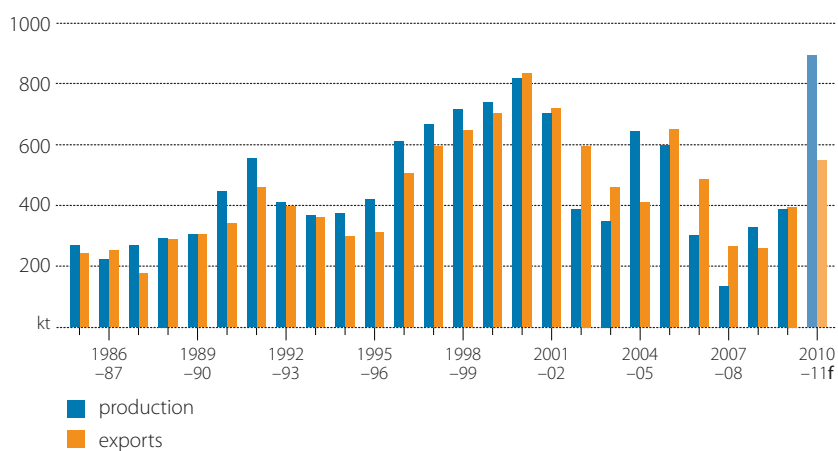
### Irrigation dam capacities

as at 1 December 2010



Australian cotton exports are forecast to increase by 39 per cent in 2010–11 to 548 000 tonnes. Because Australian cotton is largely harvested between March and June, the large increase in 2010–11 production will affect Australian cotton exports in 2011–12. Nevertheless, the value of Australian cotton exports is still forecast to increase by 67 per cent to \$1.26 billion in 2010–11, driven mainly by higher cotton prices.

## Australian cotton production and exports



## Cotton outlook

		2008 -09	2009 -10 s	2010 -11 f	% change
<b>World</b>					
Production	Mt	23.3	22.1	25.1	13.6
Consumption	Mt	23.9	25.8	26.3	1.9
Closing stocks	Mt	13.2	9.5	8.4	-11.6
Stocks-to-use ratio	%	55.0	36.8	31.8	-13.6
Cotlook 'A' index	USc/lb	61.2	77.5	97.4	25.7
<b>Australia</b>					
Area harvested	'000 ha	164	208	557	167.8
Lint production	kt	329	387	894	131.0
Exports	kt	260	395	548	38.7
- value	A\$m	500	755	1 261	67.0

# Livestock

## Beef and veal

Peter Berry

### *Beef saleyard prices to increase*

The Australian weighted saleyard price for beef is forecast to increase by 7 per cent in 2010–11 to average around 308 cents a kilogram (dressed weight). The saleyard price is expected to be supported by a combination of lower domestic supply, strong restocker demand for young cattle and firm demand from exporters.

### *Herd expansion to drive lower beef production*

Australian beef production is forecast to decline by around 2 per cent in 2010–11 to 2.1 million tonnes. Although average carcass weights are expected to rise, this is expected to be more than offset by a reduced cattle slaughter.

Beef cattle slaughter is forecast to decrease by 3 per cent in 2010–11 to 8.1 million head, as a result of lower turn-off in response to improved pasture conditions in eastern and northern Australia. The improved conditions have encouraged producers to expand herds, particularly in the south-eastern states, which has resulted in strong demand for restocker cattle and a decreased supply of cattle for slaughter. In the September quarter 2010, national beef cattle slaughter and calf slaughter were 5 per cent and 13 per cent lower, respectively, compared with the same quarter in 2009.

Average carcass weights are forecast to increase by around 1 per cent in 2010–11. Favourable pasture growth is expected to continue into early 2011, with the Bureau of Meteorology forecasting above average rainfall in most grazing regions for the period December 2010 to February 2011.

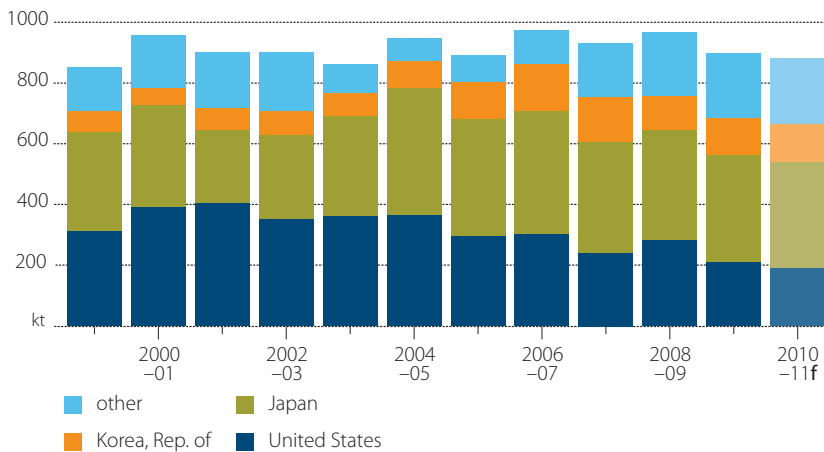
Australian slaughter and prices



### Beef exports to fall because of lower production

In line with the expected fall in beef production, Australian beef exports are forecast to decline by 2 per cent to 880 000 tonnes in 2010–11. In addition, changes in relative unit returns between export markets are expected to lead to some Australian beef exports to the United States being redirected to the Russian Federation and some countries in south-east Asia.

#### Australian beef exports by destination



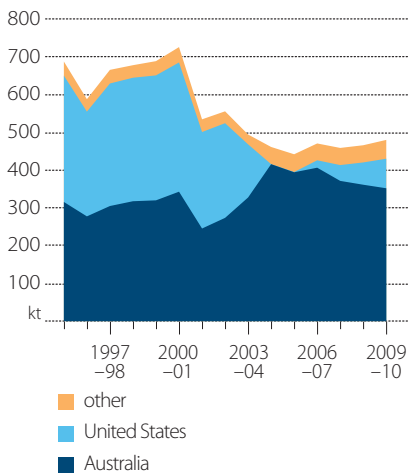
### Lower Australian exports to the United States

In the first four months of 2010–11, Australian beef exports to the United States were around 22 per cent lower than for the same period in 2009–10. This decline was in response to lower export unit returns obtained from the US market, partly driven by an appreciation of the Australian dollar against the US dollar. Over this period, export unit returns from the US market averaged around \$4.20 a kilogram, compared with returns of \$4.70, \$4.60 and \$4.40 a kilogram to Japan, the Republic of Korea and the Russian Federation, respectively. While export unit returns from the US market are expected to rise over the remainder of the financial year, total exports to this market are forecast to be around 190 000 tonnes for 2010–11 as a whole, 10 per cent lower than for the previous year.

Over the remainder of 2010–11, demand for manufacturing beef in the United States is expected to be firm, and domestic supplies will be insufficient to meet demand, reflecting a continuing decline in the US beef cattle herd. As a result, US domestic prices are likely to increase, leading to a corresponding rise in beef import prices. This is expected to result in an increase in export unit returns received by Australian exporters and lead to higher beef exports to the United States.

## Beef and veal

### Japanese beef imports by origin



### Stable exports to Japan

Australian beef exports to Japan are forecast to remain largely unchanged at around 350 000 tonnes in 2010–11. Modest income growth and an expanding food service industry in Japan are expected to support per person beef consumption and maintain beef import demand.

Australia is expected to continue to face strong competition from US beef in the Japanese market. The significant appreciation of the Australian exchange rate over the past year means the price competitiveness of US beef has increased. Consumer preference in Japan also favours marbled US beef imports relative to Australian beef.

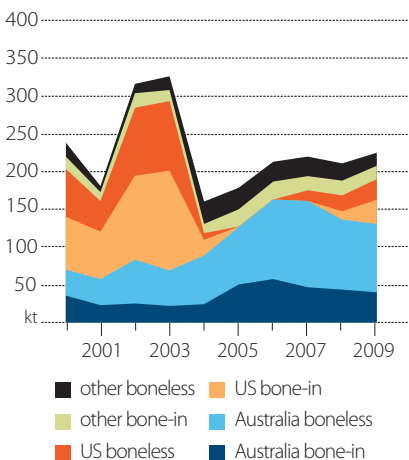
The United States' re-entry into the Japanese beef market is being constrained by Japanese import regulations that apply to countries at risk of bovine

spongiform encephalopathy transmission. These regulations prohibit US imports of beef from cattle that are more than 20 months of age or that contains any brain or spinal material. Trade negotiations between US and Japanese authorities aimed at removing these regulations are ongoing. At this stage, there is little indication about when these restrictions will be removed.

### Competition in the Korean market

As with exports to Japan, the growth in Australian beef exports to the Republic of Korea will be constrained by limited export supplies and increased competition from US beef. In 2010–11, Australian beef exports to the Korean market are forecast to remain largely unchanged at around 125 000 tonnes.

### Korean beef imports by origin



Based on Korean import data, imports from Australia increased year-on-year by 4 per cent to 47 000 tonnes in the first four months of 2010–11, while beef imports from the United States rose by 32 per cent to almost 30 000 tonnes. While imports of Australian boneless beef decreased by 2 per cent year-on-year over this period, imports of Australian bone-in beef increased by 18 per cent.

In addition to strong competition from US beef, there have been efforts by Korean producers to promote consumption of domestically produced Hanwoo beef, which accounts for around 80 per cent of Korean beef production. Hanwoo cattle are increasingly fed on grains and other concentrates rather than pasture, and the scale of feedlots fattening for Hanwoo cattle has been increasing.

*Export growth in other markets*

Stronger consumer demand and reduced beef imports from Brazil are forecast to drive a significant recovery in Australian beef exports to the Russian Federation in 2010–11 to around 60 000 tonnes. This compares with exports of around 25 000 tonnes in 2009–10. Beef exports to ASEAN countries are also forecast to increase by around 4 per cent to 98 000 tonnes.

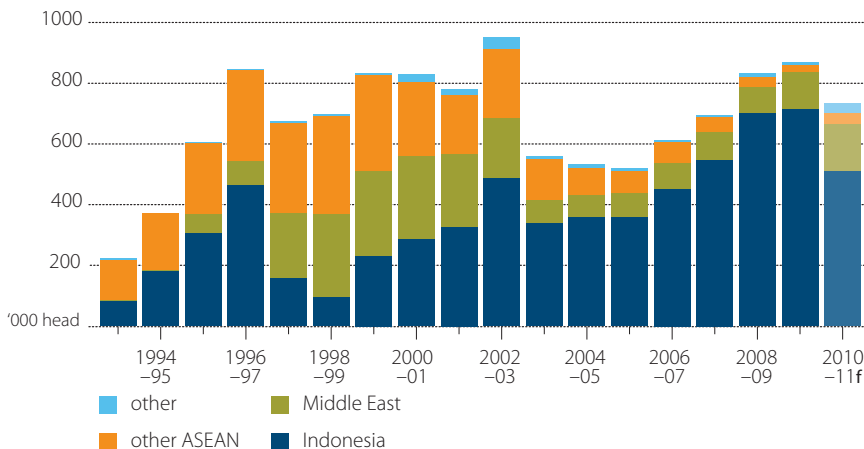
*Live cattle exports to fall in 2010–11*

Australian exports of live cattle are forecast to fall by 16 per cent in 2010–11 to 760 000 head. Live cattle exports to Indonesia are expected to fall by around 29 per cent to around 510 000 head, following the decision by the Indonesian Government in early 2010 to enforce a legislated 350 kilogram weight limit on live imports. Indonesia has also reduced the availability of import permits for the year.

The decline in live cattle exports to Indonesia is expected to be partially offset by an increase in live cattle exports to other markets, mainly in other ASEAN countries and the Middle East. Egypt, in particular, is expected to import significantly more live cattle with the opening of new slaughter facilities at the Red Sea port of Al Sokhna.

Cattle in northern Australia originally intended for live export that cannot be redirected to other live export markets are expected to be diverted to domestic slaughter. However, the numbers are likely to be small compared with total Australian slaughter for the year, which is forecast at 8.1 million head.

**Australian live cattle exports**



### Recent developments in the US beef industry

The United States is the world's largest producer and consumer of beef and the world's third largest beef exporter after Brazil and Australia. The United States' beef herd has been in a gradual decline over the past decade, with beef production peaking at 12.4 million tonnes in 2002 before trending downward to 11.9 million tonnes in 2009. Around 93 per cent of US beef production was consumed domestically in 2009. Per person beef consumption peaked at 44.3 kilograms in 2000, before trending downward to 39.8 kilograms in 2009.

#### *US beef trade*

The United States is a major exporter of grain-fed beef, with a strong focus on those cuts that are most in demand in export markets. This differs from Australia, which exports its beef mainly in full sets.

Over the past decade, export performance of the US beef industry has been volatile, with exports reaching a high of 1.14 million tonnes in 2003 before collapsing to a low of 209 000 tonnes in 2004. The sharp decline in export volumes in 2004 was a result of the discovery of a case of bovine spongiform encephalopathy in the US cattle herd in December 2003, which prompted many countries to temporarily ban imports of US beef. By 2009, US beef exports had recovered to around 878 000 tonnes—around 77 per cent of the 2003 peak.

Mexico and Canada were the largest export markets for US beef in 2009, with shipments of 181 000 tonnes and 107 000 tonnes, respectively. Asian export markets are also important, with Japan (81 000 tonnes), the Republic of Korea (52 000 tonnes) and Vietnam (50 000 tonnes) the next most significant markets.

The United States is a major competitor for Australia in the Asia–Pacific beef market, particularly in Japan and the Republic of Korea, which together account for around half of Australia's beef exports.

The United States is also a major importer of manufacturing beef for use in the food service industry, mainly for hamburgers. Australia is the largest supplier of manufacturing beef to the United States, although domestic herd rebuilding in Australia and a significant appreciation of the Australian dollar against the US dollar have recently reduced import volumes. The ability of the United States to import from other sources is limited to countries that are certified to export beef to the United States. Apart from Australia, these include Canada, New Zealand, Nicaragua, Mexico, Uruguay and Brazil.

#### *Industry trends*

The cost of US beef production in the short term is expected to face upward pressure. Almost all US beef production is sourced from cattle that are grain-fed, which makes the US beef industry sensitive to changes in the price of feed grains. Corn, the major feed grain, is also used as the principal feedstock in biofuel production, and the price of corn is forecast to increase in 2010–11.

The US beef herd is at its lowest level for more than 60 years and the US Department of Agriculture forecasts that the herd will continue to contract until 2013. Given that the US industry is focused on higher value grain-fed beef, the United States is expected to become more dependent on imports to satisfy domestic demand for lower priced manufacturing beef. This is likely to provide an opportunity for increased exports of Australian manufacturing beef.



## Beef and veal outlook

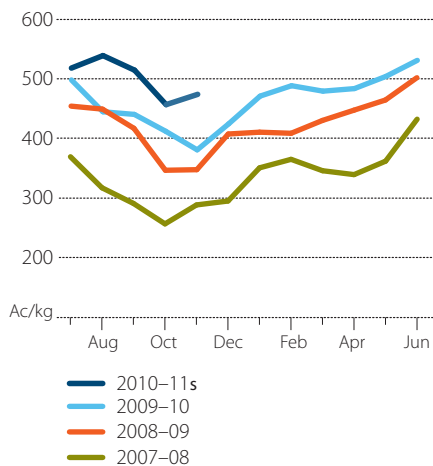
		2008	2009	2010	% change
		-09	-10 s	-11 f	
Cattle numbers	million	27.9	26.7	27.2	1.9
– beef	million	25.3	24.3	24.7	1.6
Slaughterings	'000	8 702	8 384	8 120	-3.1
Production	kt	2 148	2 113	2 070	-2.0
<b>Exports (shipped weight)</b>					
– to United States	kt	282	211	190	-10.0
– to Japan	kt	363	350	350	0.0
– to Korea, Rep. of	kt	113	124	125	0.8
– total	kt	968	899	880	-2.1
– value	A\$m	4 857	3 953	4 164	5.3
Live cattle	'000	856	906	760	-16.1
<b>Price</b>					
– saleyard	Ac/kg	296	288	308	6.9
– US import	USc/kg	307	319	355	11.3
– Japan import	USc/kg	452	511	536	4.9

# Sheep meat

Gwendolen Rees

The weighted average saleyard price of lambs is expected to average 6 per cent higher in 2010–11 at around 490 cents a kilogram. Domestic and international demand for lamb remains strong, despite prices currently being high in historical terms.

## Saleyard lamb price



Weighted saleyard lamb prices averaged 524 cents a kilogram in the September quarter 2010, the highest quarterly average in real terms for more than 15 years. Although prices have subsequently declined in response to a seasonal increase in lamb supplies, they were still around 480 cents a kilogram in late November 2010, 25 per cent higher year-on-year. Higher prices have been supported by less lamb slaughter, as producers have been rebuilding flocks as a result of favourable seasonal conditions.

Sheep prices so far in 2010–11 have averaged around 40 per cent higher year-on-year in the south-eastern states and 30 per cent higher in Western Australia, despite the higher sheep turn-off in that state because of adverse seasonal conditions. Prices are expected to moderate during the latter half of the year, with the weighted average saleyard price of sheep forecast to increase by 15 per cent to 370 cents a kilogram for 2010–11 as a whole.

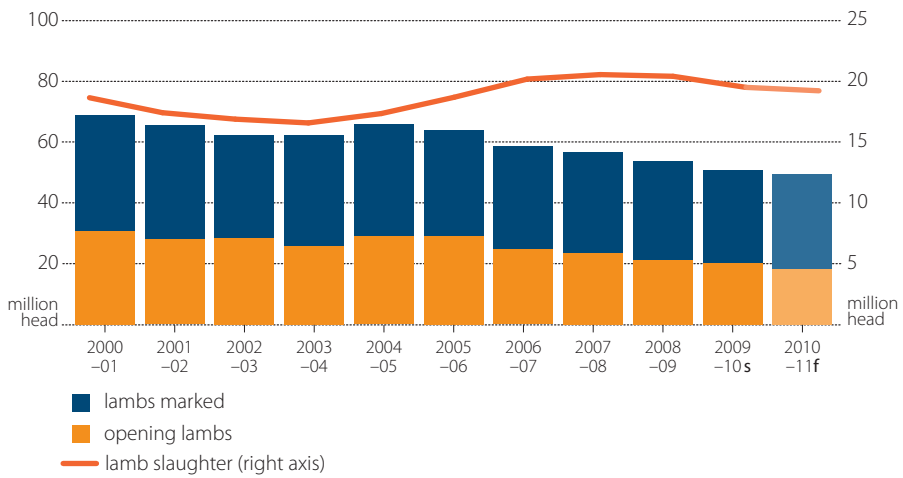
## *Slaughter to fall as rain encourages restocking*

Lamb slaughter is forecast to fall by 1.4 per cent in 2010–11 to around 19.2 million head. Pasture growth is assumed to continue to be favourable for holding stock, particularly ewe lambs, and rebuilding flocks. Data on lamb yardings indicate that restocker lambs were in high demand. For the 2010–11 year to October, lamb slaughter totalled 6.11 million head, 11 per cent lower than for the same period in 2009.

Lamb production is expected to remain largely unchanged in 2010–11 at around 412 000 tonnes. Because of the improved availability of feed, higher carcass weights are expected to offset the effect of lower slaughter numbers. Slaughter lamb producers are increasingly using genetics and pasture management to produce lambs with superior meat production traits and higher carcass weights.

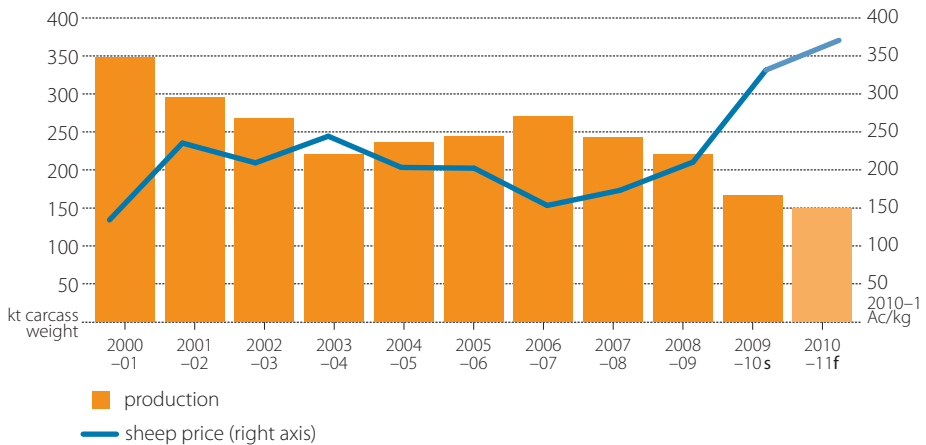
Sheep slaughter is also expected to decline in 2010–11 to just less than 6.6 million head. The forecast decline reflects historically low numbers of non-breeding stock and high demand for breeding ewes by restockers.

Australian lamb flock and lamb slaughter



For the 2010–11 year to October, sheep slaughter was 26 per cent lower than for the same period a year earlier. The largest decreases were in New South Wales and Victoria, where sheep slaughter fell by 57 per cent and 28 per cent, respectively. Although turn-off increased in Western Australia (see box), this was more than offset by the much lower sheep slaughter in the eastern states.

Australian mutton



The forecast of sheep slaughter in 2010–11 is a downward revision from that presented in the September edition of *Australian commodities*. Preliminary estimates of stock numbers released by the Australian Bureau of Statistics (ABS) indicate that closing sheep numbers in Australia fell significantly during 2009–10, to around 68 million head. An important contributor to this decline was a higher death rate in the flock during 2009–10. Information from ABARES farm

## Sheep meat

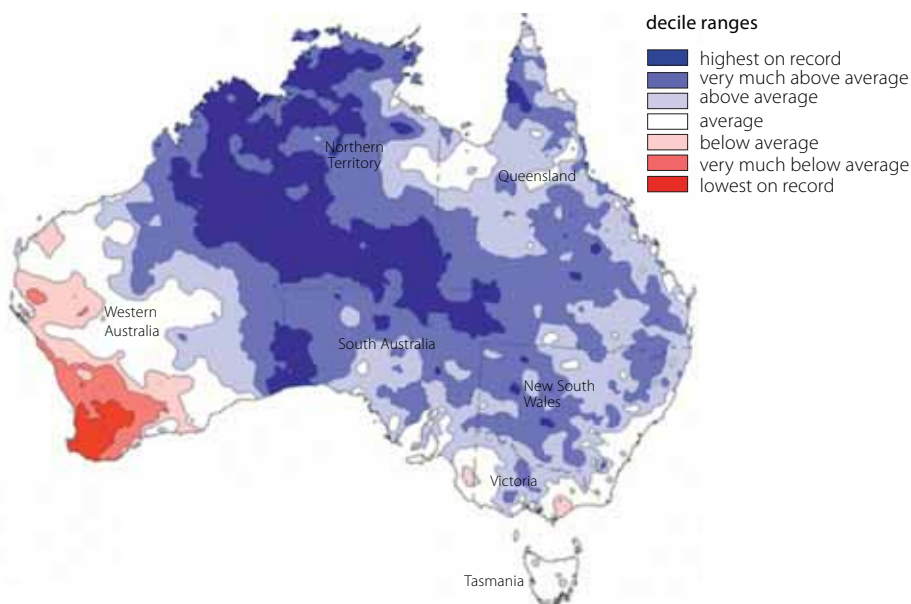
surveys suggests there have been higher sheep death rates because of increased wild and feral dog predation, higher natural ewe death rates as producers hold older stock to maximise lamb production, and increased weather-related deaths from causes such as foot abscess and flooding. Historical slaughter numbers have also been revised downward as on-farm slaughter is now excluded from the ABS data collection.

Mutton production is forecast to fall by around 6 per cent in 2010–11 to 153 000 tonnes as a result of the decrease in sheep slaughter.

### Record sheep turn-off in Western Australia

Poor seasonal conditions in Western Australia in 2010 have resulted in significant sheep turn-off through interstate transfer, slaughter and live export. For the six months to October 2010, data from the Bureau of Meteorology show that rainfall in most sheep-farming areas in south-eastern Western Australia ranged from below average to the lowest on record.

#### Australian rainfall deciles, 1 May to 30 October 2010



Source: Bureau of Meteorology.

Data from the Ceduna Quarantine Station in South Australia indicate that more than 732 000 sheep were transferred out of Western Australia between January and October 2010. This represents a significant increase in interstate transfer compared with an estimate of less than 95 000 for 2009 as a whole.

Western Australian sheep producers have also responded to the adverse seasonal conditions by increasing slaughter. In September 2010, Western Australia's share in national sheep slaughter rose to more than 30 per cent, compared with an average of 22 per cent over the previous three years.

continued...

**Record sheep turn-off in Western Australia** *continued*

Live sheep exports from Western Australian ports have also increased to around 668 000 head in the September quarter 2010, a rise of 40 per cent year-on-year. The increase in slaughter, live export and interstate transfer has resulted in more than 5.7 million head being turned off in Western Australia in the first 10 months of 2010. Turn-off rates, particularly interstate transfers, are expected to remain high in the short term.

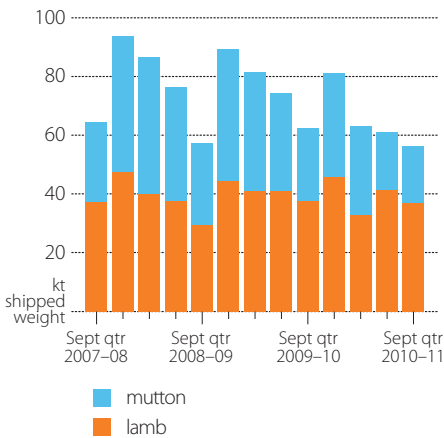
**Western Australian sheep and lamb turn-off, January–October 2010**

turn-off category	no. head
slaughter	2 956 800
live export	2 013 918
interstate transfer	732 070
<b>Total turn-off</b>	<b>5 702 788</b>

*Value of lamb exports to rise*

The value of Australian lamb exports is expected to increase by around 8 per cent in 2010–11 to \$988 million, mainly because of higher export unit returns.

**Australian sheep meat exports quarterly, ended September 2010**



Export unit returns are expected to be higher in 2010–11 because of an increase in international demand for Australian sheep meat. Export unit returns so far in 2010–11 have been significantly higher than the same period last year, despite a marginal appreciation of the Australia dollar against the New Zealand dollar over this period, which decreased the competitiveness in international markets of Australian lamb exports relative to New Zealand product. Despite higher export unit returns, Australian lamb export shipments are forecast to remain largely unchanged at around 158 000 tonnes shipped weight in 2010–11.

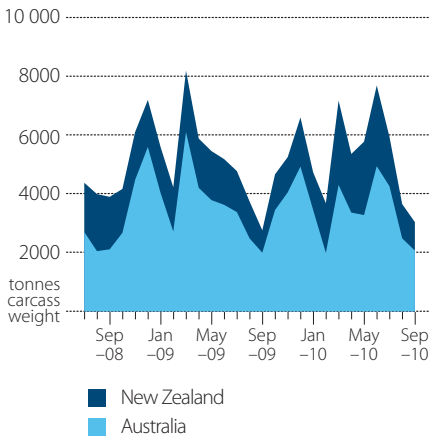
*Lamb exports to the United States to recover*

In the first five months of 2010–11, Australian export shipments of lamb to the United States declined by 18 per cent year-on-year, compared with a decline of 3 per cent for total Australian lamb exports over the same period.

Despite this slow start to the year, Australian lamb exports to the United States are expected to recover gradually during the remainder of the financial year. In October 2010, the US Department of Agriculture forecast that US imports of sheep meat would increase by 9 per cent in 2010–11, with higher import demand in the second half of the year because of

# Sheep meat

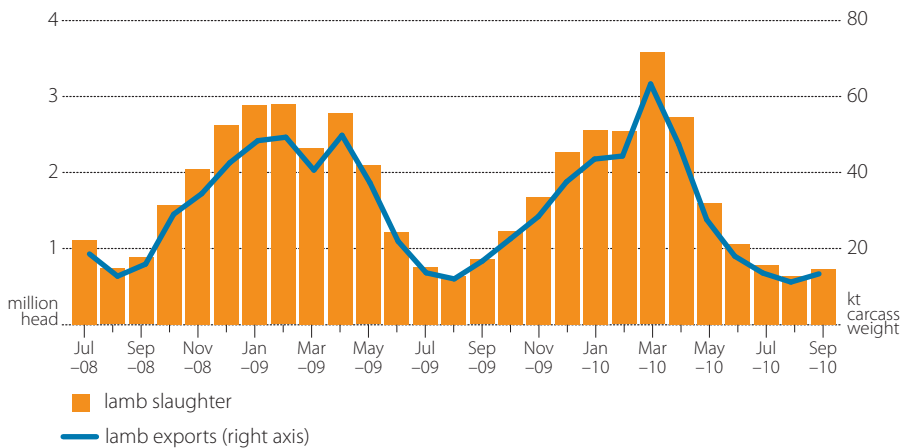
**US lamb imports**  
monthly, ended September 2010



decreased domestic lamb production. Combined with relatively limited export supplies from both Australia and New Zealand, unit returns for Australian lamb exports are likely to remain high. For 2010–11 as a whole, Australian lamb exports to the United States are forecast to decrease by 6 per cent to around 33 000 tonnes.

Production and exports in New Zealand this season have been affected by adverse seasonal conditions and low stock numbers. In September 2010, heavy snowfalls resulted in an estimated loss of around 500 000 lambs and significant numbers of ewes. New Zealand lamb exports were 10 per cent lower year-on-year for the period July to September 2010. New Zealand lamb exports are forecast to fall by around 7 per cent in the New Zealand marketing year 2010–11 (October to September).

**New Zealand lamb**  
monthly, ended September 2010



## Value of mutton exports to fall

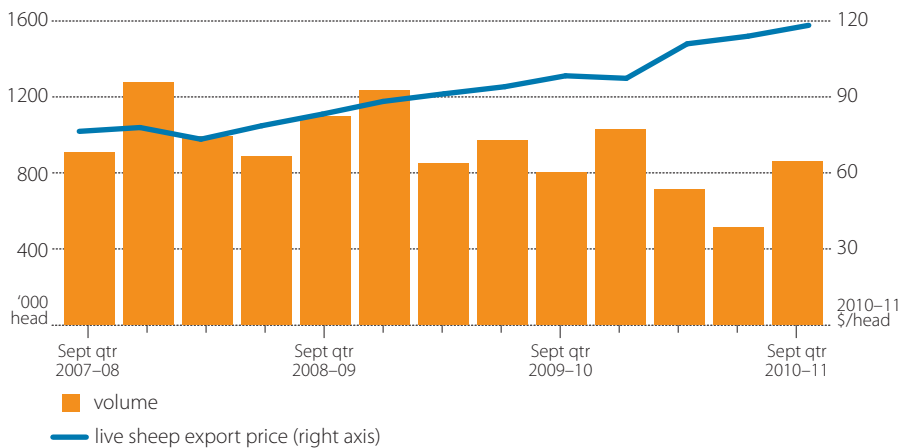
The total value of mutton exports is forecast to fall by around 3 per cent in 2010–11, with lower export shipments more than offsetting higher unit returns.

Mutton export shipments are forecast to fall by 10 per cent in 2010–11 to around 100 000 tonnes shipped weight. In contrast, export unit returns for mutton are expected to increase in 2010–11, reflecting continued strong demand in major export markets. In the September quarter 2010, export unit returns from Australia’s three largest markets—the United States, the United Arab Emirates and Saudi Arabia—averaged around 5 per cent higher than in the same period last year.

*Live sheep exports to remain largely unchanged*

Live sheep exports from Australia in 2010–11 are expected to remain largely unchanged at around 3.1 million head. Exports for the September quarter 2010 were 8 per cent higher year-on-year as a result of the higher turn-off in Western Australia. Under the assumption of a gradual improvement in seasonal conditions, export shipments from Western Australia are expected to slow in the remainder of the year. Export unit returns for live sheep in the September quarter 2010 averaged 22 per cent higher year-on-year. The higher export prices for live sheep are expected to persist in the short term, given expected competition between restockers, processors and live exporters. The value of live sheep exports is forecast to rise by around 11 per cent to \$329 million in 2010–11.

**Australian live sheep exports**  
quarterly, ended September 2010



**Sheep meat outlook**

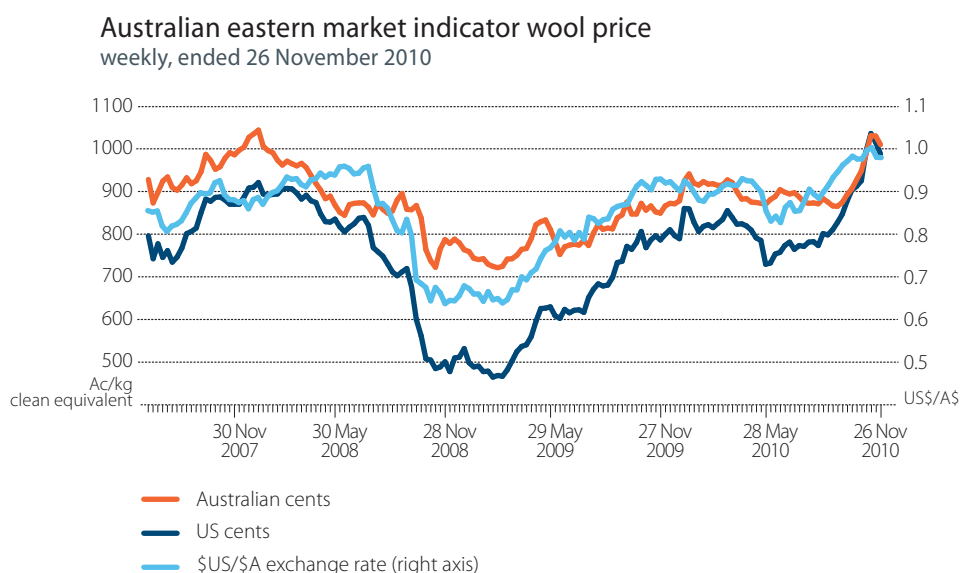
		2008 -09	2009 -10 s	2010 -11 f	% change
<b>Slaughterings</b>					
Sheep	'000	10 501	7 333	6 580	-10.3
Lamb	'000	20 395	19 478	19 200	-1.4
<b>Production</b>					
Mutton	kt	220	162	153	-5.6
Lamb	kt	416	413	412	-0.2
<b>Exports (shipped weight)</b>					
Mutton	kt	146	111	100	-9.9
Lamb	kt	156	157	158	0.6
- to United States	kt	38	35	33	-5.7
Total sheep meat	kt	302	268	258	-3.7
- value	\$m	1 407	1 348	1 408	4.5
Live sheep	'000	4 064	3 055	3 100	1.5
- value	\$m	339	297	329	10.8
<b>Saleyard prices</b>					
Mutton	Ac/kg	199	322	370	14.9
Lamb	Ac/kg	424	464	490	5.6

# Wool

Gwendolen Rees

The eastern market indicator (EMI) price for wool is forecast to average 7 per cent higher in 2010–11 at around 930 cents a kilogram clean. The forecast higher price reflects the combined effect of an expected increase in demand for Australian wool and lower Australian shorn wool production.

Over the five months ending November 2010, the EMI averaged 915 cents a kilogram, which was 10 per cent higher than the same period last year. This price rise occurred despite a strengthening in the value of the Australian dollar against the US dollar. The EMI was slightly above 1000 cents a kilogram clean in early December 2010. For the remainder of the season, the EMI is forecast to average around 940 cents a kilogram, mainly reflecting the prospect of lessening consumer demand in the United States and Western Europe because of assumed slower economic growth in 2011.



## Fall in shorn wool production slowing

Wool production is forecast to fall by less than 2 per cent in 2010–11 to around 335 000 tonnes greasy, because of an expected decline in the number of sheep shorn. This represents a significant slowing of the rate of decline in shorn wool production.

Preliminary estimates of sheep numbers released by the Australian Bureau of Statistics at 30 June 2010 indicate that flock numbers fell significantly in most states, with the largest year-on-year declines in Western Australia and New South Wales. A continued focus on meat

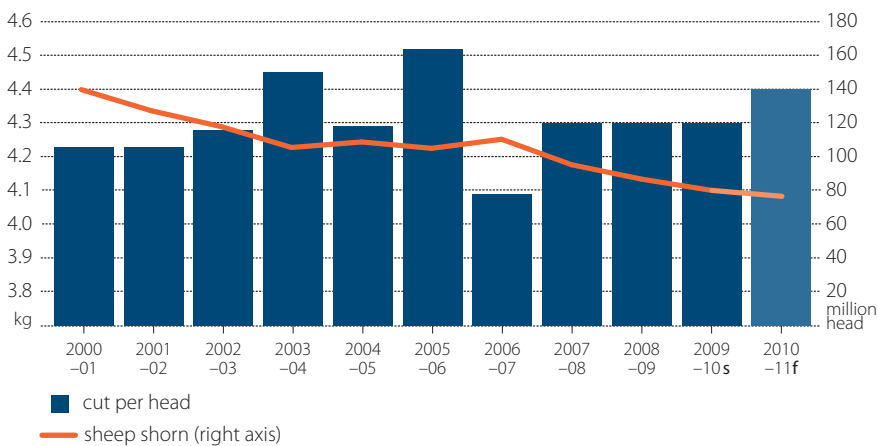


production in the sheep industry is expected to result in the number of sheep shorn falling by 5 per cent to around 76 million head by the end of 2010–11.

The effect on shorn wool production of a lower number of sheep shorn is expected to be partly offset by an expected increase in the average wool cut per head owing to the favourable pasture growth conditions so far in the season. Preliminary data from ABARES farm surveys indicate that average wool cut per head is likely to increase by around 2 per cent this season, to 4.4 kilograms.

Data from the Australian Wool Testing Authority indicate that, from 1 July to 31 November 2010, the total number of bales tested declined by just over 2 per cent relative to the same period in 2009. However, there are indications that early season shearing may have been delayed by rain. Shorn wool production in the latter half of the year is assumed to be higher, leading to only a small decline in total shorn wool production for the season as a whole.

### Sheep shorn and cut per head



## World demand for Australian wool increasing

World demand for Australian wool is forecast to increase in 2010–11, reflecting the combined effect of increased consumption of wool products in China, higher world cotton prices and a Chinese ban on wool imports from South Africa (as discussed later).

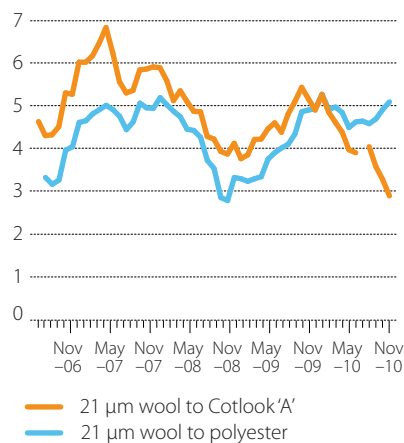
### *Increasing domestic demand for wool products in China*

Chinese textile production grew year-on-year by 12 per cent in the first 10 months of 2010. Domestic retail garment and footwear sales increased significantly, growing year-on-year by more than 25 per cent over the same period. Reflecting assumed economic growth, apparel consumption in China is likely to remain strong for the remainder of the year. Higher demand for garments in China will result in increased demand for all fibres, including wool.

*Apparel and wool demand in United States and European Union*

Demand for wool products was strong in the United States and the European Union in the first few months of 2010–11. US imports of wool products in the September quarter 2010 were around 20 per cent higher year-on-year. EU imports of apparel products from China also increased year-on-year by 16 per cent in the first two months of 2010–11. Despite these increases, there remains considerable uncertainty about the effect of the assumed economic slowdown in these regions on consumer demand for apparel products. If economic growth slows markedly in the short term, it is expected that consumer demand for wool products will be adversely affected in these regions.

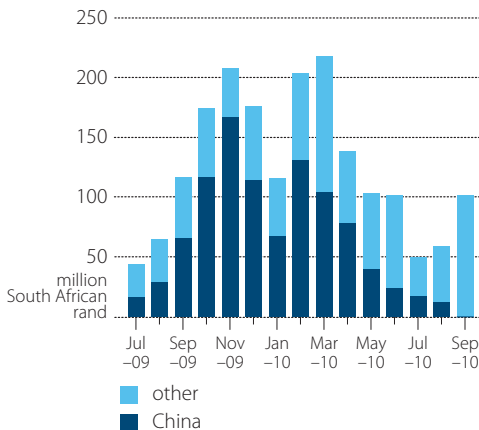
**Price ratios of wool to alternative fibres**



*Wool forecast to be more price competitive against cotton*

One factor underpinning the forecast of stronger demand for Australian wool in the short term is an improvement in the price competitiveness of wool relative to cotton, the major natural fibre that competes with wool. Since the opening of the 2010–11 season (August to July), the Cotlook 'A' indicator price has risen by around 42 per cent, closing at US143 cents a pound at the end of November 2010. This significant rise in the price of cotton is expected to lead to wool and polyester being substituted for cotton in some categories of textile production. Wool in the 19–22 micron range, in particular, is considered to be most substitutable for cotton in textile manufacturing.

**South African total wool exports monthly**



*Rift Valley fever halts Chinese imports from South Africa*

Wool imports from South Africa to China, the only importer that requires Rift Valley fever (RVF) guarantees, were halted in September 2010 because of an RVF outbreak. In February 2010 the South African Government confirmed that RVF was present in several of its wool-growing regions. In August 2010, the government announced it could no longer credibly guarantee that wool exports were from areas free of RVF. Considerable uncertainty remains as to when the trade will recommence.

In response to the ban on South African imports, Chinese demand for Australian wool has strengthened, with monthly imports of Australian

wool increasing 38 per cent in September 2010. Although China's greasy wool imports from South Africa amount to only around one-tenth of the volumes supplied by Australia, South African wool is considered a closer substitute for Australian wool than that from other larger exporters such as New Zealand. This may have contributed to the recent strengthening of Australian wool prices.

## Value of wool exports to rise in 2010–11

In line with the expected decline in Australian shorn wool production, Australian wool export shipments are forecast to decline in 2010–11 to around 408 000 tonnes greasy equivalent. In value terms, Australian wool exports are forecast to increase by around 2 per cent to \$2.34 billion in 2010–11, with higher world prices offsetting the combined effect of lower export volumes and an assumed higher average value of the Australian dollar.

### Wool outlook

		2008 –09	2009 –10 s	2010 –11 f	% change
Sheep numbers	million	73	68	68	0.0
Sheep shorn	million	86	80	76	–5.0
Wool production (greasy)					
– shorn	kt	371	341	335	–1.8
– other	kt	50	41	40	–2.4
– total	kt	420	382	375	–1.8
Wool exports (balance of payments basis)					
– volume (gr. equiv.)	kt	446	428	408	–4.7
– value	A\$m	2 322	2 307	2 343	1.6
Market indicator (clean)					
– eastern	Ac/kg	794	872	930	6.7
– western	Ac/kg	762	863	920	6.6
Auction price (greasy)	Ac/kg	499	551	595	8.0

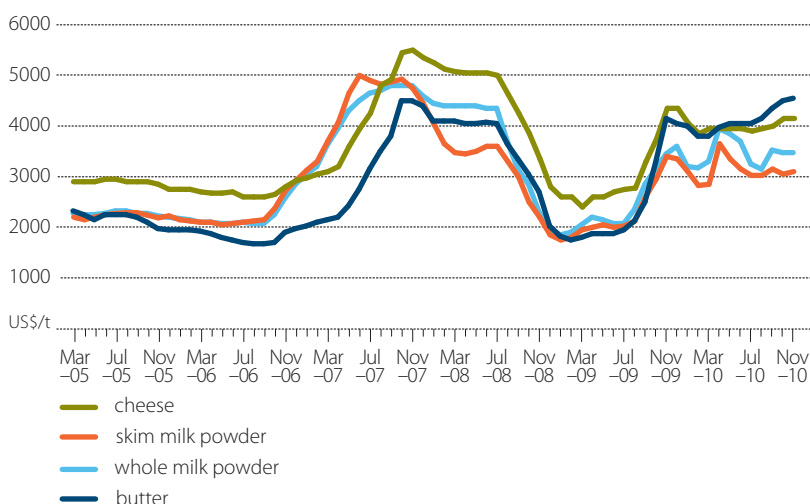
# Dairy

David Barrett

World prices for dairy products are forecast to average slightly higher in 2010–11 than in 2009–10. The world indicator prices for butter and cheese are forecast to increase by 8 per cent and 5 per cent to average US\$3760 a tonne and US\$3940 a tonne, respectively. World prices for skim milk powder and whole milk powder are both forecast to increase by 3 per cent to average US\$3030 a tonne and US\$3325 a tonne, respectively.

Strong import demand from the Russian Federation, China and countries in non-OECD Asia, the Middle East and North Africa is expected to put upward pressure on world dairy prices in the second half of 2010–11. However, forecast higher milk production in the major producing and exporting economies, such as the European Union and the United States, is expected to moderate the rise in dairy prices.

World dairy prices



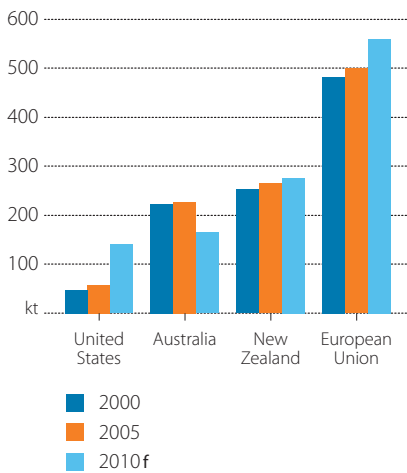
## Global supply of dairy products to increase

### European Union

Overall milk production in the European Union is forecast to increase in the 2010–11 marketing year (April to March) in response to higher farm-gate milk prices and improved seasonal conditions. However, rising feed grain prices since mid-2010 are likely to dampen the increase in milk production. Higher milk production is expected in Germany, France and the Netherlands, whereas lower production is forecast for Poland, Romania and Bulgaria.

To date in 2010, increased EU milk production has been mainly used for cheese manufacture to meet stronger export demand. In the first eight months of 2010, cheese production was

### Major cheese exporters



around 2 per cent higher than the corresponding period in 2009, while butter production was 4 per cent lower. EU cheese exports to the Russian Federation and the Middle East increased by 20 per cent over this period.

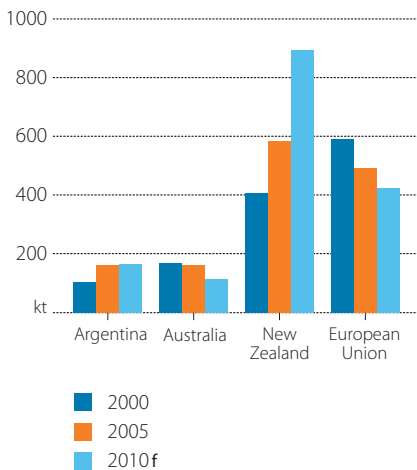
Despite higher milk production in 2010, intervention stocks held by the European Union have been gradually run down. Intervention stocks of skim milk powder declined by around 27 per cent to 195 000 tonnes between October 2009 and early November 2010. Further reductions in skim milk powder stocks are expected to occur in 2011 as a result of provisions for skim milk powder under the deprived persons scheme. Intervention stocks of butter have also decreased during 2010 to negligible levels.

### United States

US milk production is forecast to rise by 1.5 per cent in 2011 to 88.7 million tonnes, driven by a small increase in milk yield per cow and a slightly larger dairy herd. Although farm-gate milk prices for 2011 as a result of provisions for skim milk powder are forecast to remain close to the average price for 2010, higher feed grain prices are likely to constrain a further expansion of the US dairy herd.

US exports of dairy products increased sharply in 2010 in response to relatively weak domestic consumption, higher demand in some export markets and the reactivation of the dairy industry's Export Assistance Program in March 2010. US cheese and skim milk powder exports in 2010 are estimated to increase by 30 per cent and 20 per cent to 140 000 tonnes and 310 000 tonnes, respectively.

### Major whole milk powder exporters



### New Zealand

Although milk production in New Zealand was adversely affected in the first three months of 2010–11 by heavy late snow falls in the South Island and cool, wet conditions in the North Island, production for 2010–11 as a whole is forecast to increase by around 3 per cent. This mainly reflects the combined effect of an expansion of the dairy herd, particularly in the South Island, and higher milk prices received by farmers.

## Dairy

### *Argentina and Brazil*

Milk production in Argentina is forecast to rise by 4 per cent to 10.8 million litres in 2011, resulting in higher exports of whole milk powder and cheese. Exports of whole milk powder are forecast to increase by 20 per cent to 200 000 tonnes. The major export destinations are Venezuela and Brazil. Exports of cheese are forecast to increase by 7 per cent to 48 000 tonnes.

Despite expected higher domestic milk production, Brazil is forecast to remain a net importer of dairy products in 2011.

### **Growth in world demand underpins dairy trade**

A rise in import demand for dairy products by the Russian Federation and China is expected to drive global dairy trade over the second half of 2010–11. Economic growth in the developing countries of Asia (especially China), the Middle East and North Africa will also support global demand for dairy products in the remainder of 2010–11.

The Russian Federation has become one of the largest markets for dairy products, and in 2010 is estimated to increase cheese imports by 17 per cent to 365 000 tonnes and milk powder imports by 75 per cent to 240 000 tonnes. In addition to higher consumer demand, these significant increases in dairy imports are in response to lower domestic milk production as a result of unusually hot and dry summer conditions in the Russian Federation's main dairy regions.

In 2011, the Russian Federation is expected to import around 370 000 tonnes of cheese and around 260 000 tonnes of milk powders. Russian import demand is forecast to increase as a result of further growth in domestic demand. Reflecting the effect of lower dairy cow numbers, domestic milk production in the Russian Federation is expected to remain relatively low in 2011.

China is now the world's largest market for whole milk powder, with imports increasing sharply since early 2009. Imports of whole milk powder are estimated to nearly double to reach 340 000 tonnes in 2010. The strength of Chinese import demand for milk powders reflects continuing consumer concerns about the safety of domestically produced product, following the detection of further product contaminated by melamine in 2010.

With domestic production in China forecast to increase only slightly in 2011, Chinese imports of whole milk powder are forecast to be sustained at levels similar to 2010. Around 90 per cent of Chinese whole milk powder imports are supplied by New Zealand. Australia supplies only around 5 per cent.

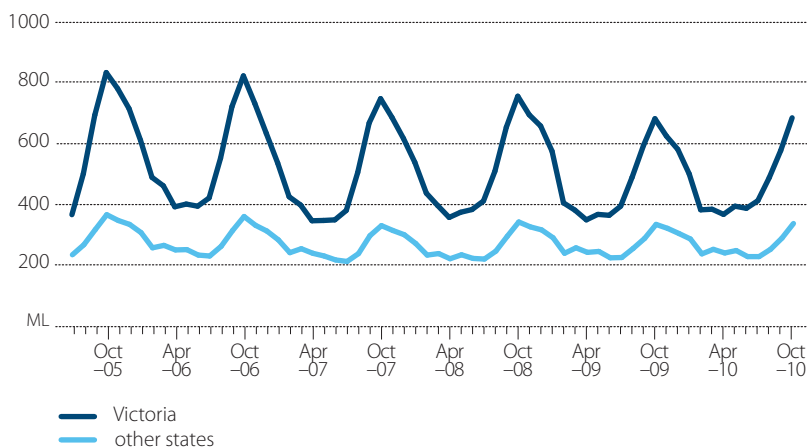
In the eight months ending August 2010, cheese imports into China increased by 60 per cent to 15 100 tonnes. Although cheese has not traditionally been part of the Chinese diet, consumption has been increasing in recent years reflecting the effects of an increase in urban incomes. With virtually no domestic production of cheese, the rise in domestic demand will need to be met by imports. While import volumes are still relatively small, the Chinese market is expected to expand. Cheese imports in China are mainly sourced from New Zealand (accounting for around 50 per cent of total Chinese imports) and Australia (around 25 per cent).

Elsewhere in Asia, imports of cheese are also expected to increase. Despite higher import prices, Japanese imports of cheese increased by 9.5 per cent to 94 000 tonnes in the first six months of the 2010–11 marketing year (April to March). The Republic of Korea imports around 70 per cent of its domestic cheese requirements. With domestic production expected to remain largely unchanged in 2011, Korean cheese imports are forecast to rise by 10 per cent to 64 000 tonnes.

## Australian milk prices and production

Australian farm-gate milk prices are forecast to rise by 3.2 per cent in the 2010–11 financial year to average 38.5 cents a litre in response to a continued recovery in global demand for dairy products.

### Milk production



While rainfall has been well above average across most dairying regions of south-eastern Australia, the cool, wet conditions experienced in the first five months of 2010–11 adversely affected milk production in some dairying regions. Milk production in northern and south-western Victoria fell year-on-year by around 3 per cent in the first four months of 2010–11.

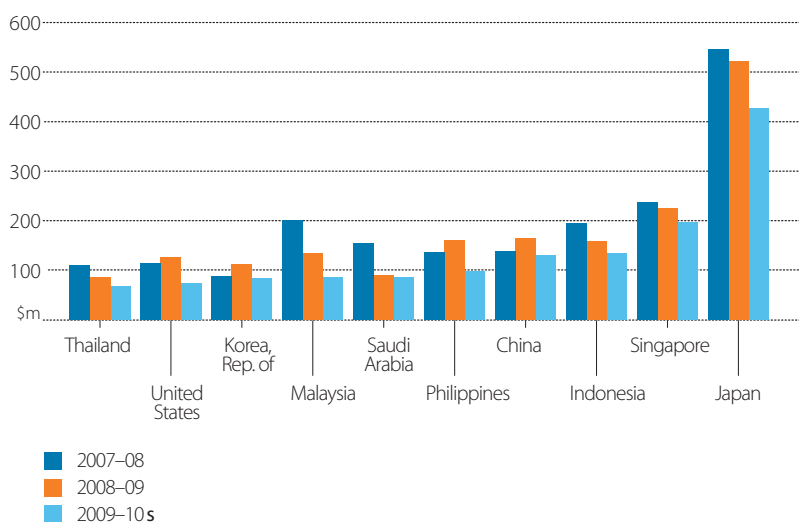
For 2010–11 as a whole, Australian milk production is forecast to rise by 1.4 per cent to 9150 million litres. The prospects for milk production over the remainder of 2010–11 are favourable given the build-up of soil moisture in south-eastern Australia and the increased availability of irrigation water. Good conditions for pasture growth are expected to offset the effect on milk production of a smaller dairy herd.

The number of dairy cows in Australia fell year-on-year by 7 per cent to around 1.55 million head at 30 June 2010. This decline was mainly the result of increased cullings in response to lower milk prices and below average seasonal conditions in the first half of the 2009–10 season. In Victoria, which accounts for around 65 per cent of the national herd, the number of dairy cows declined year-on-year by 6 per cent to 997 000 head at 30 June 2010. A small increase in the herd to 1.57 million head is expected over the period to 30 June 2011.

## Australian dairy export earnings to remain stable in 2010–11

The value of Australian dairy product exports is forecast to remain largely unchanged in 2010–11 at \$2.07 billion. Japan is expected to be Australia's largest export market, accounting for around 20 per cent by value of Australian dairy product exports. Other important markets for Australian dairy products include Singapore, Indonesia, China, the Philippines, the Republic of Korea and Malaysia.

### Australian dairy exports



### Dairy outlook

		2008 -09	2009 -10 s	2010 -11 f	% change
Cow numbers	'000	1 676	1 553	1 570	1.1
Milk yields	L/cow	5 602	5 810	5 828	0.3
<b>Production</b>					
Total milk	ML	9 388	9 023	9 150	1.4
– market sales	ML	2 229	2 269	2 305	1.6
– manufacturing	ML	7 159	6 754	6 845	1.3
Butter	kt	148	128	127	-0.8
Cheese	kt	342	349	350	0.3
Whole milk powder	kt	148	126	137	8.7
Skim milk powder	kt	212	190	188	-1.1
Farm-gate milk price	A\$/L	42.5	37.3	38.5	3.2
Value of exports	A\$m	2 679	2 066	2 072	0.3
<b>World prices</b>					
Butter	US\$/t	2 485	3 477	3 760	8.1
Cheese	US\$/t	3 281	3 748	3 940	5.1
Skim milk powder	US\$/t	2 333	2 948	3 030	2.8
Whole milk powder	US\$/t	2 546	3 221	3 325	3.2



# Farm financial performance 2010–11: projections for broadacre and dairy farms

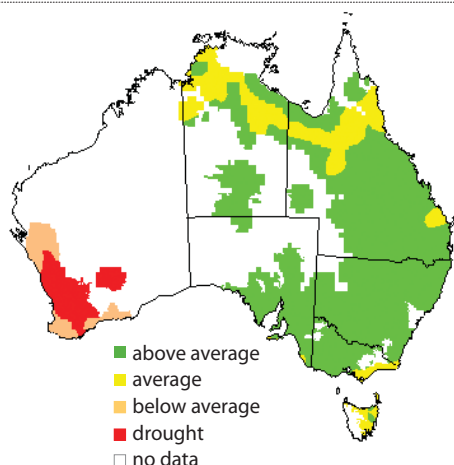
Peter Martin, Sarah Crooks and Paul Phillips

## *Broadacre farm incomes higher in 2010–11*

The financial performance of broadacre farms is expected to increase markedly in 2010–11, according to estimates for broadacre farms in the ABARES Australian agricultural and grazing industries survey. Well above average seasonal conditions across most of eastern and northern Australia (map 1), accompanied by higher prices for most broadacre commodities, are projected to result in average farm cash incomes in 2010–11 being the highest recorded since 2004–05. Between 2004–05 and 2009–10, average farm cash incomes were reduced by widespread drought conditions.

In the eastern states, the combination of increased crop production, excellent pasture growth allowing increased livestock production, and higher prices for grains, sheep, lamb, wool and beef cattle is expected to result in increased farm cash incomes in 2010–11. Farm cash incomes projected for the eastern states in 2010–11 would have been higher were it not for the substantial reductions in grain quality as a result of the effect on winter crops of high and untimely rainfall at harvest, particularly in Queensland, New South Wales and Victoria. These reductions have been taken into account in ABARES forecasts.

map 1 Seasonal conditions to November 2010, broadacre and dairy farms



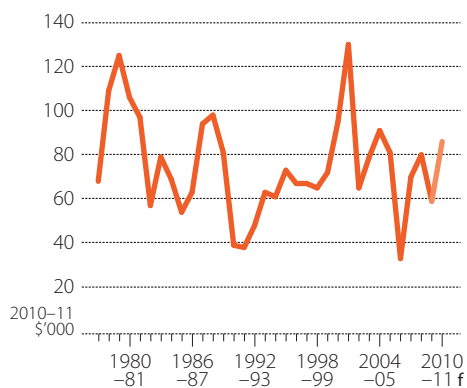
Note: Seasonal conditions as reported by farmers in ABARES farm surveys.

In contrast, crop and livestock production in Western Australia has been sharply reduced by drought conditions and, despite higher commodity prices, farm cash incomes are projected to decline in that state in 2010–11.

Although expenditure on fodder is expected to be substantially reduced as a result of improved pasture availability in the eastern states, average farm cash costs are projected to increase. Harvesting and marketing the large forecast winter grain crop in the eastern states will mean increased expenditure. High rainfall is expected to result in increased expenditure on crop chemicals to control weeds and diseases, and interest payments are projected to increase as interest rates rise. In addition, with higher incomes,

## Farm financial performance 2010–11

### Farm cash income for broadacre farms, Australia



farmers are also expected to increase expenditure on farm labour and repairs and maintenance.

Nationally, average farm cash income for broadacre farms is projected to increase to \$86 000 in 2010–11 (see table), around 10 per cent above the 10-year average to 2009–10 of \$78 000 (in real terms).

In line with higher farm cash incomes, average farm business profit for Australian broadacre farms is projected to rise to \$11 000 a farm—the highest farm business profit for nine years. In addition to the increase in farm cash income, farm business profit is projected to be boosted by a rise in the value of farm stocks. Inventories of grain and hay are projected

to increase this season. A small increase in sheep and beef cattle numbers is also expected, resulting from increased lambing and branding rates and restrained livestock turn-off as flock and herd rebuilding continues in the eastern states, Queensland and the Northern Territory after many years of drought.

### State and regional financial performance of broadacre farms

Across states and regions there is considerable variation in farm cash incomes projected for 2010–11 and how these incomes rank historically (see table).

In New South Wales, higher farm cash incomes are projected in 2010–11 for almost all regions. Increases in farm cash incomes are expected in grain growing areas because of increased grain production. The increases in farm cash incomes would have been higher except for reductions in grain quality resulting from high and untimely rainfall during the winter crop harvest period, and crop losses because of flooding. Farm cash incomes for livestock farms, including those in the Northern Tablelands, Central Tablelands and Southern Tablelands regions, are projected to also increase, with higher sheep, lamb, wool and beef prices as well as an increase in sales numbers and sale weights for livestock. Overall, New South Wales broadacre farm cash income is projected to average \$84 000 a farm in 2010–11, around 50 per cent above the average farm cash income recorded for the 10 years to 2009–10.

Average farm cash incomes for New South Wales and all eastern states are mainly determined by income from livestock. On average, around 60 per cent of farm receipts are from the sale of beef cattle, sheep, lambs and wool and 75 per cent of broadacre farms generate less than 20 per cent of their receipts from crops.

Victorian cropping farm cash incomes are also projected to increase markedly in 2010–11, with improved seasonal conditions leading to increases in grain production from last season and higher grain and oilseed prices. Receipts from beef cattle are projected to increase only slightly, assuming there is no substantial increase in turn-off in the first half of 2011.

### Major financial performance indicators

Farm cash income = total cash receipts – total cash costs

<i>total revenues received by the farm business during the financial year</i>	<i>payments made by the farm business for materials and services and for permanent and casual hired labour (excluding owner manager, partner and family labour)</i>
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Farm business profit = farm cash income + changes in trading stock – depreciation – imputed labour costs

#### ***Broadacre and dairy farms***

Broadacre and dairy farms account for 68 per cent of commercial-scale Australian farm businesses. They are also responsible for the management of more than 90 per cent of the total area of agricultural land in Australia, account for the majority of Australia's family owned and operated farms, are located in all regions and form a vital part of rural communities and economies across the country.

Each year ABARES interviews the operators of around 1600 broadacre farm businesses in its Australian agricultural and grazing industries survey (AAGIS) and 300 dairy farm businesses in the Australian dairy industry survey (ADIS), as part of its annual farm survey program. The AAGIS is targeted at commercial-scale broadacre farms—farms that grow grains or oilseeds, or run sheep or beef cattle and that have an estimated value of agricultural output exceeding \$40 000. The ADIS is targeted at commercial-scale milk producing farms.

#### ***Methodology***

Data provided in this note have been collected via on-farm interviews and incorporate detailed farm financial accounting information.

Estimates for 2008–09 and all earlier years are final. All data from farmers, including accounting information, have been reconciled. Final production and population information from the Australian Bureau of Statistics (ABS) has been included and no further change is expected in the estimates.

The 2009–10 estimates are preliminary based on full production and accounting information from farmers. However, editing and addition of sample farms may be undertaken and ABS production benchmarks may also change.

The 2010–11 projections are based on data collected via on-farm interviews and telephone interviews in the period October to December 2010. The 2010–11 projections include crop and livestock production, receipts and expenditure up to the date of interview, together with expected production, receipts and expenditure for the remainder of the 2010–11 financial year. Modifications have been made to expected receipts and expenditure for the remainder of 2010–11 where significant price changes have occurred post interview.

## Farm financial performance 2010–11

Receipts from sheep, lambs and wool are projected to be higher this season because of higher prices and increased production. As a result, farm cash incomes for producers mainly reliant on sheep are projected to increase further in 2010–11. On average, farm cash incomes for broadacre farms in Victoria are projected to rise to \$71 000 a farm in 2010–11 (see table), around 10 per cent above the average farm cash income recorded for the 10 years to 2009–10.

South Australian broadacre farm cash incomes are projected to increase to average \$136 000 a farm in 2010–11, around 30 per cent above the average farm cash income recorded for the 10 years to 2009–10. If realised, this would be the highest farm cash income for South Australian broadacre farms since 2003–04. The rise in farm cash income is mainly driven by increased grain, oilseed and pulse receipts, along with a significant increase in sheep and lamb receipts.

Queensland broadacre farm cash incomes are projected to increase to average \$83 000 a farm in 2010–11, up from \$63 300 in 2009–10 and around 5 per cent below the average for the 10 years to 2009–10. Receipts from beef cattle are projected to increase by around 10 per cent owing to increased saleyard prices, higher turn-off weights and increases in turn-off. Crop receipts for Queensland broadacre farms are expected to increase by around 50 per cent, despite downgrading in quality for many winter crops. Early season prospects for grain sorghum, cotton and other summer crops are very good and, as a consequence, farm cash incomes for Queensland grain farms are expected to rise in 2010–11.

### Farm financial performance, by state

average per farm

	farm cash income			farm business profit <sup>b</sup>				
	2008–09 \$	2009–10 <sup>p</sup> \$	2010–11 <sup>s</sup> \$	2008–09 \$	2009–10 <sup>p</sup> \$	2010–11 <sup>s</sup> \$		
<b>Broadacre industries</b>								
New South Wales	50 840	43 200	(15)	84 000	-21 790	-42 100	(17)	22 000
Victoria	40 820	46 500	(12)	71 000	-29 920	-8 700	(64)	14 000
Queensland	82 610	63 300	(32)	83 000	19 830	-12 300	(173)	26 000
Western Australia	216 610	90 200	(24)	76 000	96 160	-56 900	(35)	-85 000
South Australia	64 760	85 600	(12)	136 000	-19 850	29 800	(35)	49 000
Tasmania	39 440	53 300	(19)	79 000	-26 390	11 000	(92)	37 000
Australia	75 980	57 000	(9)	86 000	-1 510	-21 100	(25)	11 000
<b>Dairy industry</b>								
Australia	87 960	76 800	(16)	103 000	6 700	-1 900	(589)	8 000

<sup>b</sup> Defined as farm cash income plus build-up in trading stocks, less depreciation and the imputed value of operator partner and family labour. Estimates for 2008–09 are final. <sup>p</sup> Preliminary estimates. <sup>s</sup> Provisional estimates.

Note: Figures in parentheses are standard errors expressed as a percentage of the estimate provided.

Owing to drought conditions across much of southern Western Australia, including most grain growing areas (map 2), farm cash incomes are projected to fall in 2010–11. Farm cash income for Western Australian broadacre farms is projected to average \$76 000 a farm in 2010–11, around 40 per cent below the average for the 10 years to 2009–10.

Despite much higher grain prices, crop receipts for 2010–11 are projected to fall by around 15 per cent because production of winter grains, oilseeds and pulses in Western Australia is expected to be around 60 per cent lower this season than in 2009–10. The reduction in crop receipts for 2010–11 would be much larger if substantial pool payments for grain delivered in 2009–10 had not been received. Average receipts for sheep and beef cattle are projected to increase in 2010–11 in response to the dry conditions. Receipts for sheep and lambs are projected to increase by almost 30 per cent because of increased turn-off and relatively high prices. Farm cash costs are estimated to be reduced on Western Australian broadacre farms, as the area planted to crops in 2010–11 is lower than in 2009–10 and grain marketing costs are expected to be lower because of reduced production. Cash costs are also expected to be reduced as farmers cut back on some expenditure, including labour and repairs and maintenance, in an attempt to reduce the decline in farm cash income.

Tasmanian broadacre farm cash incomes are projected to increase modestly to average \$79 000 a farm in 2010–11, further building on the improvement recorded in 2009–10. This is around 30 per cent above the average farm cash income recorded for the 10 years to 2009–10. Improved seasonal conditions in 2009–10 and 2010–11 have enabled small increases in sheep and beef cattle numbers and increases in wool production, following several years of dry seasonal conditions that constrained crop and livestock production. Most of the increase in average farm cash income for Tasmanian broadacre farms in 2010–11 is projected to result from increased turn-off of beef cattle, combined with increased wool production and higher wool prices.

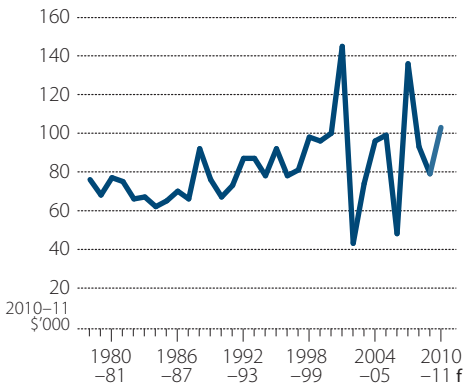
### *Dairy farm income also expected to rise in 2010–11*

Excellent pasture growth and increased availability of irrigation water is also expected to favourably affect dairy farm incomes in southern Australia in 2010–11. Financial performance of dairy farms is projected to improve in 2010–11 in the southern dairying region of New South Wales and in Victoria, Tasmania and South Australia as a result of higher prices paid for milk used for manufactured dairy products, combined with a small increase in milk production. In addition, total cash costs are projected to decline for farms in the southern Murray–Darling Basin as improved seasonal conditions reduce expenditure on fodder and irrigation water purchases.

In contrast, in northern dairying regions in Queensland and in northern New South Wales lower milk prices and largely unchanged milk production are projected to result in a small reduction in average farm cash incomes despite improved seasonal conditions.

## Farm financial performance 2010–11

### Farm cash income for dairy industry farms, Australia



The financial performance of dairy farms in Western Australia is projected to decline in 2010–11. An increase in farm cash costs resulting from increased expenditure on fodder because of dry seasonal conditions, combined with lower milk prices, is projected to result in a sharp decline in farm cash incomes for dairy farms.

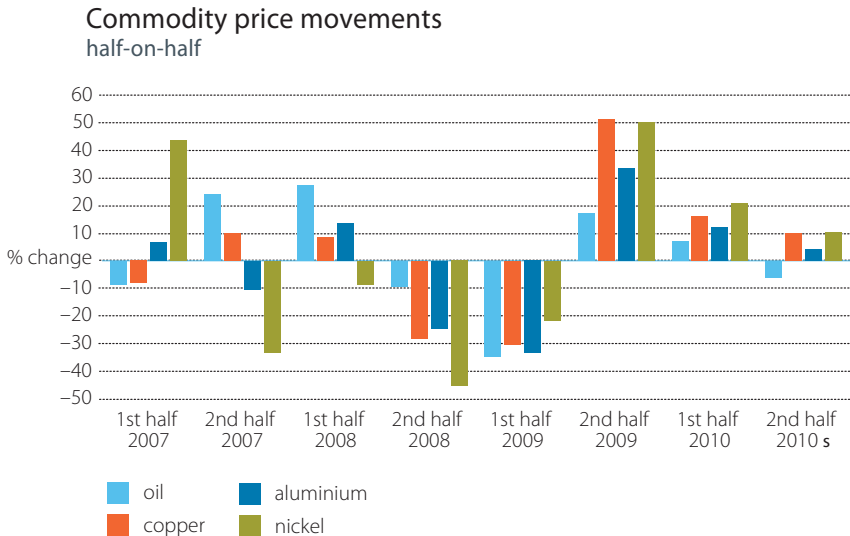
When the variations in projected farm cash incomes for dairy farms across Australia are taken into account, the overall average farm cash income for Australian dairy farms is projected to increase to \$103 000 in 2010–11 (see table), around 10 per cent above the average for the 10 years to 2009–10.

# Energy and minerals overview

Alan Copeland and Farah Beaini

- Following a period of strong price growth across mineral and energy commodities from the second half of 2009, in 2011 the price outlook is mixed, with price falls expected for some commodities.
- In 2011, the majority of mineral and energy demand growth is expected to come from non-OECD economies including China and India. In the OECD, mineral and energy demand growth is expected to remain weak, in line with assumed modest economic growth.
- Australian mineral and energy export earnings in 2010–11 are forecast to increase by 28 per cent to \$177 billion. The largest increases in earnings are forecast to come from bulk commodity exports such as iron ore and coal. For most other mineral and energy commodities, export values are also forecast to rise in 2010–11, albeit at slower rates.

Over the course of 2010, prices for most mineral and energy commodities have averaged significantly higher than in 2009. Prices have been supported by strong economic growth in developing economies, such as China and India, and recovery in OECD economies. In addition, the rebuilding of stocks in many OECD economies has increased demand and, in turn, supported prices. Stocks were drawn down in the first half of 2009 as commodity demand declined.



In 2011, the outlook for mineral and energy commodities is mixed, with prices forecast to increase for some commodities but fall for others. Demand for all commodities is forecast to increase in 2011, albeit at a slower pace than in 2010. On the supply side, increases in production will be stronger for many commodities. For zinc, nickel and iron ore, prices are forecast to fall in 2011 as supply responds to an extended period of strong demand and higher prices. High nickel and zinc stocks are also expected to place downward pressure on prices. In

## Energy and minerals overview

contrast, copper, oil and thermal coal prices are forecast to increase in 2011 as demand growth outpaces supply growth. However, the pace of the forecast price increases is expected to be significantly less than in 2010.

### *Developing economies to underpin commodity demand...*

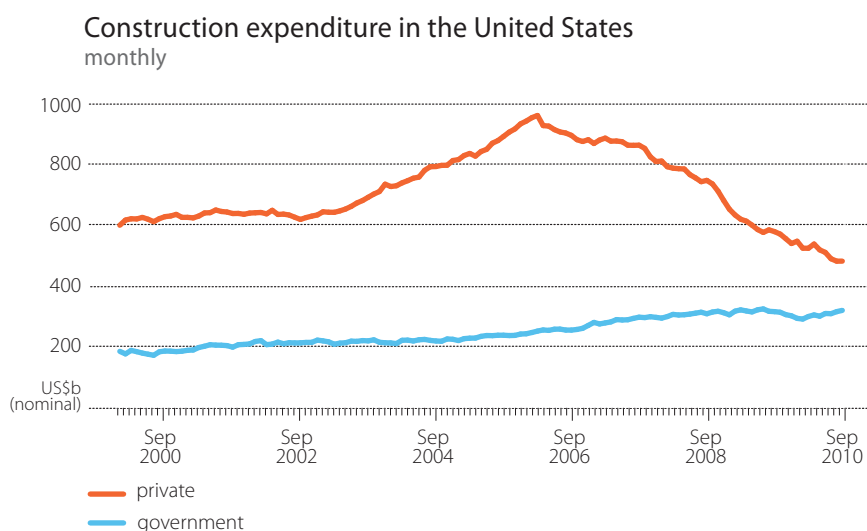
In 2011, the majority of mineral and energy demand growth is expected to come from non-OECD economies, including China and India. OECD energy and minerals consumption is forecast to increase, but at a modest rate, in line with assumed weak economic growth.

In developing economies, industrialisation and urbanisation will continue, leading to continued construction of infrastructure such as roads, railways and electricity networks. Production of consumer durables, such as cars, electronics and white goods, is also expected to underpin demand for minerals and energy. However, demand growth in non-OECD economies is forecast to be weaker in 2011 as a number of economies tighten monetary policy to slow economic growth and prevent the build-up of inflationary pressures. In addition, demand for minerals and energy in these economies could be adversely affected if OECD import demand for manufactured products weakens significantly.

### *...while OECD demand remains subdued*

Growth in OECD demand for minerals and energy is expected to be modest in 2011, following relatively strong growth in 2010. Minerals and energy commodity consumption in the United States and Europe in 2010 was underpinned by fiscal stimulus measures, which have now been largely completed.

In 2011, the United States is assumed to experience only modest economic growth, and a significant improvement in consumer spending and unemployment looks unlikely at this stage. Subdued activity in residential and non-residential building construction, which is mineral and energy intensive, has also contributed to weak growth for minerals and energy consumption in the United States.





In Europe, austerity measures are being introduced across a number of economies, which are expected to limit a significant increase in regional economic activity. Lower wage growth and cuts to welfare spending may limit growth in private consumption. In addition, weak consumer and business confidence and high unemployment are expected to persist in 2011. These factors indicate that demand for minerals and energy is unlikely to strengthen markedly in this region.

### Outlook for the Australian mining industry

The index of minerals and energy export prices, in aggregate, is forecast to increase by 21 per cent in 2010–11. The index of energy mineral prices is forecast to increase by 18 per cent, reflecting higher contract prices for thermal and metallurgical coal. The index of metals and other minerals export prices is forecast to increase by 23 per cent, reflecting higher iron ore, copper, gold and aluminium prices.

#### Australian mine production

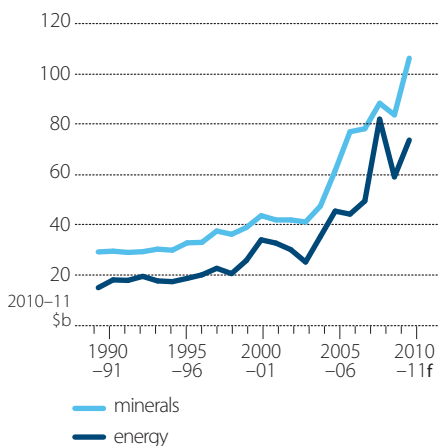


The volume of Australian mine production is forecast to increase by 10 per cent in 2010–11, underpinned by increases in both energy commodities and metals and other minerals. Production of energy commodities is forecast to increase by 10 per cent, reflecting higher output of gas (up 19 per cent), thermal coal (17 per cent), oil (14 per cent) and metallurgical coal (2 per cent).

In 2010–11, production of metals and other minerals is forecast to increase by 10 per cent, reflecting higher output of nickel (up 12 per cent), gold (15 per cent), copper (7 per cent) and iron ore (5 per cent).

Earnings from Australia's mineral and energy exports in 2010–11 are forecast to increase by 28 per cent to \$177 billion. The record value reflects higher prices for bulk commodities, crude oil and most base metals and higher export volumes for all major minerals and energy commodities. The price increases are expected to more than offset an assumed appreciation of the average value of the Australian dollar in the year.

#### Australian export earnings



The value of metal and other mineral exports in 2010–11 is forecast to increase by 29 per cent to \$105 billion, underpinned by higher earnings from iron ore (up 47 per cent), copper (35 per cent), gold (20 per cent) and alumina (10 per cent).

## Energy and minerals overview

Export earnings from energy commodities in 2010–11 are forecast to increase by 26 per cent to \$72 billion, reflecting higher earnings from metallurgical coal (up 34 per cent), thermal coal (32 per cent), oil (17 per cent) and liquefied natural gas (LNG) (8 per cent).

### Australian minerals and energy exports

		volume			value			
		2009–10	2010–11 f	% change	2009–10	2010–11 f	% change	
Oil	ML	18 064	20 365	12.7	\$m	9 534	11 154	17.0
LNG	Mt	18	19	5.1	\$m	7 789	8 437	8.3
Thermal coal	Mt	135	159	17.6	\$m	11 884	15 711	32.2
Uranium	kt	7 555	9 156	21.2	\$m	751	979	30.4
Iron ore	Mt	390	411	5.4	\$m	34 518	50 567	46.5
Metallurgical coal	Mt	157	160	1.9	\$m	24 526	32 896	34.1
Gold	t	335	349	4.2	\$m	12 996	15 647	20.4
Alumina	kt	16 653	16 711	0.4	\$m	4 969	5 479	10.3
Aluminium	kt	1 624	1 681	3.5	\$m	3 838	4 010	4.5
Nickel	kt	222	227	2.3	\$m	3 874	4 134	6.7
Copper	kt	785	882	12.4	\$m	6 506	8 750	34.5
Zinc	kt	1 485	1 610	8.4	\$m	2 217	2 318	4.6

#### Rare earths – what's in a name?

The rare earth metals, or rare earth elements (REEs), are a group of 17 chemically similar elements in the periodic table, and include scandium, yttrium and the 15 lanthanides.

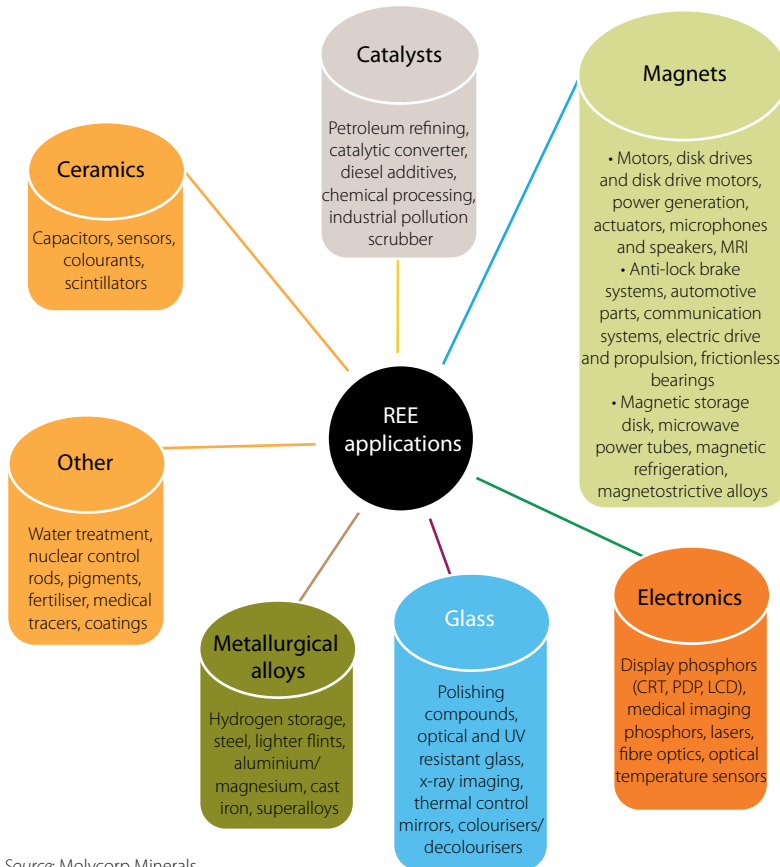
Contrary to their name, REEs are relatively abundant in the earth's crust. Cerium, used in ceramics and metallurgical alloys, is more common than copper or lead. Even the two least abundant REEs, thulium and lutetium, are nearly 200 times more common than gold.

Over the past four decades, demand for REEs has increased rapidly, with REEs playing an increasingly critical role in facilitating the emergence of high technology applications. REEs are utilised heavily in the production of magnets, which represent approximately 30 per cent of the REE market by value and 21 per cent by volume. These magnets are used in a variety of products and are essential in the production of hybrid cars, wind power turbines, energy-efficient compact fluorescent lighting, computer disk drives, mobile phones and defence systems.

continued...

Rare earths – what’s in a name? continued

Applications of REEs



Source: Molycorp Minerals.

*Relatively abundant REE resources...*

The United States Geological Survey estimates total world reserves of rare earth oxides to be 99 million tonnes. China accounts for the largest share (36 per cent) of world resources. The Bayan Obo deposit is the largest deposit in the world, producing 55 000 tonnes of REEs in 2009.

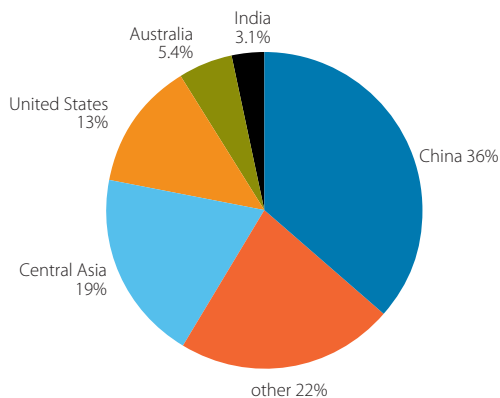
Countries in Central Asia comprise the second largest share of REE world reserves (19 per cent), with Kyrgyzstan holding significant REE reserves estimated at 51 500 tonnes.

The United States holds the third largest share of world REE reserves, representing around 13 per cent of recoverable resources. Its largest deposit is Mountain Pass in California. Until its closure in 2002, Mountain Pass was the only producing REE mine in the United States and was the primary source of world REE production before the commercialisation of the Bayan Obo deposit in China.

continued...

Rare earths – what’s in a name? continued

Estimated world REE reserves



Source: United States Geological Survey 2010.

Australia also has significant reserves of REEs, which are distributed across a range of deposit types. One of the most notable deposits is Mount Weld in Western Australia, which has a total ore reserve of 12.2 million tonnes at a relatively high grade.

*... but geological and environmental factors restrict supply...*

Despite their relative abundance, a number of geological factors constrain the supply of REE raw materials. REEs tend to be too widely dispersed to become concentrated in exploitable ore deposits. This means that REEs are rarely mined as the principal product. Rather, REEs are often obtained as a by-product or co-product of mining other

minerals. As such, production of REEs is relatively unresponsive to demand and prices could rise significantly even with small increases in consumption.

REE ores are also mineralogically and chemically complex. In contrast to other metals such as zinc, which have standardised mineral-processing practices, the production of REEs involves multiple mineral-processing phases, each requiring different extraction technologies depending on the REEs being extracted. This makes the extraction of REEs, particularly the heavy REEs (gadolinium through to lutetium, and yttrium), relatively costly. Heavy REEs are more highly valued because of their relative scarcity, and are predominantly produced in China.

Critically, monazite, the most common REE mineral, often contains thorium. The radioactivity of thorium has led to significant environmental issues in extracting REEs. For example, the presence of uranium and thorium in Malaysian REE deposits resulted in the closure of the Malaysian refineries. Other practices associated with the extraction of REEs, such as beach sand processing, have also been banned in some countries including Australia, China and countries in Europe. The closure of the REE separation plant at Mountain Pass in 2002 was linked to environmental and regulatory issues, and resulted in the United States becoming an importer of REEs.

*... resulting in concentrated production*

Owing to these geochemical, regulatory and environmental factors, there are currently a small number of deposits from which most of the world’s supply is sourced. Until the mid-1980s, the United States was the primary producer of REEs, accounting for around 60 per cent of world production. In 2002, the Mountain Pass mine in California, the sole domestic producer of REE minerals, was shut down. This, combined with the start-up of production at Bayan Obo in China, lower labour costs and less stringent environmental regulations, has allowed China to become the world’s largest producer and exporter of REEs. In 2009, China accounted for 95 per cent of world production and approximately 90 per cent of exports.

continued...

Rare earths – what’s in a name? continued

The Chinese Government has implemented policies designed to develop REEs more sustainably and to address environmental problems linked to REE production. It has expressed concerns that its reserves of medium to heavy REEs may only last 15 to 20 years at current rates of production. In 2009, around 80 REE production facilities were closed, leading to a 9 per cent decline in production from the previous year. This was followed by an announcement in July 2010 of a 79 per cent reduction in China’s export quota for the second half of 2010, or a 39 per cent reduction year-on-year from approximately 50 150 tonnes to 30 500 tonnes. In addition, China has added a 15 to 25 per cent export duty on REE exports and banned the export of 41 rare earth related processed products.

World REE production (2009)

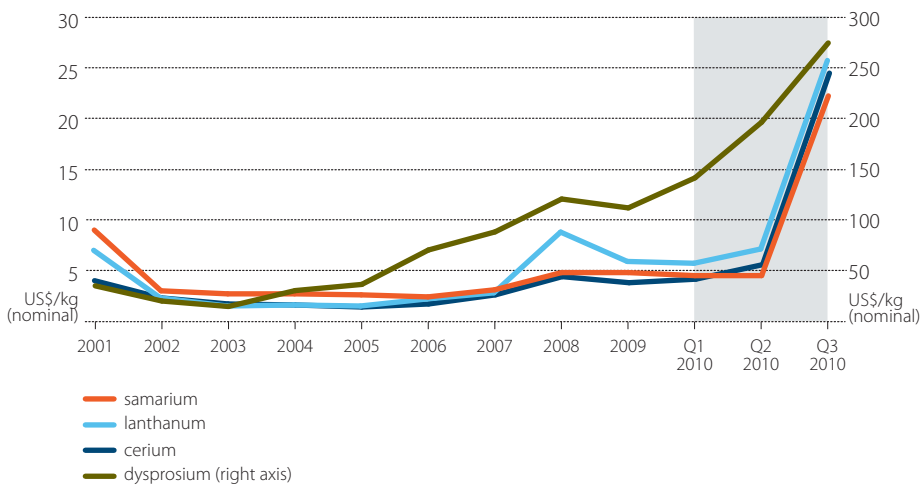
country	total REE ore production metric tonnes	share of world %
Brazil	650	0.5
China	120 000	95
CIS	2 500	2
India	2 700	2
Malaysia	380	0.3
World	126 230	100

Source: United States Geological Survey 2010.

These measures have put significant upward pressure on prices. For example, following the July 2010 announcement, the price of cerium, used in the production of ceramics, metallurgical alloys and nuclear products, recorded a 339 per cent quarter-on-quarter increase to an average of US\$24.50 a kilogram in the September quarter 2010. Dysprosium, one of the more highly valued heavy rare earth metals, increased by 40 per cent to US\$275 a kilogram over the same period.

Compounding the short-term price pressures is the long development phases of REE mines, with REE deposits taking more than five years to develop. While higher prices should encourage an advancement of REE mine developments, most REE

Rare earth prices



continued...

### Rare earths – what's in a name? continued

projects are at early stages of development. Of the 19 REE projects currently under consideration around the world, two are scheduled to start within the next two years, 10 are at an exploration stage and seven are undergoing feasibility studies.

The most advanced REE project is Lynas's Mount Weld project in Western Australia (22 000 tonnes a year), which is currently under construction and is expected to commence production in late 2011. The restart of the Molycorp Minerals' Mountain Pass mine in California in 2012 is also expected to boost world REE production, by approximately 18 150 tonnes a year.

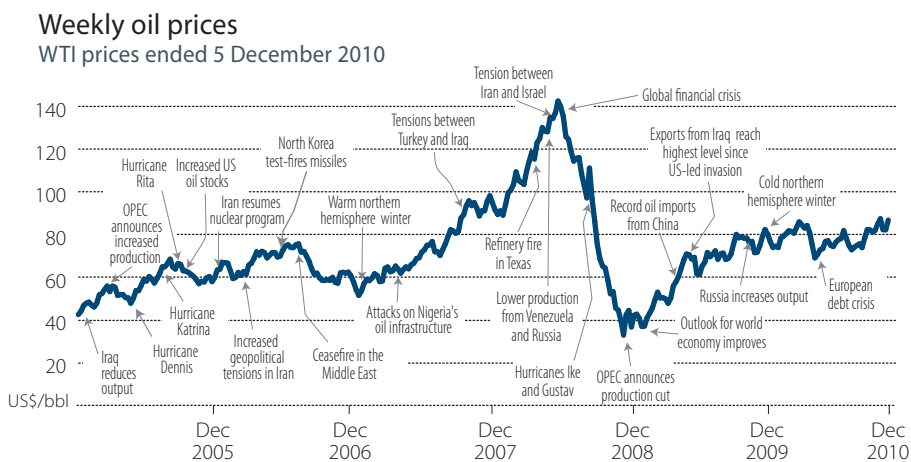
### World REE projects under construction/consideration

project	company	location	REO reserves (Mt)	ore reserves (Mt)	grade (% REO)	production (ktpa)	development stage	start-up
Mount Weld	Lynas Corporation	Australia	1.18	12.24	9.7 (2.5% cut-off)	22	construction	2011
Mountain Pass	Molycorp Minerals	USA	1.12	13.6	8.24 (5% cut-off)	18	restart expected	2012
Nolans Bore	Arafura Resources	Australia	0.85	30.3	2.8 (1% cut-off)	2.6	feasibility study	2012
Dubbo Zirconia	Alkane Resources	Australia		35.7	0.745% REO, 0.14% Y <sub>2</sub> O <sub>3</sub>	6.5	feasibility study	2012
Kvanefjeld	Greenland Minerals and Energy	Greenland	4.91	457	1.07	43.7	pre-feasibility study	2015
Hoidas Lake	Great Western Minerals Group	Canada	0.07	2.6	2.43 (1.5% cut-off)	na	pre-feasibility study	na
Nechalacho (Thor Lake)	Avalon Rare Metals	Canada	na	64.2	1.96	na	feasibility study	na
Eco Ridge	Pele Mountain Resources	Canada	0.06	na	0.41	na	feasibility study	na

# Oil and gas

Clara Cuevas-Cubria and Farah Beaini

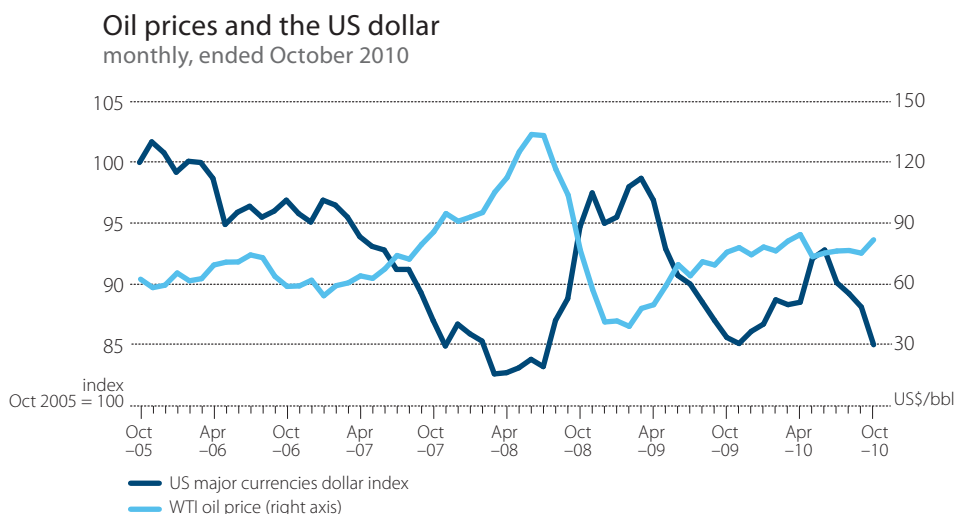
In early December 2010, oil prices in West Texas Intermediate (WTI) terms were around US\$88 a barrel, an increase of 16 per cent from the average for the September quarter 2010 and 17 per cent higher than in early December 2009. Underpinning higher prices over this period was growth in demand from developing Asian and Middle Eastern economies and a decline in the value of the US dollar. Over 2010 as a whole, oil prices are estimated to average US\$79 a barrel, an increase of 28 per cent from 2009.



In 2011, oil prices are forecast to average around US\$82 a barrel, a 4 per cent increase compared with 2010. While OECD oil consumption growth is forecast to be slower in 2011 than in 2010, the assumed weakness in the US dollar and continued growth of non-OECD oil consumption are expected to provide support for higher oil prices in US dollar terms.

## *Slower oil demand growth in 2011*

In the first nine months of 2010, world oil consumption averaged 86.9 million barrels a day, a 2.8 per cent increase from the corresponding period in 2009. The growth in oil consumption reflects improved world economic growth in 2010, and increased consumption of oil for electricity generation in China and Japan. For 2010 as a whole, world oil consumption is estimated to increase by 2.5 per cent to 87.1 million barrels a day.



World oil consumption in 2011 is forecast to increase to an average of around 88.3 million barrels a day, with most growth occurring in non-OECD economies. OECD oil consumption is forecast to fall by 0.4 per cent in 2011 as economic growth is assumed to weaken. This forecast also assumes average seasonal conditions for heating and cooling demand in major oil consuming regions.

### *Non-OECD countries drive demand growth*

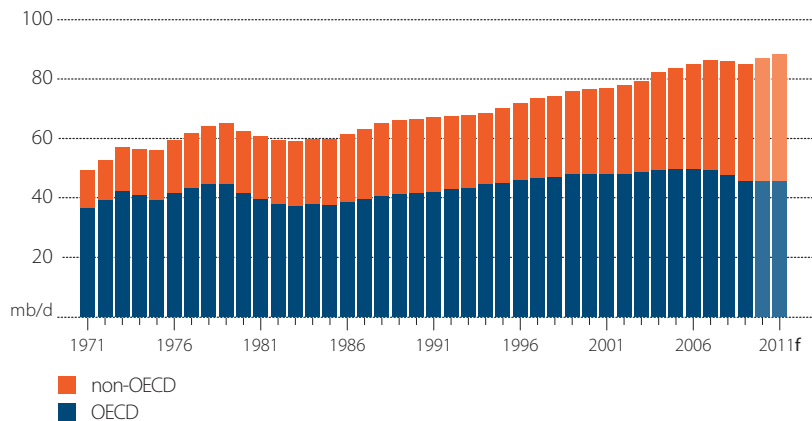
Oil consumption in non-OECD economies is estimated to increase by 4.8 per cent to 41.4 million barrels a day in 2010, reflecting stronger economic growth, particularly in developing Asia.

A rapidly growing transport sector—especially increasing personal car ownership—has underpinned higher oil demand in many developing economies. In addition, growth in demand for transport fuels has been aided by price controls on petroleum products in key oil consuming economies such as China, India and the Middle East. Government controls insulate petrol and diesel pump prices from changes in the world market, restricting the demand response to world price changes. In China, petrol and diesel guidance prices, which are set by the National Development and Reform Commission, were unchanged from June to October 2010 despite a 10 per cent increase in world oil prices in Chinese yuan terms during this period. Petrol and diesel guidance prices were raised in late October; however, the increase was only around 3 per cent.

Government-enforced shutdowns of coal-fired power stations have also contributed to stronger oil consumption in China. In an effort to meet China's energy intensity targets, the Chinese Government has enforced temporary shutdowns of coal-fired power plants since August 2010. These shutdowns have contributed to increased use of backup oil generators to provide an alternative source of electricity supply. The power plant shutdowns are expected



## World oil consumption



to be enforced until the beginning of China's next five-year plan in February 2011. Reflecting these developments, China's oil consumption is estimated to increase by around 9 per cent in 2010, to 9.2 million barrels a day. In 2011, growth in China's oil consumption is forecast to slow to around 6 per cent, reflecting assumed slower economic growth and an assumption that power plant shutdowns will end in early 2011.

In India, oil consumption is forecast to increase by 3 per cent in 2011, to 3.5 million barrels a day, supported by continued demand from the transport sector. In the first nine months of 2010 Indian motor vehicle sales increased by around 30 per cent year-on-year, contributing to strong demand growth for petroleum products.

### *Weaker OECD demand in 2011*

For the OECD as a whole, higher oil consumption in North America and North Asia in 2010 is expected to offset falling oil consumption in Europe. In 2011, OECD oil consumption is forecast to decline marginally, as a modest increase in North American consumption is more than offset by declines in consumption in Europe and North Asia.

Europe's oil consumption is forecast to decline by around 1 per cent in both 2010 and 2011, to average around 14.2 million barrels a day in 2011. Assumed weak economic growth and falling oil use intensity are both expected to contribute to lower oil consumption in Europe.

In Japan, above average summer temperatures in 2010 have contributed to an estimated 1 per cent increase in oil consumption. The above average temperatures led to strong growth in oil-fired electricity generation as natural-gas-fired capacity was not sufficient to meet total peak electricity demand. In 2011, Japan's oil consumption is forecast to fall by around 2 per cent to 4.3 million barrels a day. The fall in oil consumption reflects assumed lower economic growth and reduced use of oil for electricity generation purposes with a return to average seasonal temperatures.

## Oil and gas

In 2010, US oil consumption is forecast to increase by 1.4 per cent to average 19.1 million barrels a day. Increased personal and commercial transport demand, associated with higher economic growth (especially in the first half of the year), has supported oil demand in 2010. Oil consumption in the United States is forecast to increase only marginally in 2011, as an assumed slowdown in economic growth is expected to result in weak oil consumption growth.

### *Slower growth in world production in 2011*

World oil production is forecast to increase at a slower rate in 2011 compared with 2010, with slightly higher growth expected from OPEC than from non-OPEC countries. World oil production (including biofuels) is estimated to increase by 2.4 per cent in 2010 and by a further 1.4 per cent in 2011.

### *OPEC oil production to increase modestly*

OPEC production is estimated to increase by around 3 per cent to 34.5 million barrels a day in 2010, mainly reflecting a 10 per cent increase in natural gas liquids production. OPEC's crude oil production is not expected to change significantly over the next year, as OPEC oil production targets remained unchanged at the October 2010 ministerial meeting. Production targets are set at a total of 24.84 million barrels a day for all OPEC members except Iraq, which does not currently have a production quota. However, OPEC production has been consistently higher than the set quota.

In 2011, total OPEC production of crude oil and natural gas liquids is forecast to increase to 35 million barrels a day, reflecting continued strong growth in natural gas liquids production. Much of this growth is associated with the ramp-up of a number of Qatari gas fields, which will also underpin increased liquefied natural gas (LNG) production.

Nigeria's oil production increased significantly during the first nine months of 2010, after rebels in the Niger Delta ceased attacking oil production facilities. Production in the September quarter 2010 averaged 2.2 million barrels a day, compared with average production in 2009 of around 1.9 million barrels a day. The higher production was supported by repairs to production facilities in several oilfields and associated infrastructure following the cessation of rebel sabotage. Nigeria's oil production could continue increasing in 2011; however, rebels have threatened to resume attacks on oil production facilities in the lead-up to an election in early 2011.

### *Slower growth in non-OPEC production*

Growth in oil production from non-OPEC countries is forecast to remain modest in 2011. After an estimated 1.7 per cent increase to 52.6 million barrels a day in 2010, non-OPEC production is forecast to increase by 1.4 per cent in 2011, to 53.4 million barrels a day.

In North America, oil production is forecast to fall in 2011 because of declining fields in Mexico, reduced US production and flat Canadian production. Following an estimated 3 per cent increase in 2010, oil production in the United States is forecast to decline by 0.7 per cent to 5.4 million barrels a day in 2011. Although several new projects, such as the Great White, Chinook and Cascade fields, are scheduled to begin production by the start of 2011,

production in Alaska and the Gulf of Mexico is forecast to decline. Oil production in the Gulf of Mexico is expected to fall by between 100 000 and 160 000 barrels a day, mainly as a result of drilling delays caused by new regulations. While the moratorium on deepwater drilling was lifted on 12 October 2010, new regulations are expected to result in delays in obtaining drilling permits, which have to be approved by the new Bureau of Ocean Energy Management, Regulation and Enforcement.

Oil production in Brazil is forecast to increase by 9 per cent to 2.3 million barrels a day in 2011, supported by new fields such as Tupi. The Tupi field started production in October 2010 and is expected to ramp-up capacity to 100 000 barrels a day in 2011, with another 100 000 barrels a day planned for a second stage of the field's development.

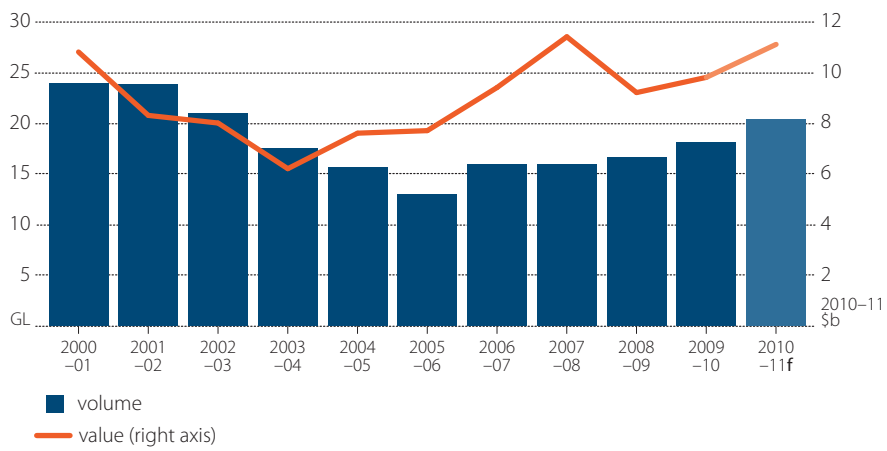
Oil production in the Russian Federation has been constrained by uncertainty in the fiscal regime for oil projects. The Russian Government is scheduled to introduce new tax arrangements for oil by mid-2011, with the aim of encouraging greater investment. Although tax breaks have been provided for some new fields to encourage production, there have been limited increases in production because of uncertainty about future tax arrangements. For example, since its completion in April 2010 production from the Yuri Korchagin project has been markedly lower than its production capacity of 50 000 barrels a day. Reflecting the potential for further project delays until mid-2011, Russia's oil production is forecast to increase by less than 1 per cent in 2011, to 10.5 million barrels a day.

### *Stronger Australian production in 2010–11*

Australia's crude oil and condensate production is forecast to increase by 14 per cent in 2010–11, to 29.2 gegalitres. Production in 2010–11 is expected to recover from flooding in the Cooper Basin that has resulted in reduced production in the first nine months of 2010. The ramp-up of the Pyrenees and Van Gogh fields, which are located in the Carnarvon Basin offshore of Western Australia, will also support higher production in 2010–11. Several new oil projects that are scheduled for completion in 2011, such as Kitan, Montara/Skua and Turrum, are not expected to begin production until the second half of the year.

Higher production from the Carnarvon Basin, which is mostly exported to Asian refineries, is forecast to result in a 13 per cent increase in Australia's oil exports in 2010–11, to 20.4 gegalitres. Reflecting an increase in export volumes and moderately higher prices, the value of oil exports in 2010–11 is forecast to increase by 17 per cent to \$11.2 billion.

Australian crude oil and condensate exports



Oil outlook

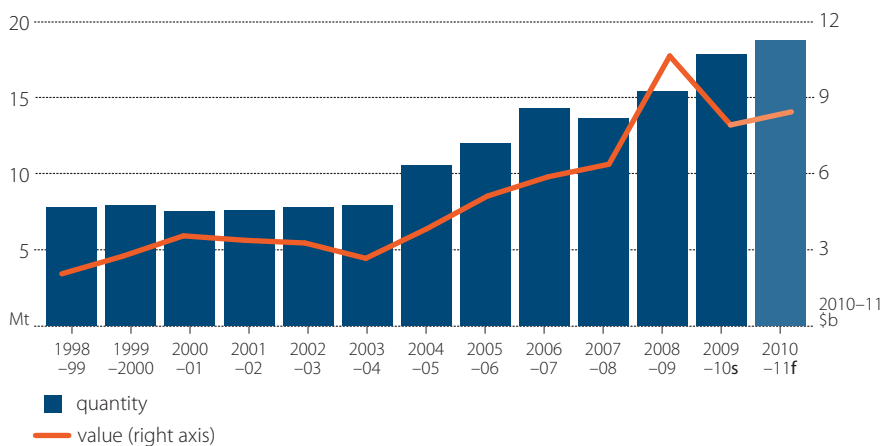
		2009	2010 f	2011 f	% change
<b>World</b>					
Production	mbd	85.1	87.1	88.3	1.4
Consumption	mbd	85.0	87.1	88.3	1.4
Trade weighted crude oil price	US\$/bbl	61	77	79	3.0
West Texas Intermediate crude oil price	US\$/bbl	62	79	82	4.0
<b>Australia</b>					
<b>Crude oil and condensate</b>					
Production	ML	26 950	25 572	29 243	14.4
Exports	ML	16 588	18 064	20 365	12.7
– value	A\$m	8 757	9 534	11 154	17.0
Imports	ML	24 302	27 284	26 114	-4.3
<b>LPG</b>					
Production	ML	3 930	4 096	4 237	3.4
Exports	ML	2 500	2 776	2 798	0.8
– value	A\$m	1 044	1 105	1 115	0.9

### Australian gas exports

In 2009–10, Australia's LNG exports reached 17.9 million tonnes, an increase of 16 per cent from the previous year. This increase reflects a full year of operation at the fifth train at the North West Shelf project. In 2010–11, Australian LNG exports are forecast to increase by a further 5 per cent to 18.8 million tonnes. Underpinning this increase is an improvement in capacity utilisation at Woodside's North West Shelf project, which rose by approximately 13 per cent to 4.3 million tonnes in the September quarter 2010.

LNG prices under long-term contracts are usually determined by a formula linked to oil prices. In 2009–10, lower oil prices at the start of the year and an appreciation of the Australian dollar against the US dollar reduced the value of Australia's LNG exports by 22 per cent to \$7.8 billion. In 2010–11, the forecast higher oil prices and export volumes are expected to underpin an 8 per cent increase in the value of Australia's LNG exports to \$8.4 billion.

### Australian LNG exports



### Gas outlook

		2008 -09	2009 -10 s	2010 -11 f	% change
<b>Australia</b>					
Production	Gm <sup>3</sup>	44.5	49.0	58.5	19.4
LNG exports	Mt	15.41	17.87	18.78	5.1
- value	A\$m	10 079	7 789	8 437	8.3

# Thermal coal

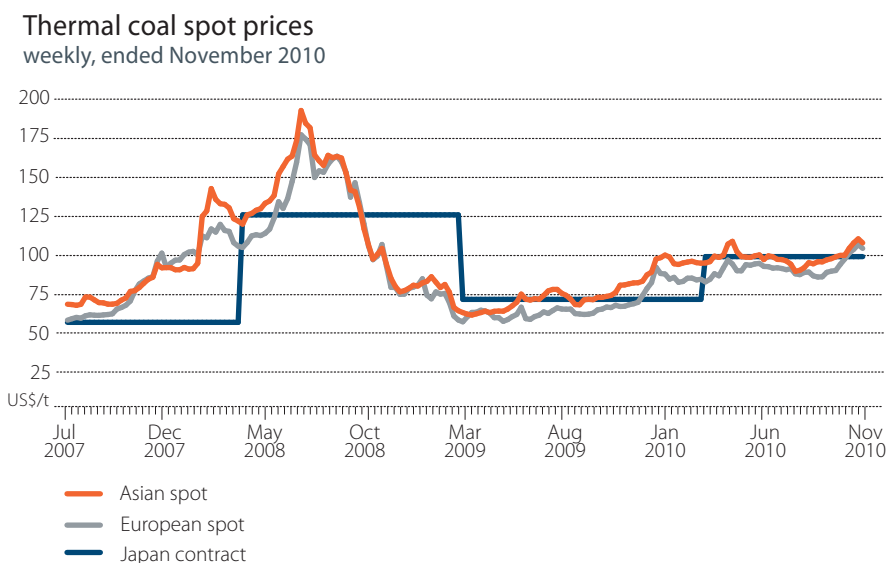
Michael Lampard and Alan Copeland

In 2011, growing import demand from China and India is expected to support world seaborne thermal coal trade. In these two countries, the scheduled expansion of coal-fired electricity capacity is forecast to result in consumption of thermal coal increasing at a faster rate than respective domestic production. Accompanying increased demand for seaborne thermal coal in 2011 are forecast higher exports from Australia, the Russian Federation and Indonesia. Forecast strong import demand in 2011 is expected to support thermal coal spot prices at around US\$100 a tonne throughout 2011.

## *Thermal coal spot prices increasing*

Newcastle thermal coal spot prices are estimated to average around US\$98 a tonne in 2010, supported by demand from Japan and the Republic of Korea and strong import growth from China and India. Strong demand growth from Asia throughout 2010 has also provided some support to Richards Bay spot prices in South Africa, as low freight rates have encouraged some suppliers in the Atlantic market to export into the Pacific market. Reflecting this, the difference between the Newcastle (Pacific) and Richards Bay (Atlantic) spot prices at the end of 2010 has narrowed to less than US\$5 a tonne, compared with US\$10 a tonne at the start of 2010.

In 2011, strong import demand growth from China and India is forecast to further support thermal coal spot prices. Increased demand for thermal coal, combined with forecast higher oil and gas prices in 2011, is expected to result in Newcastle spot prices averaging marginally higher at around US\$100 a tonne in 2011. In line with forecast higher spot prices, Australian coal suppliers and Japanese power utilities are expected to settle thermal coal contract prices at US\$105 a tonne for Japanese Fiscal Year 2011 (JFY, April 2011 to March 2012). If achieved, this would be around 7 per cent higher than the JFY 2010 price of US\$98 a tonne.



### *Thermal coal imports to increase*

In 2010, world thermal coal trade is estimated to total 758 million tonnes, an increase of 5 per cent from 2009. The strong increase in trade has been supported by strong import growth in Asia, particularly in China, Japan, the Republic of Korea and India.

The increased import demand in Asia in 2010 has underpinned export growth in Australia, Indonesia, the Russian Federation and Colombia. Trade in the Atlantic market has fallen in 2010, reflecting weak demand in Europe and the United States.

World thermal coal trade in 2011 is forecast to increase by around 5 per cent to 792 million tonnes, supported by continued strong import demand from Asia combined with a moderate increase in European import demand. Indonesia, Australia and the Russian Federation are forecast to supply most of the growth in seaborne thermal coal trade.

### *China's imports continue to grow*

In the first 10 months of 2010, China's thermal coal imports were 98 million tonnes, an increase of 40 per cent compared with the same period in 2009. For 2010 as a whole, China's thermal coal imports are estimated to total around 120 million tonnes.

Most of this coal is imported for consumption in China's southern coastal region. Throughout 2010, imports into China have been supported by a combination of increased electricity generation, relatively high domestic coal prices and bottlenecks in important coal transport corridors in the north of the country. In addition, low international freight rates have contributed to the competitiveness of imported coal compared with domestically produced coal.

While China's thermal coal production has increased during 2010, it has been unable to match the pace of growth in domestic demand. Domestic production growth has been limited by the closures of a number of small locally owned mines, many of which have been shut down for safety reasons and as part of the Chinese Government's policy of consolidating the coal industry.

In 2011, China's coal demand is forecast to increase at a slower rate than in 2010 as a result of assumed slower economic growth and hence weaker energy consumption growth. China's thermal coal imports are forecast to increase by 4 per cent to 125 million tonnes. The slower rate of import growth compared with 2010 reflects anticipated higher domestic production and the gradual easing of infrastructure bottlenecks.

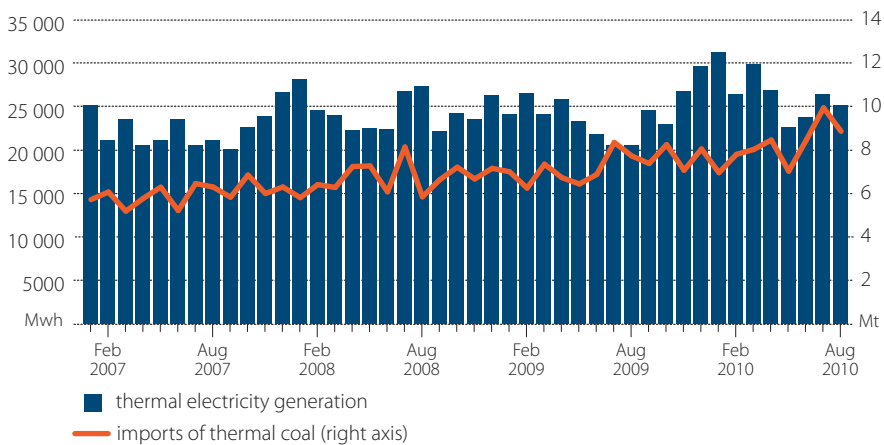
India's imports of thermal coal are estimated to increase by 23 per cent to 60 million tonnes in 2010 as domestic production growth has failed to keep pace with demand growth. In 2011, India's imports are forecast to increase by 28 per cent to 77 million tonnes, making it one of the fastest growing thermal coal import markets. This forecast growth in imports in 2011 reflects the start-up of coal-fired electricity generation capacity in 2010. Many of these coal-fired power stations will rely on imported thermal coal because of its higher quality characteristics and supply reliability relative to domestically produced coal.

## Thermal coal

### *Japan and the Republic of Korea's imports to remain steady*

Japan's imports of thermal coal are estimated to increase by 14 per cent to 128 million tonnes in 2010. Strong growth in imports is attributable to increased electricity generation in the second half of 2010 and some restocking activity that took place earlier in the year. In 2011, any increase in demand for electricity is expected to be met by higher utilisation of nuclear capacity, supported by the phased restart of the Kashiwazaki-Kariwa reactor (8.2 gigawatt capacity), which commenced in 2010. As a result, thermal coal imports are forecast to remain steady at around 128 million tonnes in 2011.

### Republic of Korea's thermal electricity generation



The Republic of Korea's thermal coal imports are estimated to total 99 million tonnes in 2010, an increase of 20 per cent on 2009. In the first eight months of 2010, Korean thermal electricity generation increased by 14 per cent year-on-year. Thermal electricity generation has been supported by increased electricity consumption and expansions to coal-fired generating capacity in 2008 and 2009. In 2011, the Republic of Korea's thermal coal imports are forecast to increase slightly to 100 million tonnes as economic growth, and thus growth in electricity consumption, is assumed to slow.

### *Europe's thermal coal imports to decline*

In 2010, Europe's imports of thermal coal are estimated to decrease by 14 per cent to 175 million tonnes. The largest declines in thermal coal imports have occurred in the United Kingdom and Spain, where imports have fallen by 53 per cent and 49 per cent, respectively, in 2010. Offsetting some of this decline has been small increases in imports by Germany and France, in line with improved economic activity.

Europe's thermal coal imports are forecast to increase by 5 per cent to 184 million tonnes in 2011. Most of this growth is expected to occur in the key importing countries of Germany, the United Kingdom and France, in line with assumed moderate growth in economic activity.



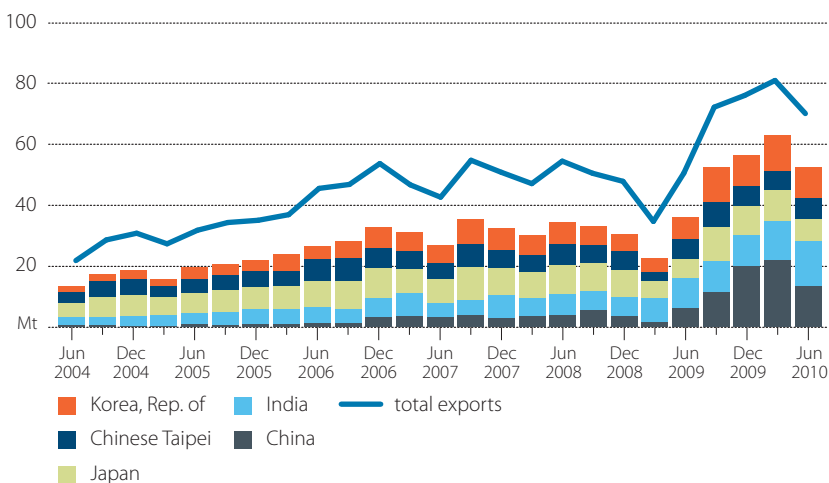
Despite forecast growth in Europe's thermal coal import demand, imports in 2011 are forecast to remain 22 per cent below the record highs achieved in 2007.

### *Exports from Indonesia and the Russian Federation increasing*

Indonesia's exports are estimated to increase by 11 per cent to 260 million tonnes in 2010 and are forecast to rise by a further 4 per cent to 270 million tonnes in 2011. In the six months to June 2010, Indonesia's exports of thermal coal increased by 77 per cent to 151 million tonnes as unseasonably dry weather and strong demand from Asia supported export growth. Since June 2010, slowing demand growth from traditional North Asian markets and wet weather has reduced Indonesia's exports. For example, exports to China in the September quarter 2010 declined by 7 per cent to 12.4 million tonnes compared with the June quarter 2010. In 2011, Indonesia's thermal coal exports are forecast to be underpinned by import demand from India and other countries in developing Asia.

Thermal coal exports from the Russian Federation are estimated to increase by around 5 per cent to 87 million tonnes in 2010. Despite weak import demand from Europe, Russian exports of thermal coal have increased throughout 2010 as strong demand from Asia, combined with increased export capacity in the Russian Federation's east, has supported exports. Expansions to coal export capacity include the recently completed 11 million tonne Vanino Coal Terminal and the modernisation of the Vostochny Coal Terminal. Once fully operational in 2011, these terminals are expected to add around 14 million tonnes a year to the Russian Federation's east coast export capacity. In line with higher export capacity, a gradual recovery in import demand from Europe and growing demand from Asia, Russian exports of thermal coal are forecast to increase by 6 per cent to 93 million tonnes in 2011.

### Indonesia's thermal coal exports and major destinations



## Thermal coal

### *Modest growth from South Africa and Colombia in 2011*

In 2010, South Africa's exports of thermal coal are forecast to remain broadly stable at around 66 million tonnes as increased exports to China and India have offset weak import demand in the Atlantic market. Supply chain problems and industrial action in the first half of 2010 also limited coal export growth. In 2011, thermal coal exports are forecast to increase by 6 per cent to 70 million tonnes as continued strong import growth from India and increasing demand in the Atlantic market underpin exports. The completion of the Phase V expansion project at the Richards Bay Coal Terminal in 2010 is also expected to support increased coal exports.

In the first 10 months of 2010, Colombia's exports of thermal coal increased by 17 per cent to 60 million tonnes. Thermal coal exports have increased in 2010, despite weak import demand from North America and Europe, as low freight rates have encouraged exports to Asia. In the first nine months of 2010, Colombia's exports of thermal coal to Asia reached 8 million tonnes or 13 per cent of total exports. For 2010 as a whole, Colombia's thermal coal exports are estimated to increase by 12 per cent to 71 million tonnes.

In 2011, Colombia's thermal coal exports are forecast to reach 72 million tonnes as moderate growth in import demand in the Atlantic market more than offsets an expected decline in exports to Asia. Colombia's exports to Asia are forecast to decline in 2011, reflecting an increase in supply from the Pacific market.

### *Australia's thermal coal exports to increase in 2010–11*

In 2010–11, Australia's thermal coal production is forecast to increase by 17 per cent to 228 million tonnes. Supporting Australia's thermal coal production is the completion of significant coal mine capacity in 2010 and 2011. Recently completed coal mines include Xstrata's Blakefield South, Syntech Resources' Cameby Downs, Rio Tinto's Clermont open cut and Whitehaven Coal's Narrabri Coal Project. In addition, BHP Billiton's Mount Arthur open cut, Xstrata's Mangoola and Yancoal Australia's Moolarben Stage 1 projects are expected to be completed in 2010–11. Expanded port capacity in New South Wales is forecast to encourage a number of coal producers to increase capacity utilisation at existing mines.

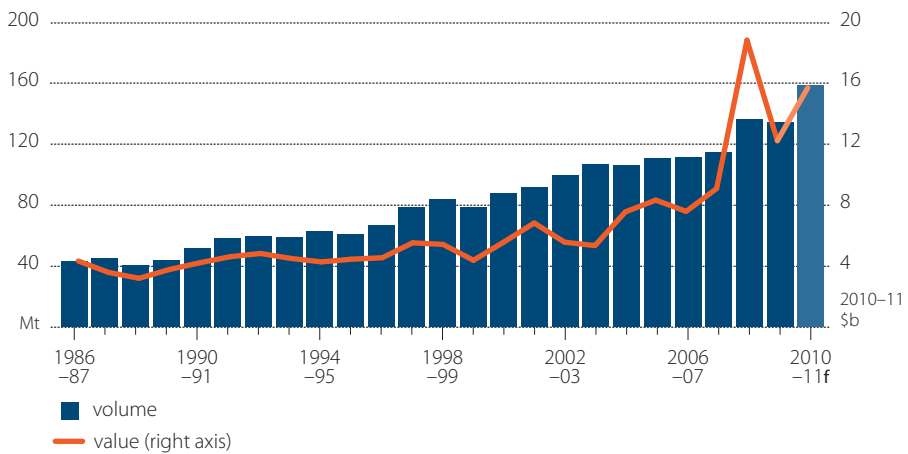
### **New Australian thermal coal mine capacity, 2010 and 2011**

mine	company	state	start-up	capacity (Mt)
Blakefield South	Xstrata / Nippon Steel	NSW	2010	replacement capacity
Cameby Downs	Syntech Resources	Qld	2010	1.4
Clermont open cut	Rio Tinto	Qld	2010	12
Narrabri Coal Project	Whitehaven Coal	NSW	2010	1.5
Moolarben Stage 1	Yancoal Australia	NSW	2010	8
Mount Arthur open cut	BHP Billiton	NSW	2011	3.5
Mangoola	Xstrata	NSW	2011	8

During 2010–11, the Newcastle Coal Infrastructure Group Coal Terminal (annual capacity of 30 million tonnes) and the expansion to the Port Waratah Coal Services Kooragang Island Coal Terminal (annual capacity of 11 million tonnes) are scheduled to approach full capacity. The completion of these infrastructure projects, combined with the commissioning of mines in New South Wales and Queensland, is forecast to support an 18 per cent increase in thermal coal exports to 159 million tonnes.

In 2010–11, the value of Australia’s thermal coal exports is forecast to increase by 32 per cent to \$15.7 billion, supported by higher export prices and volumes.

Australia’s thermal coal exports



## Thermal coal

### Thermal coal outlook

		2009	2010 f	2011 f	% change
<b>Contract prices b</b>					
Thermal coal c	US\$/t	70.4	98.0	105.0	7.1
<b>World</b>					
Total trade	Mt	720.8	757.8	792.2	4.5
<b>Imports</b>					
Asia	Mt	444.2	511.2	539.3	5.5
– China	Mt	92.1	119.8	125.0	4.3
– Chinese Taipei	Mt	59.4	55.0	57.0	3.6
– India	Mt	48.6	60.0	77.0	28.3
– Japan	Mt	112.5	128.0	128.0	0.0
– Korea, Rep. of	Mt	82.4	99.0	100.0	1.0
– Malaysia	Mt	16.1	16.4	16.8	2.4
– other Asia	Mt	33.1	33.0	35.5	7.6
Europe	Mt	203.1	175.2	184.2	5.1
– European Union 27	Mt	166.5	136.8	145.8	6.6
– other Europe	Mt	36.6	38.4	38.4	0.0
Other	Mt	73.5	71.5	68.6	-4.1
<b>Exports</b>					
Australia	Mt	139.1	143.5	161.9	12.8
China	Mt	21.5	19.0	19.5	2.6
Colombia	Mt	63.4	71.2	72.0	1.1
Indonesia	Mt	233.5	260.0	270.0	3.8
Russian Federation	Mt	83.5	87.4	93.0	6.4
South Africa	Mt	66.9	65.7	70.0	6.5
United States	Mt	19.6	21.3	22.0	3.3
Other	Mt	93.3	89.8	83.8	-6.7
		<b>2008</b>	<b>2009</b>	<b>2010</b>	
		<b>-09</b>	<b>-10 s</b>	<b>-11 f</b>	
<b>Australia</b>					
Production	Mt	203.6	195.5	227.9	16.6
Exports	Mt	136.4	135.0	158.8	17.6
– value	A\$m	17 885	11 884	15 711	32.2

b Japanese Fiscal Year, starting April 1, fob Australia basis, ABARES Australia–Japan average contract price assessment.

c For steaming coal with a calorific value of 6700 kcal/kg (gross air dried).

# Metals

## Steel and steel-making raw materials

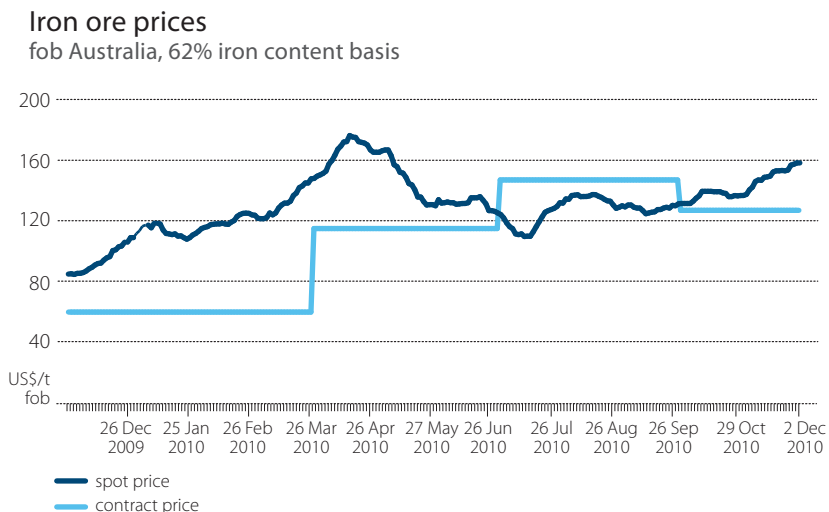
Robert New and Alan Copeland

Global demand for steel and its raw material inputs (iron ore and metallurgical coal) is forecast to increase strongly in 2011, building on strong growth in 2010. Although the effect of various government stimulus packages is expected to ease in 2011, this is expected to be more than offset by an improvement in private consumption in developing economies. As worldwide government investment in infrastructure slows, higher steel consumption in the property construction sectors and in the manufacture of steel-intensive consumer durables will underpin growth in demand over the remainder of the forecast period.

World trade of both iron ore and metallurgical coal is forecast to increase in 2011, mirroring growth in the steel sector. A major proportion of this trade is expected to flow to China, where assumed strong economic growth will underpin increases in steel production in 2011. Australian and Brazilian producers of iron ore and Australian producers of metallurgical coal are expected to remain the major suppliers of these commodities on the seaborne traded market.

### Prices

In the March quarter 2011, contract prices for iron ore are assumed to increase by 8 per cent to US\$137 a tonne for 62 per cent iron content ore shipped from Australia. Under this assumption, the average price for Japanese Fiscal Year 2010 (JFY, April 2010 to March 2011) will be US\$132 a tonne, representing a 119 per cent increase on the contract price from JFY 2009. In JFY 2011, recently completed projects in Australia are expected to increase seaborne supply, which, in combination with weaker growth in demand from steel producers in Asia, is forecast to place downward pressure on iron ore prices. As a result, the JFY 2011 contract price is forecast to average around US\$123 a tonne, representing a 7 per cent decline year-on-year.



## Steel and steel-making raw materials

Contract prices for premium-quality hard coking coal will average US\$215 a tonne for JFY 2010, representing a 68 per cent increase on the contract price for JFY 2009. This reflects demand, associated with strong growth in steel production, increasing at a faster rate than supply. The March quarter 2011 price is expected to increase by 8 per cent to US\$225 a tonne, as weather-related supply disruptions from Queensland in late 2010 and concerns of a severe cyclone season on Australia's east coast in early 2011 are encouraging steel mills to build stocks of metallurgical coal.

In JFY 2011, prices are forecast to increase by a further 2 per cent to average US\$220 a tonne. This represents continuing growth in demand, building on growth associated with economic recovery in JFY 2010, without a proportionate response from producers supplying the seaborne traded market. Few metallurgical coal expansions have recently been completed, or are scheduled for completion within the outlook period, and this is likely to result in limited additional supply in the metallurgical coal market and continuing upward pressure on prices over the forecast period.



## Steel

In 2010, world steel consumption is estimated to increase by 11 per cent to 1.3 million tonnes. The world's three largest steel consumers—China, the European Union and the United States—all recorded strong consumption growth, reflecting the effect of stimulus packages designed to support economic activity. Steel consumption growth slowed in the second half of 2010 as many stimulus packages in the United States and the European Union ran their course and the Chinese Government implemented measures to cool its rapidly growing economy.

**World steel outlook (Mt)**

	2008	2009	2010 s	2011 f
<b>Crude steel consumption</b>				
European Union 27	198	129	147	155
United States	102	62	81	87
Brazil	27	21	25	26
Russian Federation	41	28	29	31
China	453	565	616	647
Japan	83	57	62	65
Korea, Rep. of	61	47	52	54
Chinese Taipei	20	14	15	16
India	54	58	66	75
World steel consumption	1 303	1 209	1 336	1 410
<b>Crude steel production</b>				
European Union 27	198	137	173	182
United States	91	58	81	89
Brazil	34	27	33	37
Russian Federation	69	60	66	69
China	502	568	630	674
Japan	119	88	110	121
Korea, Rep. of	53	49	57	61
Chinese Taipei	20	16	23	24
India	55	57	66	73
World steel production	1 330	1 220	1 416	1 517

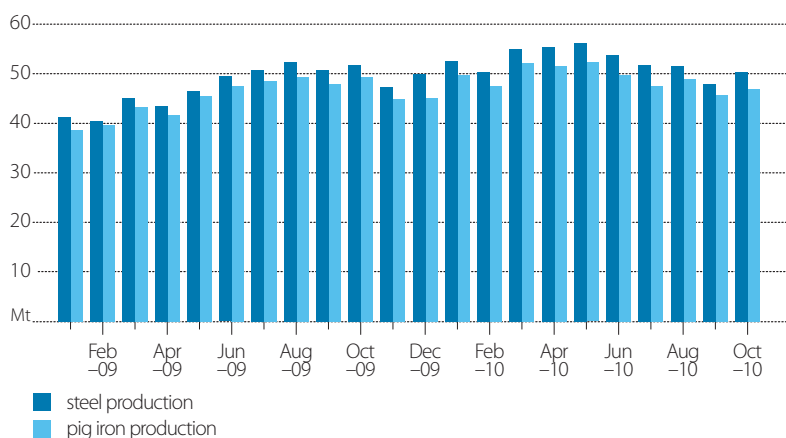
Steel consumption growth is forecast to moderate in 2011 as Chinese economic growth slows and austerity measures are implemented in a number of European economies. World steel consumption in 2011 is forecast to increase by 6 per cent to 1.4 billion tonnes.

*China to remain the largest producer and consumer of steel in 2011*

In 2010, China's steel consumption is estimated to increase by around 9 per cent to 616 million tonnes. This is equivalent to around 46 per cent of world steel consumption. The strong growth in consumption reflects the effect of stimulus packages that encouraged the construction of railways, roads and other steel-intensive infrastructure. During 2010, residential and commercial construction activity also increased, which supported

demand for steel. During the second half of the year, China's steel consumption growth has slowed as the government took action to reduce the pace of investment in fixed assets.

**China's steel production**



## Steel and steel-making raw materials

In 2011, China's steel consumption is forecast to increase by 5 per cent to 647 million tonnes. The slower rate of growth compared with 2010 reflects the assumption that policies aimed at slowing China's economic growth will continue into 2011.

In the OECD, steel production has increased strongly during 2010, following a significant fall in 2009. In the United States, the European Union and Japan, steel consumption is estimated to increase by 31 per cent, 14 per cent and 9 per cent, respectively. In addition to stronger demand for finished products, steel consumption has been supported by manufacturers rebuilding stocks during the year. Stocks were drawn down in 2009 as demand fell because of the economic downturn.

In 2011, the winding back of stimulus packages in the United States and austerity measures in a number of European economies are expected to result in slower growth in OECD steel consumption. In the United States, the European Union and Japan, steel consumption is forecast to increase by 7 per cent, 5 per cent and 5 per cent, respectively.

Reflecting developments in steel consumption, steel production increased strongly in 2010; however, this growth is forecast to moderate in 2011. World steel production in 2010 is estimated to increase by 16 per cent to 1.4 billion tonnes. In 2011, world steel production is forecast to increase by 7 per cent to 1.5 billion tonnes.

China's steel production in 2010 is estimated to increase by 11 per cent to 630 million tonnes. This represents around one-third of the total estimated increase in world steel production. Most of this growth occurred in the first half of 2010, while in the second half of the year China's steel production has been affected by weaker consumption growth and the forced production cutbacks at some steel mills to meet energy intensity targets. In 2011, China's steel production is forecast to increase by 7 per cent to 674 million tonnes, reflecting a lower growth rate compared with 2010 in line with the forecast weaker consumption growth.

In the OECD, steel production increased in the United States (40 per cent), the European Union (26 per cent) and Japan (25 per cent) in 2010. The increased steel production in these economies was largely the result of higher capacity utilisation of existing steel mills. In 2011, OECD steel production growth is forecast to moderate in line with steel consumption. In the United States, Japan and the European Union, steel production is forecast to increase by 10 per cent, 10 per cent and 5 per cent, respectively.

## Iron ore

Over the course of 2010, demand for iron ore has been buoyed by higher steel production, as a result of both continuing growth in China and the recovery in production in many developed economies. In 2010, world trade of iron ore is estimated to increase by 10 per cent to a record of 1 billion tonnes.

In 2011, demand is forecast to increase further, reflecting economic growth in steel-making economies. However, growth in demand is forecast to be slower in 2011 than in 2010, as the effects of government stimulus are reduced. World trade of iron ore in 2011 is forecast to increase by 5 per cent to 1.1 billion tonnes.



## Outlook for world iron ore trade (Mt)

	2008	2009	2010 s	2011 f
<b>Iron ore imports</b>				
European Union 27	163	92	135	147
Japan	140	106	133	144
China	444	628	608	629
Korea, Rep. of	50	42	52	56
Chinese Taipei	16	12	18	18
World imports	897	948	1 041	1 098
<b>Iron ore exports</b>				
Australia	309	363	397	435
Brazil	274	266	306	330
India	106	116	114	112
Canada	28	31	34	34
South Africa	33	45	47	52
Sweden	18	16	14	15
World exports	897	948	1 041	1 098

*China remains a major importer of iron ore*

China is estimated to import 608 million tonnes of iron ore in 2010, representing a 3 per cent fall on the previous year. The fall in imports reflects an estimated 19 per cent increase in domestic iron ore production, reducing China's reliance on imports. Further large falls in iron ore imports look unlikely at this stage, given the Chinese Government's efforts to increase the industry's efficiency by shutting down smaller, inefficient operations.

China's steel-makers are also increasingly demanding higher quality iron ore. China's domestic reserves are of lower grade compared with ore imported from Australia, Brazil or India. Therefore, increased demand for higher quality inputs will provide support for the seaborne traded market.

In 2011, China's imports of iron ore are forecast to increase by 3 per cent to 629 million tonnes. The increase reflects continuing demand from government infrastructure projects funded from economic stimulus, and continually improving private consumption in line with economic growth.

*Developed economies build further on recovery in 2010*

Developed economies such as Japan, the Republic of Korea, Chinese Taipei and the European Union are significant importers of iron ore. However, these countries were also the most significantly affected by the global economic slowdown, and their imports fell markedly in 2009. In 2010, imports by developed economies have increased strongly in response to higher demand from steel-makers as idled production capacity was restarted, and an improvement in economic conditions has lifted demand for steel.

In 2010, imports are estimated to increase in a number of developed economies, including the European Union (47 per cent), Japan (25 per cent) and the Republic of Korea (24 per cent). This increase has largely been used for steel production in existing mills as they were restarted. In 2011, imports by these countries are forecast to increase further, by 9 per cent, 8 per cent and 8 per cent, respectively. The slower growth rate reflects the forecast slower growth in steel production.

## Steel and steel-making raw materials

### *Australia and Brazil to increase iron ore market share in 2011*

While exports from the major exporting countries (Australia and Brazil) have increased, a ban on exports from some Indian states has placed upward pressure on prices during the second half of 2010.

In response to historically high prices for iron ore, producers in Australia and Brazil are expected to maximise the volumes exported over the course of 2011. As a result, these countries are forecast to increase exports by 10 per cent and 8 per cent, respectively, collectively accounting for a forecast 68 per cent of the world traded market in 2011.

Recently completed projects, and projects scheduled for completion in early 2011, are the main contributors to the forecast increase in Australia's exports in 2011. Projects such as Rio Tinto's Brockman 4 and Mesa A, Fortescue Metals Group's expansion at Chichester Hub and the planned completion of Gindalbie Metals' Karara project are expected to ramp-up throughout 2011, increasing exports from Western Australia.

In the September quarter 2010, Vale—Brazil's largest iron ore producer—increased production substantially. This was underpinned by record high production from the Carajas operation, following the completion of a 10 million tonne annual capacity expansion in 2010 and full capacity production at its pellet plants. In 2011, Brazil's iron ore exports are forecast to increase by 8 per cent to 330 million tonnes, underpinned by production at full capacity across all operations, including at the recently expanded Carajas mine.

India's export ban in the state of Karnataka could limit supply to the seaborne market over the remainder of 2010 and throughout 2011. In November 2010, the High Court of Karnataka upheld an order banning shipments of iron ore. The ban is likely to affect Indian iron ore exports into 2011, restricting seaborne supply and placing upward pressure on iron ore prices. If the ban is lifted early in 2011, world supply will increase, resulting in an easing of iron ore prices.

## Metallurgical coal

### *India and China placing extra pressure on world metallurgical coal supply*

In 2011, world trade of metallurgical coal is forecast to increase by 5 per cent to 259 million tonnes, following 17 per cent growth in 2010. Demand for traded metallurgical coal has traditionally been supported by developed economies such as the European Union, Japan and the Republic of Korea. However, in recent years imports by India and China have increased, further increasing demand for traded metallurgical coal.

In 2011, imports by the Republic of Korea, Japan and the European Union are forecast to increase by 14 per cent, 8 per cent and 4 per cent, respectively, reflecting continuing economic growth as the result of a recovery in 2010. There is further potential for growth in metallurgical coal imports as steel-makers continue to ramp-up to full capacity.

**Outlook for world metallurgical coal trade (Mt)**

	2008	2009	2010 s	2011 f
<b>Metallurgical coal imports</b>				
European Union 27	57	41	46	48
Japan	57	46	53	57
China	7	34	44	45
Korea, Rep. of	24	15	22	25
Chinese Taipei	5	4	7	7
India	29	23	25	27
Brazil	11	9	12	13
World imports	236	211	246	259
<b>Metallurgical coal exports</b>				
Australia	135	135	159	162
Canada	27	22	25	27
United States	39	34	34	34
Russian Federation	14	13	18	21
World exports	236	211	246	259

India and China account for more than one-quarter of world metallurgical coal imports and are forecast to contribute to higher demand in 2011.

The volume of imports by China depends largely on the ability of domestic coal producers to supply Chinese steel mills at a competitive price. If domestic suppliers face constraints, such as infrastructure bottlenecks or weather-related supply disruptions in the winter season, this will increase demand for imports. In addition, if steel mills continue to increase demand for higher quality coal with fewer impurities, demand for higher quality imports

will increase relative to that for lower quality domestically produced coal. Reflecting an assumption of some seasonal supply disruptions and a continuing trend toward higher quality inputs in the steel-making process, China's imports of metallurgical coal in 2011 are forecast to increase by 2 per cent to 45 million tonnes.

India's metallurgical coal imports in 2011 are forecast to increase by 8 per cent to 27 million tonnes, after an estimated rise of 9 per cent in 2010. This largely reflects government-led expansion of the steel sector, and limited domestic reserves of sufficiently high-quality metallurgical coal.

***Australia to remain a major metallurgical coal exporter***

Australia is expected to continue to dominate world traded metallurgical coal supply, and is estimated to account for almost two-thirds of world trade in 2010. In 2010, Australia's metallurgical coal exports increased by 18 per cent to 159 million tonnes. However, growth in Australia's exports of metallurgical coal in 2011 is forecast to be relatively modest as few significant projects have been completed recently or are scheduled for completion in the next 12 months. In 2011, Australia's exports are forecast to increase by 2 per cent to 162 million tonnes.

Canada's exports in 2010 are estimated to total 25 million tonnes, an increase of 14 per cent on the previous year. The increase in exports was underpinned by strong demand from East Asian economies, particularly Japan, China and the Republic of Korea. In 2011, Canada's exports of metallurgical coal are forecast to increase by 8 per cent to 27 million tonnes. This reflects continuing expansions at Teck's operations, and a continuation of volume-maximising, rather than cost-minimising, production strategies.

## Steel and steel-making raw materials

In the first nine months of 2010, exports from the Russian Federation increased by 61 per cent compared with the same period in 2009. This increase is largely a result of increased export capacity on the eastern coast, including at SUEK's Vanino 11 million tonne annual capacity port, completed in early 2010, and a capacity upgrade at Vostochny as part of a modernisation project. In 2011, Russian exports are forecast to increase by 17 per cent to 21 million tonnes.

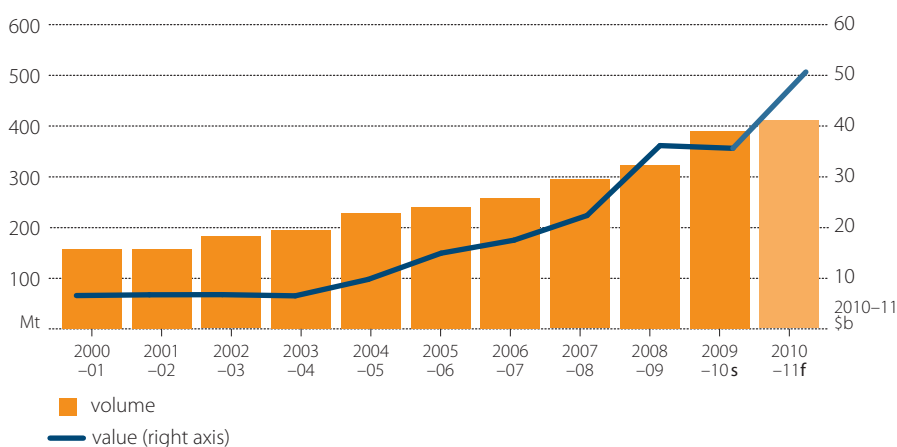
Although there are prospects for additional supply from greenfield developments, such as those in Mongolia and Mozambique, these projects are unlikely to contribute significantly to world supply in 2011. Vale is on schedule to complete the Moatize project in Mozambique in mid-2011; however, long ramp-up times associated with the development of new mines and associated infrastructure suggest that this additional supply will not reach full capacity in 2011.

### Australian exports

On a financial year basis, in 2010–11, Australia's exports of iron ore are forecast to increase by 5 per cent to 411 million tonnes, largely as a result of recently completed projects in the Pilbara region of Western Australia. These include projects from Rio Tinto, BHP Billiton and Fortescue Metals Group. While there are further projects scheduled for completion in early 2011, these are unlikely to contribute significantly to exports in the current financial year.

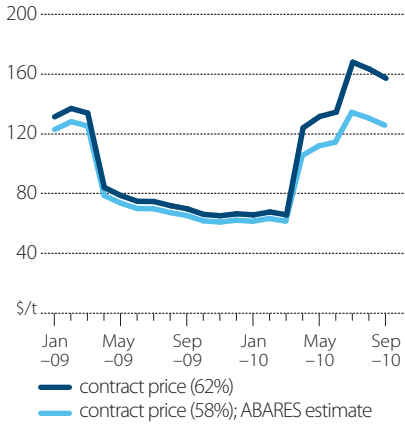
The increase in world iron ore prices is forecast to markedly outweigh the effect of an assumed appreciation of the Australian dollar against the US dollar, resulting in an increase in Australian export unit values. In 2010–11, the combination of a higher unit value and higher volumes will result in a 47 per cent increase in Australia's export earnings from iron ore to \$51 billion.

### Iron ore exports



Although the price for 62 per cent iron content ore has increased strongly over the second half of 2010, the increase in 58 per cent iron content ore, as a proportion, has been smaller. While some of Australia's iron ore exports are priced on a 62 per cent iron content basis, the average

**Iron ore prices**  
fob Australia

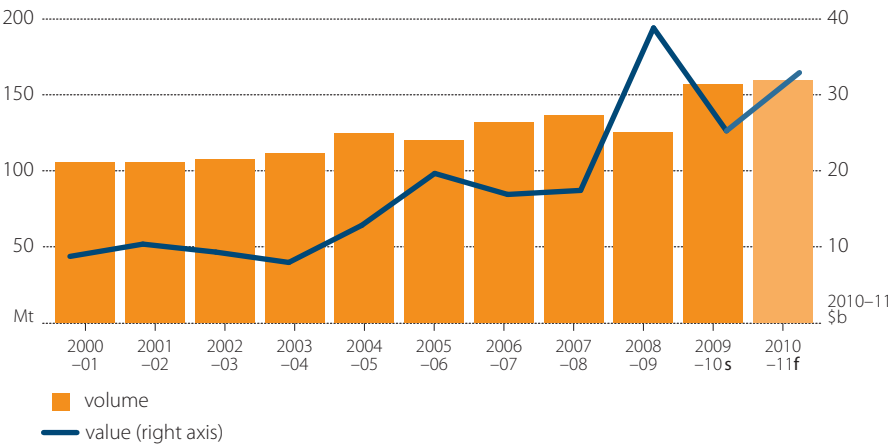


iron content is better represented by the 58 per cent content price. As a result, strong increases in headline 62 per cent iron content prices have not fully translated to Australia’s export earnings from iron ore. Rather, the more modest increases in the 58 per cent iron content price are more reflective of increases in the average Australian export price.

In 2010–11, Australia’s metallurgical coal exports are forecast to increase by 2 per cent to 160 million tonnes. Growth in Australia’s metallurgical coal export volumes could be influenced by weather-related disruptions. In the December quarter, production at a number of mines was affected by unseasonal rain. In addition, the Bureau of Meteorology forecasts an above average likelihood of tropical cyclones over the forthcoming Australian summer, which has the potential to disrupt rail transport and coal loading at Queensland ports.

Higher contract prices in 2010–11, in addition to higher volumes, are forecast to support a 34 per cent increase in Australia’s metallurgical coal export earnings to \$33 billion.

**Metallurgical coal exports**



## Steel and steel-making raw materials

### Outlook for steel and steel-making raw materials

		2009	2010 f	2011 f	% change
<b>Contract prices b</b>					
Iron ore c	US\$/t	60	132	123	-6.5
Metallurgical coal d	US\$/t	128	215	220	2.4
		2008	2009	2010	
		-09	-10 s	-11 f	
<b>Australia</b>					
<b>Production</b>					
Iron and steel s	Mt	5.57	6.89	7.93	15.1
Iron ore	Mt	353.0	423.4	443.2	4.7
Metallurgical coal	Mt	129.8	163.1	166.0	1.8
<b>Exports</b>					
Iron and steel	Mt	1.74	1.57	1.93	22.9
- value	A\$m	1 363	1 120	1 142	2.0
Iron ore	Mt	323.5	389.9	410.8	5.4
- value	A\$m	34 239	34 518	50 567	46.5
Metallurgical coal	Mt	125	157	160	1.9
- value	A\$m	36 813	24 526	32 896	34.1

b Japanese Fiscal Year, starting April 1, fob Australia basis, ABARES Australia-Japan average contract price assessment.

c Fines contract, 62% iron content basis. d High-quality hard coking coal. For example, Goonyella export coal.

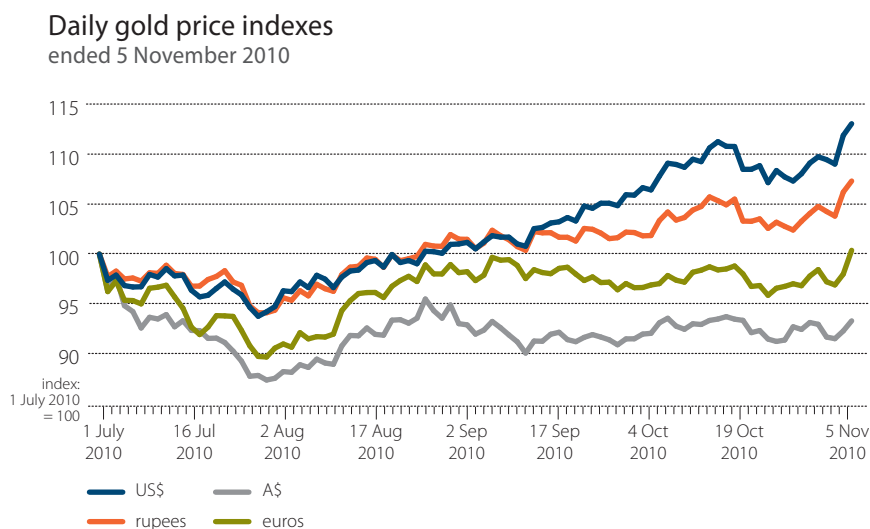
# Gold

Andrew Schultz

During the September quarter 2010, the gold price rose to average US\$1227 an ounce, 3 per cent higher than in the June quarter. The price of gold subsequently rose further, moving above US\$1400 an ounce in early December.



In the second half of 2010, demand for gold has been driven by expansionary US monetary policy and reduced investor confidence in the US fiscal and economic outlook, leading to a decline in the US dollar against other international floating currencies. A decline in the value of the US dollar increases the purchasing power of other floating currencies, leading to a higher gold price denominated in US dollars. A falling US dollar also supports investment demand for gold as a hedge against risks associated with US assets. The rise of the gold price denominated in US dollars has been far more pronounced than the rise as measured in other currencies.



## Gold

Other forms of demand for gold, including jewellery consumption, industrial use, purchases of gold in exchange traded funds and the buying of physical gold in the form of coins and bars, have placed upward pressure on the gold price during the year. On the supply side, a sharp reduction in producer dehedging, combined with official sector purchases, has largely offset an increase in global gold mine output. The gold price is estimated to average US\$1226 an ounce for 2010 as a whole, an increase of 26 per cent from 2009.

### *Gold price to remain relatively high owing to global economic uncertainty*

In 2011, the price of gold is forecast to average around US\$1330 an ounce, 8 per cent higher than the estimated average in 2010.

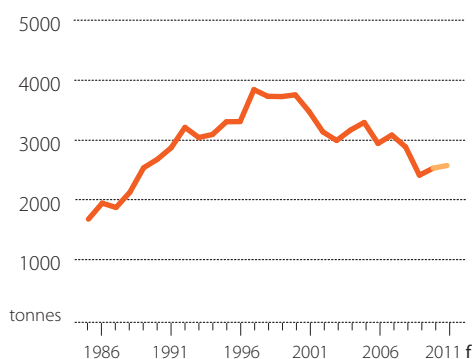
Demand for gold as a store of value during periods of economic uncertainty is expected to continue to support the gold price. Investment demand for gold is likely to remain strong as concerns persist regarding the ability of many developed economies to stimulate economic growth and control growing budget deficits. Further measures to loosen monetary policy in the United States, Europe and Japan are also likely to increase demand for gold.

There are significant risks associated with the price outlook for gold because price movements are significantly influenced by macroeconomic developments. The strength, duration and composition of economic growth across major world economies will influence the risk profile of investors. This will consequently affect the demand for gold as an alternative store of value and a hedge against economic and financial market uncertainty. Prolonged interest rate differentials between regions also have the potential to affect speculative investment demand. These factors could lead to significant volatility in the gold price.

### *Fabrication demand to grow in developing economies*

Gold fabrication consists of gold used in jewellery, electronics, dental applications, medals, coins and other industrial uses. In 2010, stronger economic growth in developing economies has led to an increase in the amount of gold used in jewellery fabrication and industrial use, resulting in gold fabrication consumption rising by almost 5 per cent to 2534 tonnes.

#### Global gold fabrication demand



However, mainly reflecting the trend of lower jewellery consumption in developed economies, fabrication demand in 2010 is estimated to be 34 per cent lower than the high recorded for 1997.

In 2011, gold fabrication consumption is forecast to rise by around 2 per cent to 2579 tonnes. Strong economic growth in India, China and the Middle East is likely to cause global jewellery fabrication demand to rise. However, this is expected to be partly offset by a fall in demand for gold bars, coins and medals as investment demand for gold moderates.



### *World mine production to increase by 2 per cent in 2010...*

World gold mine production is estimated to rise by more than 2 per cent in 2010 to 2629 tonnes.

In 2010, China is estimated to remain the world's largest gold producer, with production rising by almost 6 per cent to 342 tonnes. This reflects ongoing productivity gains driven by the consolidation of numerous smaller producers and an increasing quantity of gold being produced as a smelter by-product.

Continuing a longer-term trend, gold production in South Africa in 2010 is estimated to decrease by around 9 per cent to 200 tonnes. Production has fallen in several mature underground mines operated by major producers Harmony Gold, Gold Fields and AngloGold Ashanti, as a result of safety-related shutdowns, technical issues and declining ore grades.

In the United States, gold production is estimated to rise by 3 per cent to 225 tonnes in 2010. While production has fallen from several larger mature mines such as Barrick Gold's Goldstrike project and Newmont's Nevada operations, this has been more than offset by increases from the ramping up of Barrick Gold's Cortez project.

Following two years of strong growth, gold mine production in the Russian Federation is estimated to remain largely unchanged in 2010. Falls from projects including Kinross's Kupol project are estimated to be offset by production from the ramping up of new developments such as Polyus Gold's Blagodatnoye project.

### *...and forecast to rise by a further 3 per cent in 2011*

In 2011, world gold mine production is forecast to grow by more than 3 per cent to 2717 tonnes. In China, the high gold price and strong industrial production is expected to encourage ongoing gold production from mines and non-ferrous metal smelters. As a result, gold production in China is forecast to grow by 5 per cent to 358 tonnes in 2011.

In South Africa, gold production is forecast to fall by 10 tonnes to 190 tonnes in 2011. This forecast fall reflects declining ore grades and the likelihood of continued technical and safety shutdowns at South Africa's mature underground mines.

In Latin America, production is forecast to be boosted by the start-up of projects including Barrick's Pascua-Lama and Pueblo Viejo projects, which together are expected to produce 43 to 46 tonnes annually in their first five years of operation.

### *Limited official sector activity over the outlook period*

In 2010, the official sector is estimated to undertake net purchases of 150 tonnes of gold. Traditionally, central banks, particularly European central banks, have been active sellers of their gold reserves. However, with gold currently viewed globally as an important strategic asset, many central banks have ceased sales and undertaken modest purchases. Central banks' gold purchases have placed upward pressure on the gold price, as they were previously a source of supply but now represent a source of demand. During 2010, these purchases have also encouraged additional private sector investment in gold because they provide a signal to the market about the changing position of the official sector.

## Gold

With gold expected to continue to be viewed as a strategic asset over the outlook period, modest net buying from central banks is expected to continue.

### *Australian gold production to rise in 2010–11*

Following growth of 10 per cent in 2009–10, Australian gold mine production is forecast to rise by a further 15 per cent to 276 tonnes in 2010–11. Growth is expected to largely originate from Western Australia (up 15 per cent to 192 tonnes), the Northern Territory (up 77 per cent to 14 tonnes) and South Australia (up 41 per cent to 14 tonnes).

In Western Australia, despite lower than expected ore grades, Newmont's Boddington redevelopment is forecast to produce at around its full capacity of 30 tonnes in 2010–11. First production from Integra Mining's Randalls project and Regis Resources' Duketon project (each 3 tonnes a year) began in September 2010.

In the Northern Territory, production growth is forecast to originate from Crocodile Gold's Union Reefs (up 4 tonnes). In South Australia, Exco Resources' White Dam, OZ Minerals' Prominent Hill and BHP Billiton's Olympic Dam are each forecast to produce an additional 1 tonne in 2010–11.

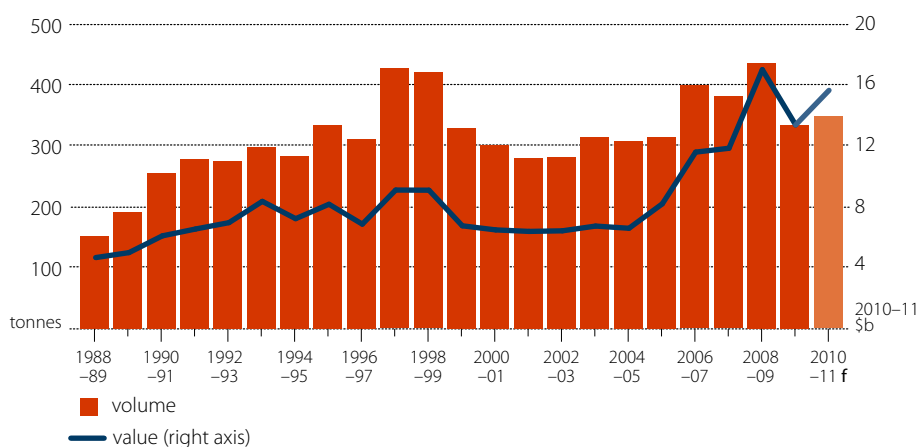
### *Exports set to rise in 2010–11*

While Australian gold producers have benefited from a sharp rise in the US dollar denominated gold price over the past year, these benefits have been largely offset by the strong appreciation of the Australian dollar against the US dollar over the same period.

In 2010–11 Australian gold exports are forecast to increase by 4 per cent to 349 tonnes. The majority of locally produced gold is shipped overseas, and the forecast increase in Australian mine production is likely to sustain exports. Exports of refined gold sourced from overseas scrap is likely to moderate, but remain strong, as a high gold price continues to encourage global second-hand gold jewellery sales.

The value of Australian gold exports is forecast to increase by 20 per cent to \$15.6 billion as a result of higher export volumes and a higher Australian dollar denominated gold price.

## Australian gold exports



## Gold outlook

		2009	2010 f	2011 f	% change
<b>World</b>					
Fabrication consumption	t	2 417	2 534	2 579	1.8
Mine production	t	2 572	2 629	2 717	3.3
Scrap sales	t	1 674	1 600	1 400	-12.5
Net stock sales	t	(1 829)	(1 695)	(1 538)	-9.3
– official sector	t	30	(150)	(65)	-56.7
– private sector	t	(1 607)	(1 495)	(1 453)	-2.8
– producer hedging	t	(252)	(50)	(20)	-60.0
Price	US\$/oz	973	1 226	1 330	8.5
		<b>2008</b>	<b>2009</b>	<b>2010</b>	
		<b>-09</b>	<b>-10 s</b>	<b>-11 f</b>	
<b>Australia</b>					
Mine production	t	218	240	276	15.0
Exports	t	437	335	349	4.2
– value	A\$m	16 146	12 996	15 647	20.4
Price	A\$/oz	1 186	1 236	1 400	13.2

Net purchasing and dehedging shown in brackets.

# Aluminium

Michael Lampard

## *World aluminium price to average higher in 2011*

In 2010, the aluminium price is estimated to average around US\$2170 a tonne, 30 per cent higher than the average price in 2009. Despite this significant increase, aluminium has traded between US\$2000 and US\$2400 a tonne for most of the year. Supporting aluminium prices throughout 2010 has been strong consumption growth in China and restocking activity in a number of large OECD economies such as Japan and Germany. Increased consumption in these economies has led to weaker growth in aluminium stocks. Nevertheless, strong production growth and high aluminium inventories are expected to limit further significant price increases during 2011.



In 2011, relatively strong consumption growth in developing economies is expected to support aluminium prices. In OECD economies, aluminium consumption growth is forecast to moderate, reflecting assumed weaker economic growth and an end to the restocking activity that has taken place throughout 2010. Aluminium consumption is forecast to grow faster than production in 2011, resulting in world stocks falling relative to consumption from an estimate of 8.7 weeks of consumption at the end of 2010 to around 8.6 weeks at the end of 2011. Aluminium prices are forecast to average 7 per cent higher in 2011 at around US\$2315 a tonne.

## *World aluminium consumption to grow in 2011*

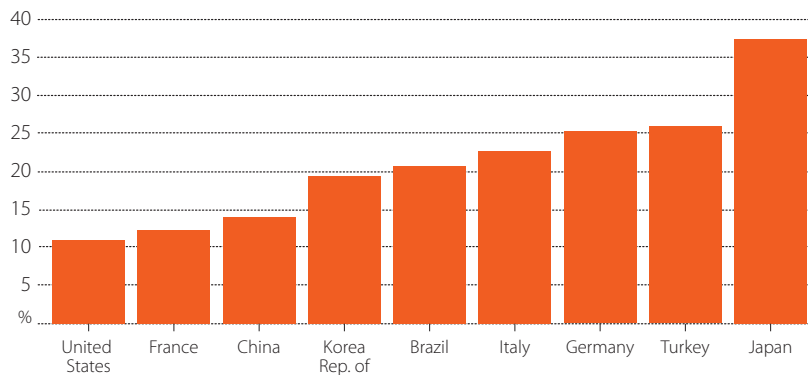
In 2010, world aluminium consumption is estimated to increase by 14 per cent to 39.6 million tonnes as a result of strong growth in major consuming countries. OECD economies are estimated to account for over half of this growth, as a modest recovery in manufacturing activity, especially in the first half of 2010, has increased aluminium demand, including restocking.

In 2011, world aluminium consumption is forecast to increase by a further 9 per cent to 43.3 million tonnes, mainly reflecting continued growth in construction and manufacturing activity in China. Consumption in OECD economies is expected to be largely unchanged in 2011.

## *China supporting consumption growth in 2011*

China's consumption of aluminium is estimated to increase by 14 per cent to 16.3 million tonnes in 2010, accounting for around 40 per cent of the estimated growth in world consumption. Continued strong growth in China's manufacturing and construction sectors

### Increases in aluminium consumption in 2010, major consuming countries b year-on-year change



b Data are estimates.

#### World consumption by region (Mt)

	2009	2010 f	2011 f
Europe	6.5	7.7	7.9
Africa	0.7	0.7	0.7
Asia	21.2	24.5	27.6
Americas	6.1	6.4	6.7
World	34.8	39.6	43.3

has supported aluminium consumption. In the nine months to September 2010, the area of commercial floor space under construction increased by 30 per cent year-on-year, while the manufacture of consumer durables such as washing machines, refrigerators and air conditioners increased by between 25 per cent and 30 per cent year-on-year.

In 2011, China's aluminium consumption is forecast to increase by 18 per cent to 19.1 million tonnes as non-residential construction continues to expand and domestic demand for aluminium-intensive manufacturing goods, such as motor vehicles, grows. In the first 10 months of 2010, China's production of automobiles increased year-on-year by 34 per cent to 1.5 million. With an average motor vehicle containing around 110 kilograms of aluminium, growth in China's production of automobiles will support aluminium consumption in 2011.

#### *Aluminium consumption in OECD economies to be steady in 2011*

Aluminium consumption in OECD economies is estimated to increase by 19 per cent to 15.6 million tonnes in 2010. Increased economic activity in many developed economies, especially in the first half of the year, has supported demand for aluminium use in consumer durables, construction and automobiles and has also encouraged the rebuilding of consumer stocks. Germany, Japan and the United States have contributed most to the increase in OECD consumption.

In 2011, aluminium consumption in OECD economies is forecast to remain broadly steady at around 15.9 million tonnes, reflecting assumed weaker economic growth in most major developed economies. Also contributing to this outlook for OECD consumption is an expected end to consumer restocking, which has occurred throughout 2010.

## Aluminium

### *World aluminium production increased significantly in 2010...*

World aluminium production is estimated to increase by 10 per cent to 40.7 million tonnes in 2010, with China and the Middle East accounting for most of this growth.

#### **World production by region (Mt)**

	2009	2010 f	2011 f
Europe	8.3	8.4	8.4
Africa	1.8	1.9	1.9
Asia	14.7	18.2	20.8
Middle East	2.9	3.5	4.2
Americas	7.3	6.9	6.9
World	37.2	40.7	43.8

In China, the world's largest producer, aluminium production increased by 42 per cent in the first eight months of 2010, supported by growing domestic demand and higher aluminium prices. However, since September measures implemented by the Chinese Government to achieve energy intensity targets has resulted in the closure of around 370 000 tonnes of aluminium capacity. In addition to these announced closures, the Guangxi and Guizhou provinces have also reportedly implemented a program to close down small, inefficient smelters. Despite lower aluminium production in the second half of 2010, aluminium production in China is estimated to total 16 million tonnes in 2010, an increase of 25 per cent from 2009.

The Middle East has been another source of growth in aluminium production in 2010. The relatively low production cost in that region, mainly due to lower energy cost, has encouraged the development of new aluminium smelters. During 2010, five smelters have been commissioned, with a combined annual capacity of 1.6 million tonnes. The largest of these are DUBAL's and Mubadala's EMAL smelter (750 000 tonnes annual capacity) in the United Arab Emirates and Norsk Hydro's and Qatar Aluminium's Qatalum smelter (585 000 tonnes) in Qatar. In total, aluminium production in the Middle East is estimated to increase by 22 per cent to 3.5 million tonnes in 2010.

### *...and will continue to increase in 2011*

In 2011, world aluminium production is forecast to increase by 8 per cent to 43.8 million tonnes, as large capacity additions in China, India and the Middle East will be completed or approach full capacity. In China, aluminium production is forecast to increase by 14 per cent to 18.2 million tonnes, supported by the scheduled and newly commissioned smelter capacity. A downside risk to this production forecast is the possibility of further cuts by the Chinese Government to aluminium smelter capacity.

In the Middle East, production at the recently commissioned EMAL and Qatalum smelters is also expected to support world production. Full production at the Qatalum smelter is not expected until the end of 2011, as a power supply disruption in August 2010 resulted in aluminium solidifying in two potlines. Production in the Middle East is forecast to increase by 22 per cent to 4.2 million tonnes in 2011.

In addition to new capacity in Asia and the Middle East, expansions and restarting of idled capacity are also forecast in other regions. In Canada, expansions to Rio Tinto Alcan's Kitimat and Alma smelters are forecast to increase the combined annual capacity of these smelters

### New aluminium smelter capacity expected to be completed in 2010 and 2011

country	company	smelter	year	capacity (kt)
Argentina	Aluar	Puerto Madryn	2010	53
China	Aba Aluminium	Aba	2010	142
China	Baise Yin Hai Aluminium	Baise Yin Hai	2010	175
China	Hongjun Aluminium	Hongjun	2010	425
China	CHALCO	Pingguo	2010	250
China	other smelters		–	5 270
India	Vedanta Resources	Jharsuguda	2010	250
India	Hindalco	Hirakud	2011	58
India	Hindalco / Aditya	Orissa	2011	359
Kazakhstan	ENRC / NFC	Pavlodar Phase II	2010	125
Qatar	Norsk Hydro / Qatar Aluminium	Qatalum	2010	585
United Arab Emirates	DUBAL / Mudadala	EMAL	2010	750
Total				8 442

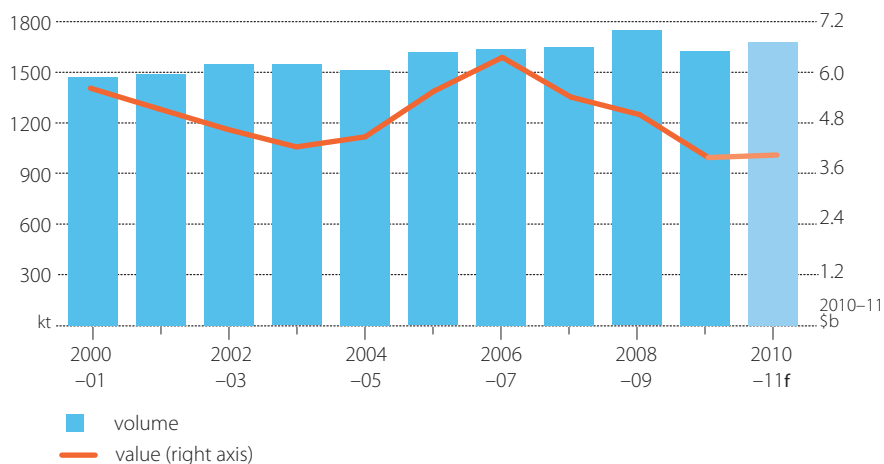
by 345 000 tonnes by 2011. Aluminium production in the United Kingdom is also forecast to increase in 2011 following the resumption of full production at Rio Tinto Alcan's Lynemouth smelter (180 000 tonnes a year). In response to weak demand for aluminium, this smelter has been operating at around 30 per cent capacity since 2008.

#### *Australia's export earnings to increase*

Australia's aluminium production is forecast to remain steady in 2010–11 at around 2 million tonnes as no new smelters or expansions to capacity are scheduled.

In line with steady production, Australia's exports of aluminium are forecast to remain broadly stable at around 1.7 million tonnes in 2010–11. A modest increase in export prices is forecast to support a 5 per cent increase in the value of Australia's aluminium exports to \$4.0 billion in 2010–11.

#### Australian aluminium exports



# Alumina

## Alumina prices to increase in 2011

In 2010, spot prices for alumina are estimated to average around 38 per cent higher than in 2009, at US\$345 a tonne. This significant increase in alumina spot prices reflects strong growth in demand as a result of large increases in global aluminium production, especially in China. China's production of primary aluminium declined in 2009, placing significant downward pressure on alumina spot prices as most small firms in China purchased alumina off the spot market. In 2010, increased demand for alumina from small smelters in China has provided significant support to spot prices.

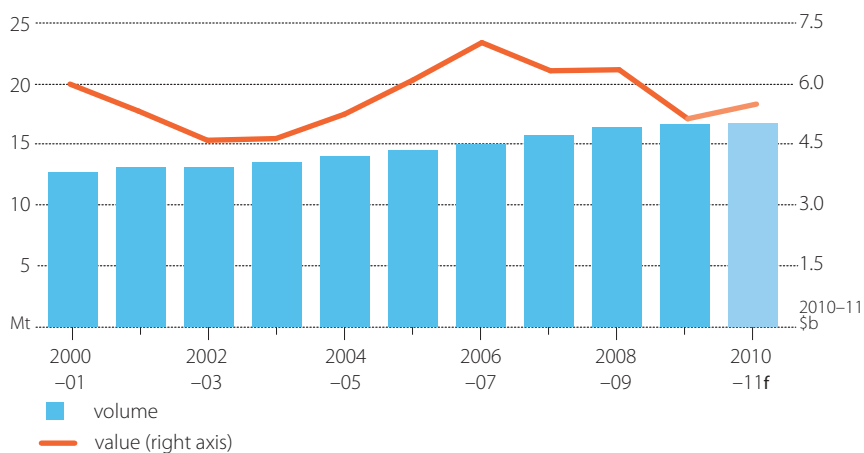
In 2011, alumina spot prices are forecast to increase by a further 4 per cent to average US\$358 a tonne. World consumption of alumina is forecast to increase by 8 per cent to 91 million tonnes in 2011, supported by new aluminium smelting capacity in China and the Middle East.

## Australia's export earnings higher in 2010-11

In 2010-11, Australia's production of alumina is forecast to increase by 2 per cent to 20.4 million tonnes, mainly as a result of higher production at the Gove refinery in the Northern Territory.

Export volumes are forecast to remain largely unchanged at around 16.7 million tonnes in 2010-11. The value of alumina exports is forecast to increase by 10 per cent to \$5.5 billion, supported largely by forecast higher export prices.

Australian alumina exports





## Aluminium and alumina outlook

		2009	2010 f	2011 f	% change
<b>World aluminium</b>					
Production	kt	37 180	40 721	43 834	7.6
Consumption	kt	34 811	39 620	43 326	9.4
Closing stocks	kt	6 485	6 654	7 173	7.8
– weeks consumption		9.7	8.7	8.6	–1.1
Price	US\$/t	1 663	2 170	2 313	6.6
	USc/lb	75.4	98.4	104.9	6.6
<b>World alumina</b>					
Spot price	US\$/t	249	345	358	3.8
<b>Australia</b>					
		<b>2008</b>	<b>2009</b>	<b>2010</b>	
		<b>–09</b>	<b>–10 s</b>	<b>–11 f</b>	
<b>Production</b>					
Bauxite	Mt	64.1	67.5	68.0	0.7
Alumina	kt	19 597	20 057	20 361	1.5
Aluminium	kt	1 974	1 918	1 951	1.7
<b>Exports</b>					
Alumina	kt	16 395	16 653	16 711	0.3
– value	A\$m	6 015	4 969	5 479	10.3
Aluminium	kt	1 748	1 624	1 681	3.5
– value	A\$m	4 724	3 838	4 010	4.5

# Nickel

Robert New

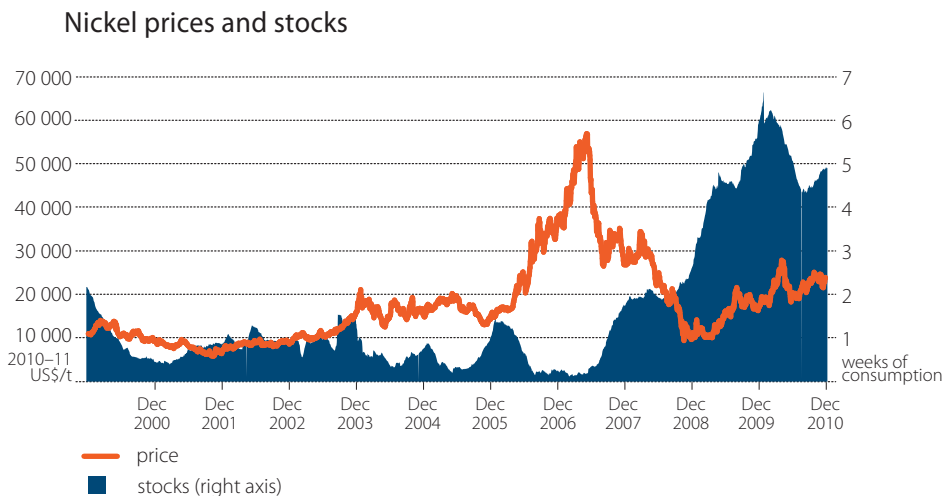
Demand for nickel, which is largely derived from the demand for stainless steel, has increased significantly over the course of 2010. Following sharp declines in 2009, activity in the manufacturing and construction sectors increased in both developing and developed economies, especially those that are significant consumers of nickel-containing stainless steels. This was supported by fiscal stimulus packages in many countries, notably China and the United States, and improved consumer sentiment associated with a more positive economic outlook. Reflecting this, the nickel price was 24 per cent higher in early December 2010 than in January 2010, and is estimated to average around US\$21 600 a tonne for the year as a whole.

In 2011, growth in demand from major consumers of nickel-containing products is forecast to be lower than in 2010. World nickel consumption is forecast to increase by 6 per cent to 1.5 million tonnes in 2011, compared with 13 per cent growth in 2010. Higher nickel production from existing and new operations is expected to keep pace with consumption growth, with prices expected to remain between US\$19 000 and US\$23 000 a tonne. At prices higher than US\$23 000, large-scale nickel pig iron production would be expected to contribute to a supply expansion, placing downward pressure on prices. Conversely, production capacity is not considered to be economic at prices below US\$19 000 a tonne for a sustained period. For 2011 as a whole, nickel prices are forecast to average just less than US\$20 000 a tonne.

## High stocks to limit further price increases

At the end of November 2010, stocks on the London Metal Exchange (LME), which accounted for around two-thirds of total world stocks, were around 132 000 tonnes, equivalent to around 4.9 weeks of consumption. Although stocks have dropped significantly from the peak of 6.2 weeks of consumption in February 2010, they remain historically high.

In 2011, nickel stocks are forecast to remain high and are likely to limit significant nickel price increases. In the event of unexpectedly strong demand for nickel, consumers would be expected to draw down on existing stocks.



Source: London Metal Exchange.

Significant increases in nickel prices may also be limited by the uncertainty surrounding the current global economic outlook. For example, if the Chinese Government's efforts to curb the rapid pace of growth result in weaker than assumed economic growth in China, demand will be lower than currently forecast. In addition, uncertainty surrounding economic growth in developed economies poses a downside risk to demand for stainless steel and nickel. Weaker than expected activity in the manufacturing and construction sectors in these economies could result in lower than forecast nickel consumption and could place downward pressure on nickel prices.

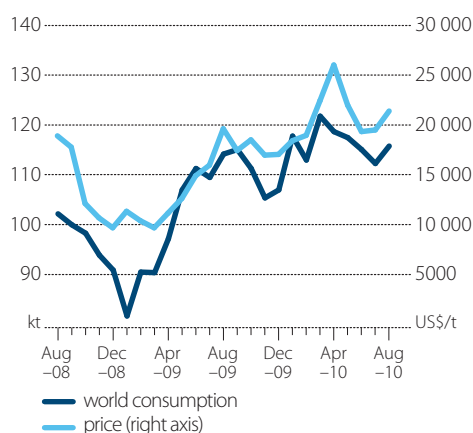
### *World nickel consumption to increase with economic growth*

In 2010, world nickel consumption is estimated to increase by 13 per cent to 1.4 million tonnes, supported by economic growth in key consuming countries. Government stimulus in China has supported consumption, through construction of infrastructure and encouragement of private consumption of consumer durables. In developed economies such as Japan, the European Union and the United States, a recovery in consumption has been spurred by improvements in economic conditions, especially in the first half of 2010, following the global economic slowdown in 2009.

#### Nickel consumption (kt)

	2008	2009	2010 f	2011 f
China	360	443	500	540
Chinese Taipei	55	71	75	77
European Union 27	366	288	328	346
India	32	32	34	36
Japan	158	121	150	153
Republic of Korea	56	67	71	72
United States	127	90	116	120
World nickel consumption	1 278	1 241	1 401	1 488

#### Nickel consumption and price monthly



In 2011, world nickel consumption is forecast to increase by 6 per cent to 1.5 million tonnes. The slower growth rate is largely in line with assumed lower economic growth rates in key consuming regions, which will place downward pressure on growth in demand for nickel-intensive products.

China's consumption of nickel in 2011 is forecast to increase by 8 per cent to 540 000 tonnes and account for more than one-third of world consumption. This forecast growth rate in 2011 is slower than the estimated growth of 13 per cent in 2010 and mainly reflects the assumption that government policies designed to curb economic growth will continue throughout 2011, moderating growth in demand for stainless steel and nickel.

### **Stainless steel–making raw materials: an introduction**

Stainless steel production is an important factor in determining demand for nickel, as approximately 65 per cent of nickel is used in the manufacture of stainless steel. As such, it is important to understand the markets for other inputs to stainless steel production, notably chromium, manganese and molybdenum. Because these commodities share some characteristics, particularly their ability to enhance anti-corrosive qualities and increase strength, there is potential for a certain degree of substitution in the stainless steel–making process.

Stainless steel is used widely for its anti-corrosion properties and strength, including for applications in construction, consumer durables (such as whitegoods and televisions), consumer non-durables, and the storage and chemical industries. However, because of its relative high quality and higher input costs it is sold at a premium to crude steel.

#### ***Chromium***

Chromium is particularly important, as stainless steel must contain a minimum of 10.5 per cent chromium to be classified as stainless steel. Chromium is important for its anti-corrosion properties and its strength. Stainless steel manufacture and chrome plating (electroplating with chromium) are currently the highest volume uses for the metal.

The largest producing economy of chromite ore is South Africa, which accounted for around 43 per cent of global production in 2008. Other major producers in 2008 were India (18 per cent), Kazakhstan (15 per cent) and Turkey (8 per cent). In 2008, Australia was the world's ninth largest producer of chromite ore, and accounted for 1 per cent of world supply in that year. At current consumption levels, existing proven global reserves of chromite ore are enough to meet world chrome demand for many centuries.

Because both nickel and chromium are complementary inputs to stainless steel, the prices of both commodities are subject to the same market factors affecting stainless steel production. However, they are also partial substitutes, as the relative concentration of commodities in stainless steels can be altered to achieve similar properties of strength and anti-corrosion.

#### ***Manganese***

Manganese is used as an input to many different types of steel, including both crude and stainless. It is used for its ability to avoid a surface-cracking phenomenon known as 'hot shortness' (partial melting at hot-rolling temperatures) and as an alloying element to increase the strength of steel.

Manganese can be supplied as a raw ore and in a range of alloys, the most common of which are ferro manganese (FeMn) and ferro silico manganese (FeSiMn). Special grades of FeSiMn with up to 30 per cent silicon content are produced for use in the manufacture of stainless steel, as the higher oxidation properties allow for the production of cleaner steel (less phosphorous, carbon and nitrogen).

World manganese mine production is heavily concentrated in a few countries, with the top five producing countries (China, South Africa, Australia, Gabon and India) accounting for around 70 per cent of total world production in 2008. Australia was the world's third largest producer in 2008, accounting for around 13 per cent of global supply.

The application of manganese to a broader spectrum of steels compared with nickel suggests that the prices of these two commodities share relatively few stainless steel–specific drivers.

*continued...*

## Stainless steel–making raw materials: an introduction *continued*

### *Molybdenum*

Molybdenum is important in the manufacture of high-grade steels because of its ability to enhance strength, hardness, weldability, elevated temperature strength and corrosion resistance. In addition to its use in construction, cast iron and strengthened steel applications, around one-quarter of molybdenum consumption is for high-grade stainless steel alloys.

Molybdenum supply is characterised by two distinct sources of mine supply—as a by-product of copper production or from primary molybdenum deposits. The majority of the world's molybdenum supply comes from copper/molybdenum deposits, mostly located in the United States, Chile, Peru and Canada. The remainder is sourced from primary molybdenum deposits, most of which are located in China, the United States and Canada.

In 2009, China was the largest producer of molybdenum, accounting for 42 per cent of global supply. The United States and Chile were the next two largest producers (21 per cent and 16 per cent, respectively). Together, these three producers accounted for around 79 per cent of global production in 2008.

Although Australia does not currently produce significant volumes of molybdenum oxide, there are currently four molybdenum projects on the ABARES list of major development projects in the minerals and energy sectors (last updated October 2010). While planning is underway, no project has yet received all government approvals and a financial commitment.

Because molybdenum is largely a by-product from copper deposits, its supply is largely unresponsive to changing demand. Therefore, prices have the potential to vary significantly in response to changes in demand.

In 2011, nickel consumption in developed economies is forecast to increase, but at a slower rate than in 2010. In the European Union, the United States and Japan, nickel consumption in 2011 is forecast to grow by 5 per cent, 3 per cent and 2 per cent, respectively. Despite the forecast growth over 2010 and 2011, consumption in all of these economies is likely to remain below that in 2008 (before the global economic slowdown).

### *Long ramp-up periods limiting new contributions to world mine production in 2011*

In 2010, world nickel mine production is estimated to increase by 16 per cent to 1.6 million tonnes. The major contributors to this increase are nickel laterite producers (Indonesia and the Philippines) and Canada.

Production in Indonesia and the Philippines was supported by higher prices and strong demand for low-quality nickel from China. In August 2010, Vale's Sudbury and Voisey's Bay mines in Canada resumed production, following the resolution of labour disputes that began in mid-2009.

World nickel mine production in 2011 is forecast to increase by 7 per cent to 1.7 million tonnes. This is underpinned by the restarting of production at mines that were placed on care and maintenance in 2009, and more modest increases in nickel laterite production. Several nickel laterite projects are scheduled for completion in early 2011; however, long ramp-up times will limit their contribution to world supply in 2011.

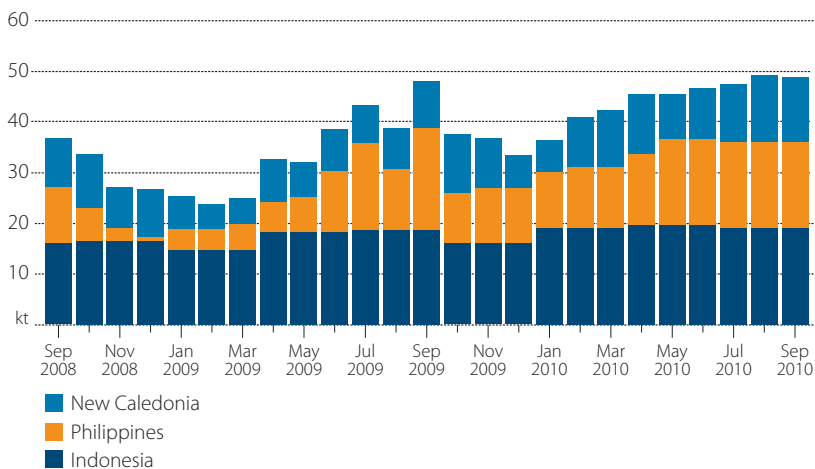
## Nickel

### Nickel mine production (kt)

	2008	2009	2010 f	2011 f
Australia	199	166	177	196
Canada	260	137	162	200
Indonesia	219	203	234	230
Russian Federation	268	262	265	270
Philippines	79	119	160	142
World mine production	1 549	1 347	1 556	1 664

In 2011, Canada's nickel mine production is forecast to increase by 23 per cent to 200 000 tonnes, under the assumption that recently restarted mines will have a largely uninterrupted year of production.

### Major nickel laterite production



Vale's Goro nickel project (60 000 tonnes annual capacity) in New Caledonia began producing nickel in August 2010, and is expected to add significantly to New Caledonia's exports in 2011. However, it is not expected to produce at full capacity in 2011, as it has a two-year ramp-up period. Vale is also scheduled to complete its Onca Puma mine development in Brazil in early 2011. However, because of the long ramp-up period associated with the 58 000 tonne capacity mine, its production in 2011 is assumed to be limited.

In Madagascar, Canadian-owned company Sherritt International, in a joint venture with Sumitomo and Korea Resources, is scheduled to complete its Ambatovy nickel-cobalt laterite project in early 2011. This greenfield project has a planned capacity of 60 000 tonnes of nickel. However, the project is not expected to operate at full capacity until 2013.

### *Major producing countries to increase production of refined nickel in 2011*

World production of refined nickel is estimated to increase by 6 per cent to 1.4 million tonnes in 2010. Most of this increase is expected to be in Asia, with China's production increasing by 26 per cent and Japan's production increasing by 11 per cent. The increases in China's and Japan's nickel production follow the trend of an increasing proportion of refined nickel production occurring in Asia. This reflects the relatively low cost of production and close proximity to rapidly growing demand centres in developing Asia.

#### **Nickel refined production (kt)**

	2008	2009	2010 f	2011 f
Australia	109	131	115	129
Canada	176	117	100	130
China	200	254	320	355
Finland	57	41	42	40
Japan	158	144	160	165
Norway	89	89	90	91
Russian Federation	258	254	260	260
World refined production	1 396	1 331	1 408	1 530

In 2011, world production of refined nickel is forecast to increase by a further 9 per cent to 1.5 million tonnes. The largest contributors to this increase are expected to be China and Canada, as production capacity in China continues to grow and production in Canada recovers after the resolution of labour-related supply disruptions in mid-2010.

In 2010, China's refined nickel production increased by an estimated 26 per cent to 320 000 tonnes. Most of this growth was the result of a significant expansion in pig iron production capacity, supplied by nickel laterite imports from producers in Indonesia and the Philippines. However, growth in China's refined nickel production in 2010 was curbed by temporary shutdowns at some refineries as part of the government strategy to reduce energy consumption.

In 2011, China's refined nickel production is forecast to increase by 11 per cent to 355 000 tonnes. The forecast growth in 2011 reflects both an assumption of no further energy saving-related shutdowns and a moderate increase in production capacity.

In 2011, Canada's production of refined nickel is forecast to increase by 30 per cent to 130 000 tonnes, supported by the resumption of production at some of Vale's nickel refineries. The resolution of labour disputes at Vale's mining operations has increased the feed for their refineries, allowing for increased production of refined nickel in 2011.

### *Australia's mine and refined production to increase in 2010–11*

In 2010–11, Australia's nickel mine production is forecast to increase by 12 per cent to 182 000 tonnes, having fallen by 12 per cent in 2009–10. Higher production from a number of Australian mines, including Western Areas' Spotted Quoll and Flying Fox mines, is expected.

## Nickel

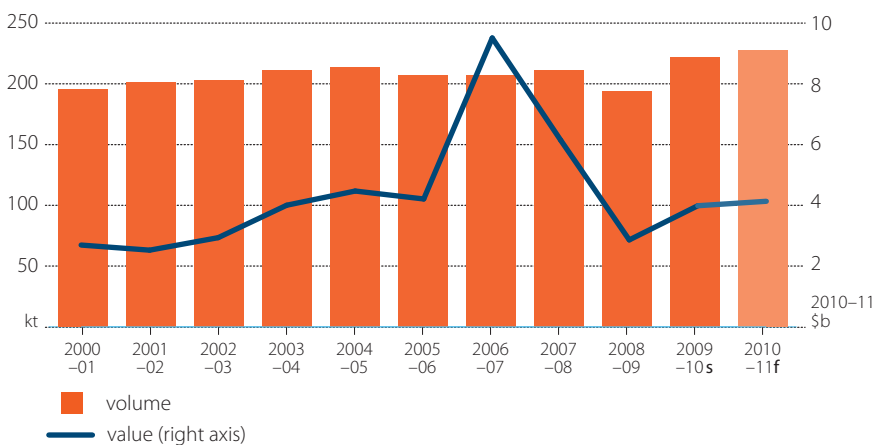
In 2010–11, refined production is also forecast to increase by 5 per cent to 126 000 tonnes. At the end of 2009–10, nickel stocks in Australia were relatively high, and these stocks are expected to support an increase in production of both class I and class II refined nickel, by 4 per cent and 25 per cent, respectively.

### Australian export earnings to benefit from higher prices

As a significant proportion of nickel produced in Australia is exported, increases in production are expected to result in higher export volumes. In 2010–11, the volume of nickel exported is forecast to increase by 2 per cent to 227 000 tonnes.

Australia's nickel export earnings in 2010–11 are forecast to increase by 7 per cent to \$4.1 billion. Higher prices compared with 2009–10, and higher export volumes, will more than counteract the negative effect of the assumed appreciation of the Australian dollar.

### Australian nickel exports



### Nickel outlook

		2009	2010 f	2011 f	% change
<b>World</b>					
Refined					
Production	kt	1 331	1 408	1 530	8.7
Consumption	kt	1 241	1 401	1 488	6.2
Closing stocks	kt	234	242	284	17.4
– weeks consumption		9.8	9.0	9.9	10.0
Price	US\$/t	14 642	21 629	19 938	–7.8
	US\$/lb	664	981	904	–7.8
		<b>2008</b>	<b>2009</b>	<b>2010</b>	
<b>Australia</b>		<b>–09</b>	<b>–10 s</b>	<b>–11 f</b>	
<b>Production</b>					
Mine	kt	185	162	182	12.3
Refined	kt	111	120	126	5.0
Intermediate	kt	21	43	46	7.0
Exports	kt	194	222	227	2.3
– value	A\$m	2 717	3 874	4 134	6.7

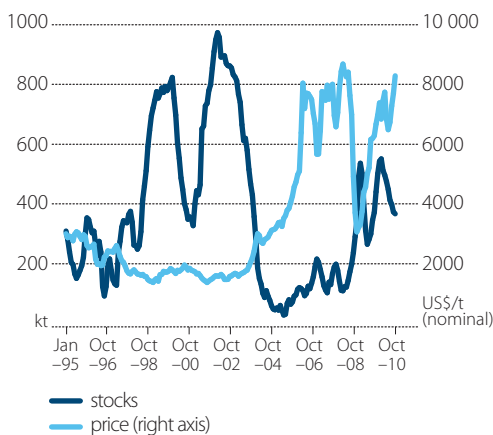


# Copper

Rebecca Petchey

In 2011, the copper price is forecast to average around US\$8375 a tonne, an increase of 12 per cent from 2010. Higher consumption than production has caused a drawdown in stocks in 2010. This is expected to continue in 2011, resulting in a higher average price for the year. Australia's copper export value is forecast to reach a record \$8.8 billion, reflecting both high export prices and volumes.

## London Metals Exchange copper stocks and prices monthly

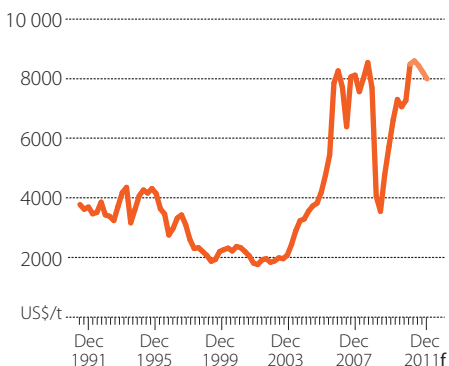


## Higher copper prices in the fourth quarter of 2010

In the fourth quarter of 2010, the copper price is estimated to average around US\$8500, a 17 per cent increase on the previous quarter and 28 per cent higher year-on-year. During the quarter, the world copper price reached a record high of US\$9047. This increase has been driven by a decline in the value of the US dollar, in which the copper price is denominated, and higher world growth in consumption than production.

The world copper price is estimated to average US\$7481 a tonne in 2010, an increase of 48 per cent from the average in 2009. This price increase has been largely supported by strong consumption growth in key economies such as China, Germany and the United States. Reflecting the faster rate of growth in consumption than production, world copper stocks at the end of 2010 are estimated to fall to 2.3 weeks of consumption, from 2.8 weeks at the end of 2009.

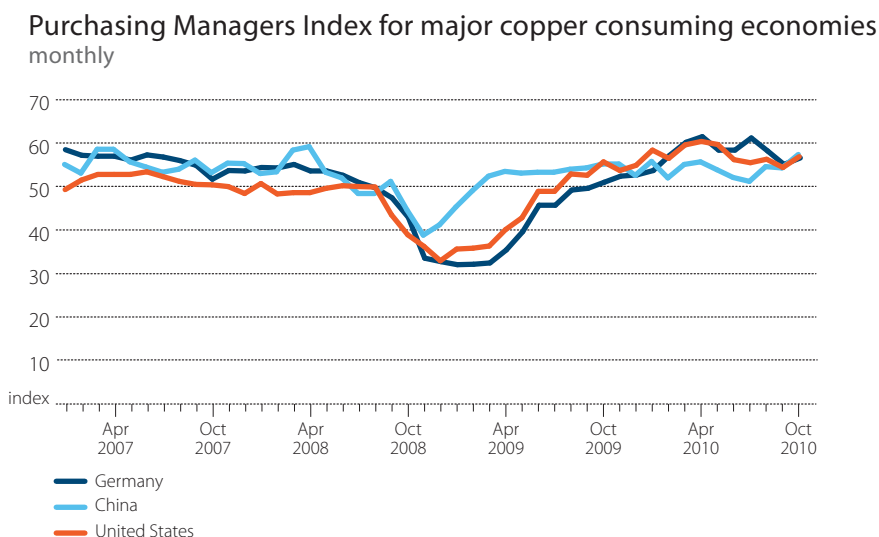
## World copper price quarterly, real (base quarter Dec 2010)



World copper prices are forecast to remain high in 2011, averaging around US\$8375 a tonne. While consumption growth is expected to moderate in 2011, in line with assumed slower world economic growth, production is forecast to grow at an even slower rate. This is expected to further reduce world copper stocks to around 1.8 weeks of consumption by the end of 2011. With the prospect of lower copper stocks in the short term, there is a strong possibility that the copper price will exhibit significant volatility over the outlook period, particularly if there are unforeseen production disruptions or surges in demand.

## Consumption growth to continue in Germany, China and the United States

In 2010, world copper consumption is estimated to increase by 5 per cent to 19.3 million tonnes. This growth has been mainly supported by higher consumption in China, Germany and the United States, the world's three largest copper consuming economies. The Purchasing Managers Index, a leading indicator for manufacturing production (for which a figure above 50 implies expansion of manufacturing activity) has averaged higher during 2010 compared with 2009 in these countries. The increase in manufacturing activity, especially for consumer durables and motor vehicles, has underpinned growth in copper consumption.



World copper consumption is forecast to increase by 2 per cent to 19.7 million tonnes in 2011. The slower rate of consumption growth relative to 2010 reflects the assumption of weaker economic growth in large copper consuming economies, particularly the United States and China, which in turn is expected to dampen demand growth for copper.

China's copper consumption in 2011 is forecast to increase by 3 per cent to 7.6 million tonnes, compared with growth of 4 per cent in 2010. In the second half of 2010, the Chinese Government has taken measures to slow the high rate of economic growth; the effect of these measures will be more obvious in 2011. The assumed weaker economic growth is expected to flow through to manufacturing production and housing construction, leading to lower growth in copper consumption.

OECD copper consumption is estimated to increase by 9 per cent to 8.1 million tonnes in 2010, after declining by almost 15 per cent in 2009. Supporting this growth has been higher consumption in Germany and the United States, being underpinned by stronger economic growth and industrial production, especially in the first half of 2010. In addition, copper consumers have rebuilt stocks that were drawn down during 2009. In 2011, growth in OECD copper consumption is forecast to moderate to 2 per cent, reflecting assumed slower economic growth and the absence of restocking as a source of demand.

### *Copper mine production to grow moderately in 2011*

World copper mine production is estimated to increase by 1 per cent in 2010 to around 16 million tonnes. Higher production in Africa and Chile has been partially offset by lower production in Indonesia and the United States. In 2011, copper mine production is forecast to increase by 3 per cent to 16.5 million tonnes, as production capacity expands in Africa and Chile.

In Africa, strong production growth has been underpinned by a ramp-up of operations since 2009, including at Equinox Minerals' Lumwana mine in Zambia (169 000 tonnes annual capacity) and Freeport's Tenke Fungurume mine in the Democratic Republic of the Congo (114 000 tonnes annual capacity). In total, Africa's copper production is estimated to increase by 24 per cent to 1.4 million tonnes in 2010. A further 14 per cent increase to 1.6 million tonnes is expected in 2011, which will be supported by the expansion at Anvil Mining's Kinsevere operation in the Democratic Republic of the Congo (60 000 tonnes annual capacity).

Chile's copper production is estimated to have increased by around 2 per cent to 5.5 million tonnes in 2010, as Codelco's Andina (additional 70 000 tonnes annual capacity) and Codelco Norte operations are expanded and Escondida (1.2 million tonnes annual capacity) returns to full production following equipment maintenance in late 2009. In 2011, Chile's copper production is forecast to increase by 5 per cent to 5.8 million tonnes, being supported by the ramp-up of expansions completed in 2010.

In 2010, Indonesia's copper mine production is estimated to decline by 19 per cent to 790 000 tonnes. Production at Freeport's Grasberg mine, the third largest copper mine in the world, declined by around 25 per cent in the first three quarters of 2010 because of mine sequencing and lower ore grades. Indonesia's copper mine production is forecast to decline by a further 5 per cent to 750 000 tonnes in 2011, as Grasberg continues to process lower ore grades.

In the United States, lower copper grades and the closure of several operations are estimated to result in production declining by around 10 per cent to 1.1 million tonnes in 2010. In 2011, copper production is expected to increase by 9 per cent to 1.2 million tonnes. This is supported by Freeport's Morenci mine, the largest copper mine in the United States, returning to full capacity of 380 000 tonnes a year after a decline in production in 2009 in response to lower copper prices.

### *Refined copper production growth to occur mainly in Africa*

In 2010, world refined copper production is estimated to increase by 3 per cent to 19.2 million tonnes, reflecting increased refining capacity in Africa and Chile. This is expected to be underpinned by the ramp-up of Solvent Extraction Electrowinning (SX-EW) operations in Africa, including Tenke Fungurume (100 000 tonnes annual capacity) and Ruashi/Etoile (20 000 tonnes annual capacity) in the Democratic Republic of the Congo, and Nchanga (50 000 tonnes annual capacity) in Zambia. Also supporting higher production has been an increase in the availability of scrap in response to higher copper prices.

In 2011, refined copper production is forecast to increase by a further 2 per cent to 19.5 million tonnes. This is expected to be supported by increased SX-EW capacity in Africa, including an

## Copper

expansion at Anvil Mining's Kinsevere operation (60 000 tonnes additional annual capacity) in the Democratic Republic of the Congo.

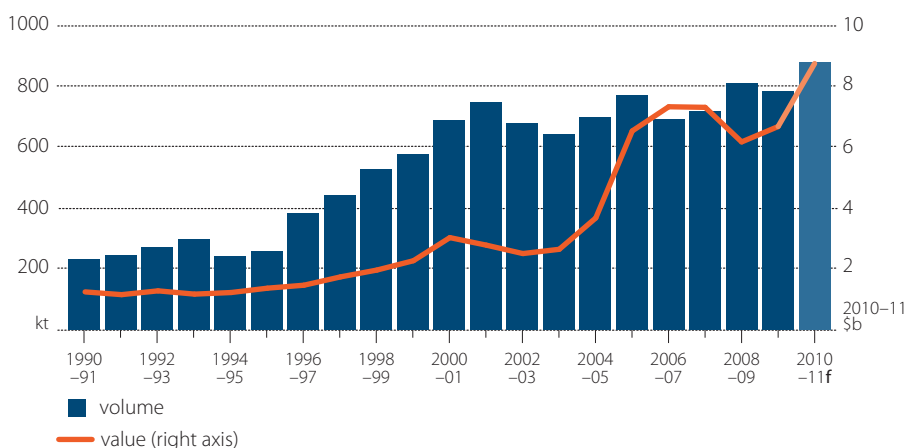
### *Record copper export earnings for Australia in 2010–11*

In 2010–11, Australia's copper mine production is forecast to increase by 7 per cent to 880 000 tonnes (in copper content terms). The expansion at Rio Tinto's Northparkes operation (2 million tonnes additional ore processing capacity), completed in the September quarter 2010, is expected to support this increase. Several mines placed on care and maintenance during 2008 are expected to restart in early 2011, including CST Mining Group's Lady Annie operation (20 000 tonnes annual capacity). The start-up of Hillgrove Resources' Kanmantoo operation (22 000 tonnes annual capacity) is also expected to underpin higher copper mine production in 2010–11.

Refined copper production is forecast to increase by 20 per cent to 475 000 tonnes in 2010–11. At BHP Billiton's Olympic Dam mine, the mechanical failure that affected production in late 2009 and early 2010 has been rectified. It is assumed that Olympic Dam will operate at full capacity in 2010–11. The restart of the Lady Annie operation is also expected to support the forecast increase in refined copper production.

Australia's copper exports are forecast to increase by 14 per cent to 893 000 tonnes (in copper content terms) in 2010–11, reflecting higher exports of refined copper. The value of copper exports is forecast to increase by 35 per cent to a record \$8.8 billion in 2010–11, being underpinned by higher copper prices and export volumes.

**Australian copper exports**  
metal equivalent



## Copper outlook

		2009	2010 f	2011 f	% change
<b>World</b>					
Production					
– mine	kt	15 839	16 024	16 527	3.1
– refined	kt	18 596	19 153	19 541	2.0
Consumption	kt	18 349	19 280	19 710	2.2
Closing stocks	kt	990	863	694	– 19.6
– weeks consumption		2.8	2.3	1.8	– 21.7
Price	US\$/t	5 067	7 481	8 375	12.0
	USc/lb	229.9	339.3	379.9	12.0
		<b>2008</b>	<b>2009</b>	<b>2010</b>	
		–09	–10 s	–11 f	
<b>Australia</b>					
Mine output	kt	890	820	880	7.3
Refined output	kt	499	395	475	20.3
Exports					
– ores and concentrates	kt	1 797	1 928	1 915	– 0.7
– refined	kt	361	271	367	35.4
– total value	A\$m	5 863	6 506	8 750	34.5

# Zinc

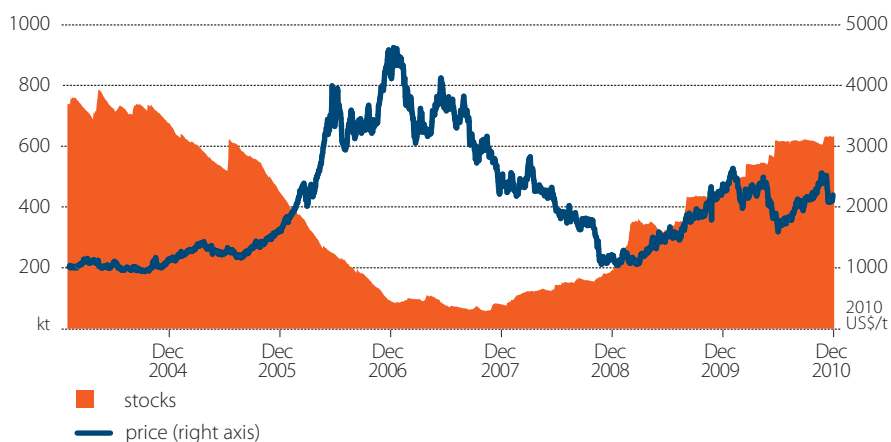
Farah Beaini

A significant development in the zinc market in 2010 has been the reversal of many of the production cutbacks implemented in response to the global economic downturn in 2009. The restart of operations at a number of mines reflects a recovery in refined zinc demand, supported by improved economic activity in major zinc consuming economies, including the European Union, the United States and China. For 2011, assumed weaker world economic growth, combined with high levels of zinc inventories, is expected to place downward pressure on world zinc prices.

## *2010 finishes with higher zinc prices ...*

Despite stocks increasing throughout the year, zinc prices in 2010 have been supported by increased demand as a result of stronger world economic growth. Zinc prices increased from an average of US\$1980 a tonne in the June quarter to US\$2013 a tonne in the September quarter. In early December 2010, London Metal Exchange spot zinc prices reached US\$2211 a tonne. For the whole of 2010, world zinc prices are estimated to average around US\$2150 a tonne.

**World zinc prices and stocks**  
daily, ended 2 December 2010



## *... but zinc stocks remain high*

Despite the increase in refined zinc demand in 2010, zinc stocks have increased, reaching around 632 000 tonnes in mid-November 2010, their highest since February 2005. With zinc production forecast to exceed consumption in 2011, world zinc stocks are expected to rise further, reaching 5.2 weeks of consumption at the end of 2011.

Against this backdrop, the average zinc price in 2011 is forecast to fall by 7 per cent to around US\$2000 a tonne.

### World refined zinc consumption to increase in 2011

After declining by 5 per cent in 2009, world refined zinc consumption in 2010 is estimated to increase by 13 per cent to around 12.3 million tonnes.

The strong increase in consumption in 2010 in part reflects growing demand from China. As with other mineral commodities, China's share of total global zinc consumption has risen, increasing from 29 per cent in 2005 to 44 per cent in 2009. In the first eight months of 2010, China's consumption of refined zinc increased by 14 per cent year-on-year to 3.4 million tonnes. Supporting this increased consumption was higher demand for galvanised (zinc-coated) steel, commonly used in housing construction and motor vehicle production. The strong demand for galvanised steel is expected to underpin an estimated 11 per cent increase in China's refined zinc consumption in 2010 to 5.2 million tonnes.

### China's automobile output and growth



Source: National Bureau of Statistics of China.

In the OECD, zinc consumption in 2010 has increased strongly, albeit from a lower base following sharp declines in 2009. For example, European consumption in 2010 is estimated to increase by 24 per cent to 2.5 million tonnes, after falling below 2 million tonnes in 2009, for the first time since 1965. The increase in OECD zinc consumption in 2010 reflects higher activity in major OECD zinc consuming economies, largely as a result of the stimulus packages implemented in response to the global financial crisis.

In 2011, world refined consumption is forecast to increase by a further 6 per cent to 13.1 million tonnes. The main driver of zinc consumption growth is expected to come from developing economies, particularly China. Despite increases in domestic production capacity, China is expected to remain a net importer of refined zinc, with net imports forecast to increase from an estimated 250 000 tonnes in 2010 to 360 000 tonnes in 2011. China's refined zinc consumption in 2011 is expected to increase by 9 per cent to 5.7 million tonnes, supported by continued increases in residential construction and production in the motor vehicle and domestic appliance industries.

## Zinc

In the OECD, zinc consumption in 2011 is also forecast to increase, albeit at a slower rate than in 2010. This reflects assumed weaker economic growth in the United States, the European Union and Japan. Zinc consumption in both the United States and the European Union is expected to increase by 4 per cent and 5 per cent to 980 000 tonnes and 2.6 million tonnes, respectively. Japan's zinc consumption is expected to increase by 2 per cent to 530 000 tonnes.

### *Continued strong growth in zinc mine and metal production*

In 2010, world zinc mine production is estimated to increase by 11 per cent to 12.5 million tonnes, supported by the restart of operations at a number of mines that had either shut down or cut back production because of the global economic downturn. Mines that have been restarted during the year include the Coricancha (10 000 tonnes a year) and Iscaycruz (170 000 tonnes a year) mines in Peru, and Nyrstar's Tennessee mines in the United States (combined annual capacity of 130 000 tonnes).

Looking ahead, world zinc mine production is forecast to rise by a further 7 per cent to 13 million tonnes in 2011, underpinned by higher production in Australia, India, China and South America. In China, a planned expansion at the Lanping mine in Yunnan is expected to increase production by 100 000 tonnes to around 200 000 tonnes annually. Continued expansion of India's Rampura Agucha zinc and lead mine and the Sindesar Khurd deposit (additional combined capacity of 175 000 tonnes a year), as well as the reopening of the Rosario mine (12 000 tonnes a year) in Mexico, are expected to contribute to higher world zinc mine production in 2011.

World refined zinc production in 2010 is estimated to increase by 11 per cent to 12.5 million tonnes. This strong increase reflects the start-up of a number of operations, including the Shaanxi Hanzhong Zinc smelter in China (100 000 tonnes a year). In 2011, world refined zinc production is forecast to increase by a further 6 per cent to 13.2 million tonnes. Contributing to the increase will be new zinc smelting capacity from operations scheduled to commence in 2011, including the JCC zinc plant in China (100 000 tonnes a year) and the Rajpura Dariba facility in India (210 000 tonnes a year).

### *Growth in Australian zinc production in 2010–11*

After declining by 3 per cent in 2009–10 to around 1.4 million tonnes, Australian zinc mine production is forecast to rise by 11 per cent in 2010–11 to 1.5 million tonnes. Underpinning this increase will be higher production in Queensland, which accounted for 63 per cent of Australia's production in 2009–10. In particular, higher production is forecast from the production ramp-up at Xstrata's Mt Isa mine and the resumption of normal production at MMG's Century mine, following the suspension of the concentrator in late 2009.

Higher production in 2010–11 is also expected from the ramp-up of production at CBH Resources' Endeavor mine in New South Wales (capacity of 80 000 tonnes a year), Terramin's Angas mine in South Australia (31 000 tonnes a year) and MMG's Golden Grove mine in Western Australia (141 000 tonnes a year). In addition, the resumption of production at Bass Metals' Hellyer mine (30 000 tonnes a year) in early 2011 is expected to contribute to higher production during the year.



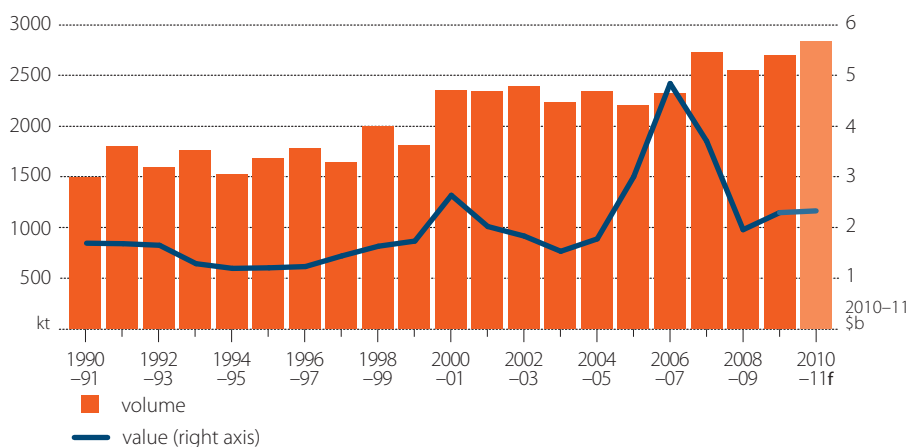
Australia's zinc smelting capacity comprises operations at Sun Metal's Townsville refinery and Nyrstar's Port Pirie and Hobart smelters. With no additions scheduled to Australia's zinc refining capacity, refined zinc production is forecast to total around 520 000 tonnes in 2010–11.

### Australia's export earnings to rise

In line with higher mine production, Australian exports of zinc ores and concentrates are forecast to increase by approximately 5 per cent in 2010–11 to around 2.4 million tonnes. Exports of refined zinc are also forecast to increase, by 6 per cent to around 450 000 tonnes.

The effect of increased export volumes on export earnings in 2010–11 are expected to more than offset lower world zinc prices and the assumed appreciation of the Australian dollar against the US dollar. The value of zinc exports is forecast to increase by around 5 per cent to \$2.3 billion in 2010–11.

### Australian zinc exports



### Zinc outlook

		2009	2010 f	2011 f	% change
<b>World</b>					
Production – refined	kt	11 306	12 533	13 234	5.6
Consumption	kt	10 873	12 300	13 073	6.3
Closing stocks	kt	923	1 156	1 317	13.9
– weeks consumption		4.4	4.9	5.2	6.1
Price	US\$/t	1 595	2 146	1 998	–6.9
	USc/lb	72.3	97.3	90.6	–6.9
		<b>2008</b>	<b>2009</b>	<b>2010</b>	
		<b>–09</b>	<b>–10 s</b>	<b>–11 f</b>	
<b>Australia</b>					
Mine output	kt	1 411	1 362	1 508	10.7
Refined output	kt	506	515	520	1.0
Exports					
– ores and concentrates	kt	2 101	2 280	2 389	4.8
– refined	kt	451	425	449	5.6
– total value	A\$m	1 858	2 217	2 318	4.6