BMI Research
A FitchGroup Company

Q4 2015

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IRAN
AGRIBUSINESS REPORT

INCLUDES 5-YEAR FORECASTS TO 2019

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Part of BMI's Industry Report & Forecasts Series

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BMI Industry View

BMI View: The landmark Iranian nuclear agreement of July 2015 paves the way for the return to growth of the Iranian economy and for a strong uptick in foreign investment. Consumer demand, including for agricultural products, will be a strong beneficiary. The increased supply of inputs and potential investment in capacity and infrastructure will improve the outlook for agricultural production growth in the country. However, such a development will depend on the country doing some key modernisation investment, particularly in irrigation, as Iran relies heavily on the vagaries of the weather. Therefore, production expansion will be slower than consumption growth in the coming years and Iran will remain a large and growing importer of key commodities.

Agribusiness Market Value

BMI Market Value By Commodity (2007-2019)
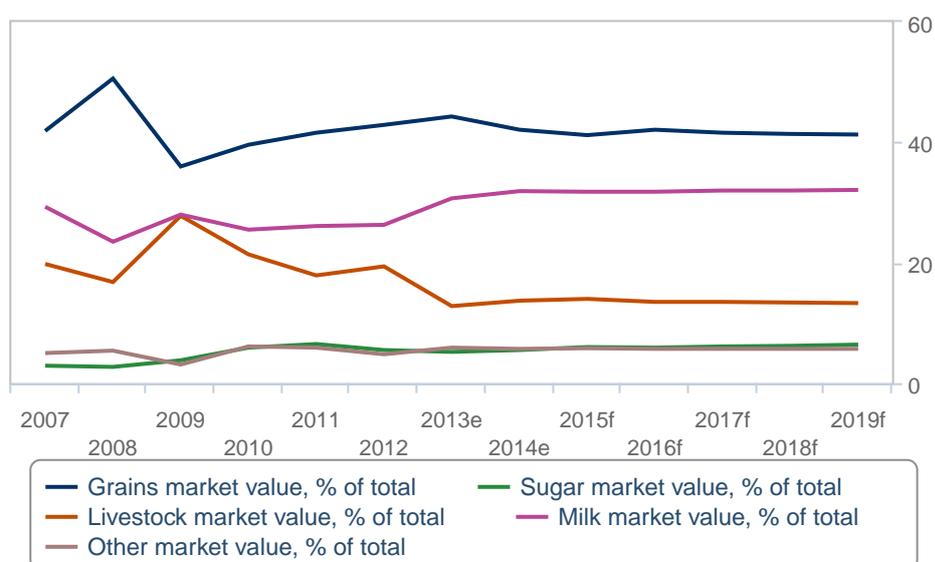
e/f = BMI estimate/forecast. Source: FAO, BMI

Key Forecasts

- **Wheat production growth to 2018/19: 6.1% to 15.1mn tonnes.** Wheat yields are expected to improve owing to the modernisation of technology, including hardier grains variants, greater access to relevant inputs and a larger area of the country benefiting from new irrigation facilities.

- **Sugar consumption growth to 2019: 27.6% to 3.0mn tonnes.** Sugar demand will be mainly driven by population growth and the improved macroeconomic conditions following the lifting of sanctions from 2016.

- **Poultry production growth to 2018/19: 15.9% to 927,400 tonnes.** Growth will be driven by domestic demand and the effects of increased investment.

- **BMI universe agribusiness market value: USD47.7bn in 2015** (down 0.2% compared with 2014, growth forecast to average 2.9% annually between 2014 and 2019).

- **2016 real GDP growth: 2.9%** (up from 0.6% expected in 2015; predicted to average 3.0% from 2015 to 2019).

- **2016 consumer price inflation: 18.0% y-o-y** (up from 23.0% expected in 2015; predicted to average 15.8% y-o-y from 2015 to 2019).

Key Developments

The landmark Iranian nuclear agreement reached in Vienna on July 14 2015 paves the way for the return to growth of the Iranian economy and for strong uptick in foreign investment, with consumer sectors a strong beneficiary. The sanctions easing process is far broader than previously thought, and almost all economic sanctions will be lifted at the beginning of 2016. Western food and drink multinationals will benefit from the end of sanctions in the banking, insurance and transport sectors. The end of shipping and banking sanctions will lower the costs of doing business in Iran - although we caution that various operating risks remain. We also expect the end of sanctions to have a positive impact on consumer confidence.

In the agribusiness space, the livestock and dairy sectors are also likely to benefit. Agricultural production in general is likely to benefit from a more easy access to cheaper inputs, which will help yields improve. However, such an improvement depends on the country doing some key modernisation investment, particularly in irrigation, as Iran relies heavily on the vagaries of the weather. The lifting of sanctions will have a more rapid and direct impact on agricultural consumption, as food price inflation is likely to ease significantly, from very elevated current levels. As such, we have revised up our consumption forecasts for a number of commodities. Because of these dynamics, Iran's dependence on imported grain and sugar will grow over the medium term.

With the lifting of the sanctions, Iran is likely to re-diversify its import sources. Although food products were not targeted by sanctions, the restrictions made deals and payments between traders difficult. Therefore Iran has been increasingly relying on Indian food exports - and all products in general - as the country did not back the sanctions and was one of the few countries to have a barter trade system and other payment mechanisms with Iran, which helped India to import oil from Iran and export rice and other items to the country. India became Iran's largest provider of basmati rice and soymeal according to local sources.

The lifting of the sanction poses a clear risk for Indian exports, as Iran will most likely look to import from a larger set of suppliers again and will turn to Thailand and Pakistan for rice, two traditional exporters to Iran. For sugar, Iran will increase imports from Brazil.

SWOT

Agribusiness

SWOT Analysis

Strengths
- A diverse landscape and climate provides Iran with strong fundamentals, positioning the country as arguably the most productive agricultural state in the Middle East.

- The country's sugar-processing infrastructure is relatively well developed.

- Iran's milk production and added-value processing infrastructure is well developed.

Weaknesses
- A history of periodic droughts due to inadequate rainfall can undermine production.

- A reliance on oil exports for GDP revenue suggests that investment in agriculture predominantly depends on volatile external factors.

- An inefficient state sector, coupled with a strong state presence in an array of agricultural sectors, diminishes potential producer gains, limiting private investment.

- Increased investment in irrigation could serve to improve agricultural output, and yet it is enormously costly.

- The government has an implied favourable agricultural policy in order to boost self-sufficiency, yet its openness to imports suggests that it has not followed through.

Opportunities
- A satisfactory conclusion to the stand-off with the West (fuelled by disagreement regarding Iran's nuclear intentions) may lead to an increase in foreign investment.

- Investment in the development of irrigation could offset some of the production losses associated with drought.

Threats
- The prevalence of grey or informal markets serves to hinder the efficient flow of goods through official channels, thus limiting the scope for fiscal-based investment.

- In the future, subsidies may drain funds away from areas in which they could be better and more sustainably spent.

SWOT Analysis - Continued

- The constant speculation regarding the status of Iran's uranium enrichment programme could dampen investor confidence in the local business environment.

Operational Risk

SWOT Analysis

Strengths
- Iran boasts high numbers of skilled graduates in technical fields such as engineering, construction and science.

- The transport network offers good internal and cross-border connections, and is currently able to meet the country's supply chain needs.

- The banking sector is relatively well developed, allowing extension of finance and credit to citizens.

- A well established intelligence agency and robust counter-terrorist capabilities deter attacks in most areas of the country.

Weaknesses
- Costs of employment are increases because the Iranian Labour Code affords workers a high level of protection and generous benefits.

- The costs of inland transportation, as well as the risk of congestion and traffic accidents disrupting supply chains, is raised due to reliance on the road network as the dominant freight mode.

- There is widespread corruption and heavy handed censorship, which will pose unforeseeable operational costs and limit business activities.

- The expansion of IS in Iraq poses a significant risk to Iran's security.

Opportunities
- The literacy rate of the labour force is increasing as the benefits of investment in primary school education are filtering through.

- The development of road and rail connections with Iran's neighbours highlights the country's potential to develop into key transit point for East-West trade.

- Relaxing of sanctions is resulting in greater foreign direct investment inflows.

- There is potential to combat the drug supply into Europe through programmes in Iran.

SWOT Analysis - Continued

Threats
- The availability of highly skilled labour is restricted as the brain drain results in an exodus of technically qualified workers.

- The risk of electricity and water shortages will be enhanced due to growth in energy- and water-intensive agricultural, mining and manufacturing industries.

- Lax intellectual property protection carries the threat of patent theft, fraud or infringement, leading to profit losses.

- Even if sanctions are lifted, the difficult operating environment in Iran, typified by high taxes and widespread corruption, will continue to deter investors.

Industry Forecast

Grains Outlook

BMI Supply View: Wheat and barley are the main crops cultivated in Iran. Wheat is the dominant cereal crop, accounting for almost 70% of aggregate cereal production. Irrigated wheat covers only one-third of the total wheat area; as a result, the bulk of the wheat crop depends on the performance of seasonal precipitation. Most of the rain-fed wheat crop is concentrated in the north-western region of the country. Small amounts of rice and maize are also produced in the country.

Grains production will recover in the ongoing 2015/16 season, after output declined due to unfavourable weather in 2014/15. We forecast wheat production to grow by a strong 6.0% y-o-y to 14.0mn tonnes, following the 7.0% drop last year. Corn and barley output will also rise.

The longer term outlook is improving for Iran's agriculture, amidst the upcoming lifting of international sanctions in 2016. Production in general is likely to benefit from improved access to inputs which will help yields improve. However, such an improvement depends on the country doing some key modernisation investment, particularly in irrigation, as Iran relies heavily on the vagaries of the weather. Despite recent improvements, wheat yields in Iran are still fairly low by world standards - comparable to the level seen in Turkey but some way below that of Pakistan. Because of these challenges, we expect wheat production to increase by a weak 6.1% between 2013/14 and 2018/19, to 15.1mn tonnes. Corn output will record similar growth, while barley production will rise at a faster pace.

BMI Demand View: The lifting of sanctions will have a more rapid and direct impact on grains consumption, as food price inflation is likely to ease significantly, from their current very elevated levels. Grains consumption growth will accelerate and outpace production expansion in the coming five years, after they recorded lackluster growth over recent years. We forecast wheat consumption growing by 10.5% from 2013/14 to 2018/19, while corn consumption will rise by 19.5% and barley by 18.9%, boosted by growing animal feed demand.

Table: Corn Production & Consumption (Iran 2014-2019)

	2014	2015f	2016f	2017f	2018f	2019f
Corn production, '000 tonnes	1,750.0	1,770.0	1,790.0	1,810.0	1,830.0	1,850.0
Corn production, % y-o-y	34.6	1.1	1.1	1.1	1.1	1.1
Corn consumption, '000 tonnes	6,084.0	6,327.4	6,517.2	6,745.3	6,988.1	7,267.6
Corn consumption, % y-o-y	4.0	4.0	3.0	3.5	3.6	4.0

f = BMI forecast. Source: USDA, BMI

Table: Barley Production & Consumption (Iran 2014-2019)

	2014	2015f	2016f	2017f	2018f	2019f
Barley production, '000 tonnes	3,250.0	3,412.5	3,514.9	3,620.3	3,728.9	3,840.8
Barley production, % y-o-y	-4.4	5.0	3.0	3.0	3.0	3.0
Barley consumption, '000 tonnes	4,232.0	4,359.0	4,511.5	4,669.4	4,842.2	5,031.0
Barley consumption, % y-o-y	-8.0	3.0	3.5	3.5	3.7	3.9

f = BMI forecast. Source: USDA, BMI

Table: Wheat Production & Consumption (Iran 2014-2019)

	2014	2015f	2016f	2017f	2018f	2019f
Wheat production, '000 tonnes	14,200.0	13,200.0	13,992.0	14,341.8	14,700.3	15,067.9
Wheat production, % y-o-y	2.9	-7.0	6.0	2.5	2.5	2.5
Wheat consumption, '000 tonnes	16,892.0	16,807.5	17,227.7	17,675.6	18,152.9	18,661.2
Wheat consumption, % y-o-y	3.0	-0.5	2.5	2.6	2.7	2.8

f = BMI forecast. Source: USDA, BMI

Increasing Reliance On Imports In Sight

In spite of the government's plans to decrease reliance on imported wheat over the next four years, we forecast Iran's wheat deficit to grow in the coming years, along with other grains. Countries like India, Latin America and the Black Sea Region will most likely benefit from a rise in import demand.

Stockpiling Policy

Iran - Wheat & Corn Ending Stocks & Imports ('000 tonnes)
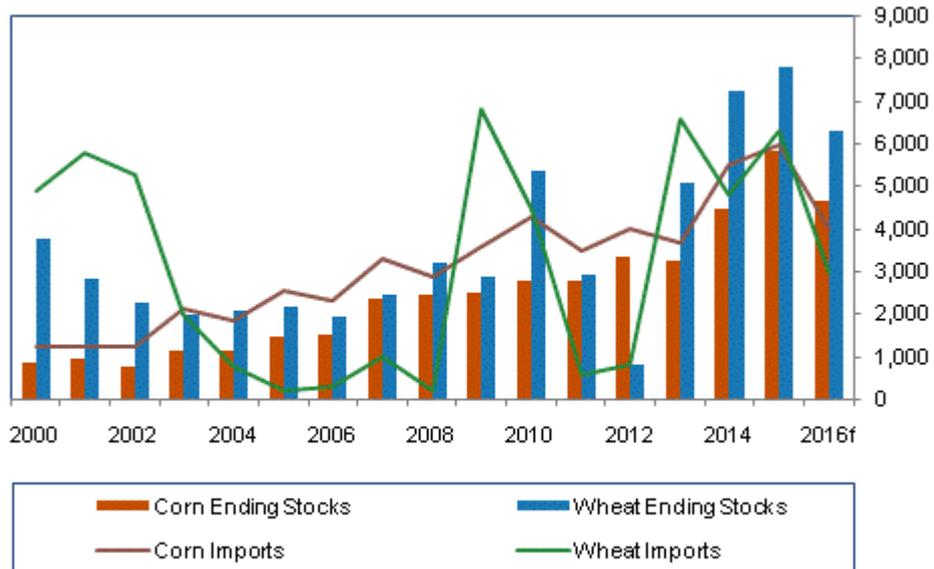
Source: BMI, USDA, FAO

Grains Background

Grains are cultivated throughout Iran and are an extremely important part of the local farming sector. Wheat is the main grain, accounting for almost 70% of the aggregate cereal production, followed by barley and then corn. These crops, particularly wheat and barley, are grown extensively on farmlands in mountainous areas of the country. According to the FAO, irrigated wheat covers only one-third of the total wheat area, and the majority of the wheat crop depends on the weather - namely rain. Most of the rain-fed wheat crop is concentrated in the north-west of the country. Since droughts ravaged the country between 1999 and 2001, the area of land under irrigation has increased, which has led to improved yields, even in subsequent drought years.

The Iranian grains sector is highly regulated. Producers receive subsidised access to input costs such as fertiliser and pesticides, as well as a guaranteed support price for their crops. Wheat is then sold to consumers at heavily subsidised rates. Despite government aid, farmers often complain that the support price is too low for them to turn an acceptable profit, and that the support allows inefficient farmers to

continue producing wheat when other activities would have been a better use of capital and labour. This has inhibited the development of larger, more efficient farms and drained funds that could have been used to further boost infrastructure, such as irrigation. The effect of more targeted support for farming can be seen in the rapid rise in wheat production in the past decade. Increased investment in irrigation saw average yields rise considerably over the five years before the drought of 2008/09.

Despite the improvements in infrastructure, large areas of the country, particularly in the north and west, are still reliant on rain-fed agriculture. In some areas this is because the land is unsuitable for irrigation, but other areas could benefit from improved access to water, particularly in years when rains are below average. These areas also suffer from a lack of mechanisation, with a very low density for harvesters compared with the irrigated areas in the south and east of Iran. With the government now in the process of abolishing its subsidies on food, money could become available for funding infrastructure improvements which will, in time, help to bring down the cost of food.

Table: Barley Production & Consumption (Iran 2009-2014)

	2009	2010	2011	2012	2013	2014
Barley production, '000 tonnes	1,547.0	3,446.0	3,210.0	2,900.0	3,400.0	3,250.0
Barley production, % y-o-y	-50.2	122.8	-6.8	-9.7	17.2	-4.4
Barley consumption, '000 tonnes	3,550.0	3,700.0	3,900.0	4,100.0	4,600.0	4,232.0
Barley consumption, % y-o-y	-1.4	4.2	5.4	5.1	12.2	-8.0

Source: USDA, BMI

Table: Corn Production & Consumption (Iran 2009-2014)

	2009	2010	2011	2012	2013	2014
Corn production, '000 tonnes	1,778.0	1,643.0	2,140.0	2,700.0	1,300.0	1,750.0
Corn production, % y-o-y	-24.7	-7.6	30.2	26.2	-51.9	34.6
Corn consumption, '000 tonnes	5,350.0	5,650.0	5,650.0	6,050.0	5,850.0	6,084.0
Corn consumption, % y-o-y	3.9	5.6	0.0	7.1	-3.3	4.0

Source: USDA, BMI

Table: Wheat Production & Consumption (Iran 2009-2014)						
	2009	**2010**	**2011**	**2012**	**2013**	**2014**
Wheat production, '000 tonnes	7,957.0	13,480.0	13,500.0	12,400.0	13,800.0	14,200.0
Wheat production, % y-o-y	-49.9	69.4	0.1	-8.1	11.3	2.9
Wheat consumption, '000 tonnes	15,800.0	16,800.0	15,700.0	14,900.0	16,400.0	16,892.0
Wheat consumption, % y-o-y	1.9	6.3	-6.5	-5.1	10.1	3.0

Source: USDA, BMI

Risks To Outlook

In the near term, Iran's grains sector will remain at risk of adverse weather conditions. This is despite the prospect of increased investment. The droughts in the 2008/09 harvest season saw grains production drop by almost one-third, highlighting the need for greater investment into improving infrastructure.

A key downside risk to consumption is the further removal of food subsidies. While the full effect of grain prices owing to the subsidy decrease is yet to be known, sudden increases in food price inflation caused by the abandonment of the subsides (which we have already been seeing) could result in long-term grain consumption levels decreasing despite the fact that grains are a staple food in Iran. Conversely, should the subsidies be re-instituted, consumption growth could increase beyond our current forecasts.

The impact of sanctions presents a further downside risk, although so far the government has succeeded in preventing food shortages by purchasing huge quantities of grains. If sanctions continue, this may not be a viable policy in the longer term, since it is dependent on the presence of surpluses in major grain producers and the willingness of trading partners to circumvent banking controls.

Rice Outlook

BMI Supply View: Rice is the third largest grain produced in Iran, behind wheat and barley. Rice production has been growing at a slow pace over recent years, as area under cultivation stagnates and yield growth is weak. In the 2015/16 season, which started in August 2015 with the harvest, we estimate rice production in Iran will grow for the seventh consecutive year. Output will reach 1.7mn tonnes, up 2.0% y-o-y.

We deem the government's plan to reach self-sufficiency by 2016 as unrealistic. Overall, areas under cultivation of rice as well as yields have been stagnating over the past 20 years, to around 580,000 hectares (ha) and 4.21tonne/ha respectively. The country usually records a deficit of around 1.7mn tonnes, which we see increasing in the coming years. The government recently replaced its initially target of attaining self-sufficiency in 2013. To 2018/19, we expect production to grow by 9.5% on the 2013/14 level to reach 1.8mn tonnes. Local production will remain exposed to the competition that local producers face from imports. Although imports are monitored, they continue to grow and have discouraged local producers from making the necessary investment to bolster domestic output growth.

BMI Demand View: The lifting of international sanctions in 2016 will have a positive impact on rice consumption, as food price inflation is likely to ease significantly, from their current very elevated levels. We therefore forecast rice consumption to grow by 10.2% on the 2014 level to 3.7mn tonnes in 2019.

Table: Rice Production & Consumption (Iran 2013-2019)							
	2013	**2014e**	**2015f**	**2016f**	**2017f**	**2018f**	**2019f**
Rice production, '000 tonnes	1,560.0	1,660.0	1,680.0	1,713.6	1,747.9	1,782.8	1,818.5
Rice production, % y-o-y	0.6	6.4	1.2	2.0	2.0	2.0	2.0
Rice consumption, '000 tonnes	3,300.0	3,359.9	3,418.0	3,474.2	3,528.5	3,580.7	3,630.6
Rice consumption, % y-o-y	0.6	1.8	1.7	1.6	1.6	1.5	1.4

e/f = BMI estimate/forecast. Source: USDA, BMI

Total Import Volume Relatively Unaffected Despite Sanctions

Financial sanctions imposed by the US and EU to pressure Tehran over its nuclear programme are playing havoc with Iran's ability to import goods, including food. Food and consumer items are not targeted by sanctions, but the sanctions make deals and payments between traders difficult. Iran defaulted on payments

for rice from India, its top supplier, in 2012. As a result, some exporters to Iran have stopped selling rice to the country with the customary 90 days credit for payment. Even payments considered more secure, via agents in the UAE, are being affected due to currency fluctuations.

India's largest rice supplier, **KRBL Limited**, which is also the largest Indian exporter of basmati rice, is reportedly looking to East and West Africa for new markets in the wake of falling global rice prices and export restrictions to Iran, the largest buyer of basmati rice. **LT Foods**, which exports to Iran and is another major Indian rice exporter, is also allegedly sourcing for new markets to sell to.

Despite these difficulties, Iran is still able to import much-needed food supplies. However, the value of imports has skyrocketed. Total shipments in 2013/14 are likely to reach 1.65mn tonnes, down from 1.9mn tonnes in 2012/13. This is higher than the 10-year average of 1.4mn tonnes. In 2014/15, import growth is likely to ease given stocks, and should reach 1.7mn tonnes, up by a mild 3.0% y-o-y (compared with the annual growth of imports of 8.7% in the past 10 years).

Iran To Re-Diversify Its Import Sources Should Sanctions Ease

Iran has been increasingly relying on Indian rice exporters due to Western sanctions since 2011. India was one of the few countries to have a barter trade system and other payment mechanisms with Iran, which helped India to import oil and export rice and other items to Iran. This led to a surge in India's basmati rice exports, and Iran quickly overtook Saudi Arabia and the UAE to become the largest buyer of Indian basmati rice in 2012/13.

However, the recent progress in talks between Iran and Western countries to reach an agreement on the former's nuclear programme may weaken the Indian advantage by eventually allowing free trading in US dollars if Iran dismantles its nuclear programme in six months. Iran and the so-called P5+1 countries - China, France, Russia, the UK and the US plus Germany - on November 24 2013 reached an understanding on the implementation of a deal under which sanctions on some of Iran's trade in goods and services will be suspended. The signing of the interim accord is a positive step in negotiations, in our view, and could lead to the lifting of additional sanctions (especially those on banking).

India Is Traditionally The Largest Supplier

Iran - Rice Imports By Country, 2011 (% total volume imported)
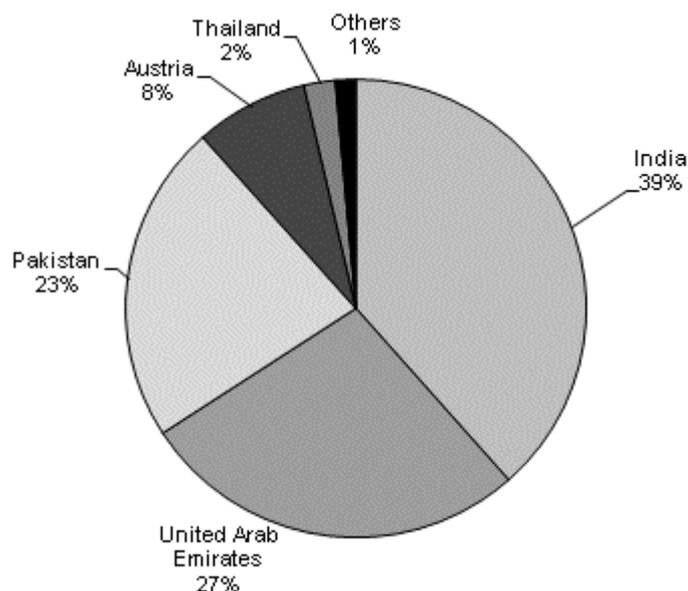
Note: Data for UAE mainly represents re-exported rice to Iran originally from India, Pakistan and Thailand. Source: Trade Map, BMI

The lifting of sanctions is likely to increase Iran's demand for Thai and Pakistani rice. Pakistan, which is the only other major basmati rice producer in the world and which also neighbours Iran, stands to gain the most. Pakistani exporters have had difficulties so far in obtaining commercial letters of credit, a vital process in international trade, owing to the poor availability of international banking between the two countries.

Thailand is now looking to restart exporting to Iran, after a default by a private Thai rice exporter in 2011 halted shipments. Iranian officials are supposed to inspect Thailand's production procedures from field to shipment in Q414 in order to re-allow exports.

Moreover, Iran is stiffening its rules regarding rice imports, which will be detrimental to India's basmati exports. Iran decided to revise in March 2014 the accepted level of arsenic content in basmati rice. The government also decide to increase the import duty for basmati rice to 45% from 22% in September. India sales to Iran have plunged recently, as exports were at around 50,000-60,000 tonne a month since February 2014, compared with 130,000 imported

In the longer term, we do not expect India to continue as a major exporter of non-basmati rice given the unpredictability of its export policies. Indeed, we view India as an unstable source of rice over the long term.

Broadly Stagnating

Iran - Rice Area Harvested ('000 ha) & Rough Rice Yields (tonnes/ha)
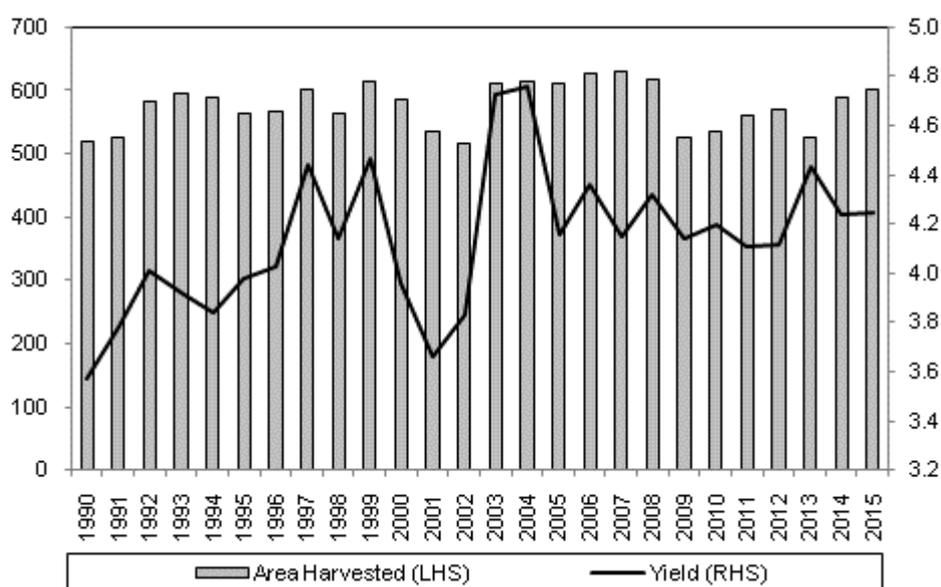
Source: BMI, USDA

Table: Rice Production & Consumption (Iran 2009-2014)						
	2009	**2010**	**2011**	**2012**	**2013**	**2014e**
Rice production, '000 tonnes	1,441.0	1,487.0	1,510.0	1,550.0	1,560.0	1,660.0
Rice production, % y-o-y	-18.0	3.2	1.5	2.6	0.6	6.4
Rice consumption, '000 tonnes	3,100.0	2,950.0	3,250.0	3,280.0	3,300.0	3,359.9
Rice consumption, % y-o-y	3.3	-4.8	10.2	0.9	0.6	1.8

e = BMI estimate. Source: USDA, BMI

Risks To Outlook

Drought continues to represent an incalculable downside risk to output. Although investment is urgently needed to improve irrigation, there is little likelihood that we will see the positive impact of such investment on production over our forecast period. UN-backed trade sanctions will exacerbate these risks. Such sanctions will impact agricultural investment as well as Iranian GDP.

Given that Iran remains quite heavily dependent on rice imports, risks to demand are closely associated with the state of the global rice market. In the short term, **BMI** predicts global surpluses and lower prices on the back of good harvests in the leading producers, China and India, but there is always the risk that prices could move steeply upwards if a major producer experiences a poor crop. The Iranian government could struggle to effectively subsidise these high-cost imports, which pose a downside risk to our demand forecasts. Naturally, continued good harvests present an upside risk, assuming that Iran can continue to finance its rice imports in the face of sanctions.

A sustained period of high prices or potential import shortages due to sanctions could provide the stimulus domestic farmers need to invest in increasingly local production. This represents an upside risk to our production forecast. Simultaneously, the effects of long-running sanctions on household expenditure present a downside risk for consumption of rice, especially if, as expected, Iran is unable to wean itself off imports.

Sugar Outlook

BMI Supply View: Iran is widely regarded as having failed to exploit its sugar production resources as a result of inadequate investment and a lack of public and private sector support. A failure to control imports, which have flooded in despite modest import tariff increases, has been blamed for a growing number of bankruptcies at state-owned sugar plantations.

Out to our five-year forecast to 2018/19, we forecast sugar production to expand by a weak 11.7% on the 2013/14 level to 1.5mn tonnes. Although Iran is instituting plans to increase production out to 2020, we have not yet seen significant progress and therefore maintain a cautious forecast. Production capacity is slowly growing, as shown by the opening of a new sugar mill in Oshnavieh with a 500,000 tonne capacity in 2013.

BMI Demand View: Like for other commodities, the lifting of sanctions will have a positive impact on grains consumption, as food price inflation is likely to ease significantly from their current very elevated levels, while growth will accelerate. We have revised up our long term sugar consumption forecasts and now see it rising by 27.6% between 2014 and 2019 to 3.0mn tonnes. Population growth and the development of packaged sugar confectionery will also support growth. Demand for modern packaged sugar confectionery in Iran remains immature, while traditional sugar confectionery products are extremely popular. Stronger promotional activities undertaken by key players in the category has made many sugar confectionery products more visible and accessible through grocery retail channels and this has given more Iranian consumers a chance to try packaged sugar confectionery as an alternative to simpler traditional alternatives such as sugar cubes.

Table: Sugar Production & Consumption (Iran 2014-2019)

	2014e	2015f	2016f	2017f	2018f	2019f
Sugar production, '000 tonnes	1,340.0	1,350.0	1,370.0	1,411.1	1,453.4	1,497.0
Sugar production, % y-o-y	3.1	0.7	1.5	3.0	3.0	3.0
Sugar consumption, '000 tonnes	2,350.0	2,467.5	2,590.9	2,720.4	2,856.4	2,999.3
Sugar consumption, % y-o-y	3.1	5.0	5.0	5.0	5.0	5.0
Sugar market value, % of total	5.5	6.0	5.9	6.1	6.2	6.4

e/f = BMI estimate/forecast. Source: National sources, BMI

Struggling To Increase

Iran - Sugar Production & Imports ('000 tonnes)
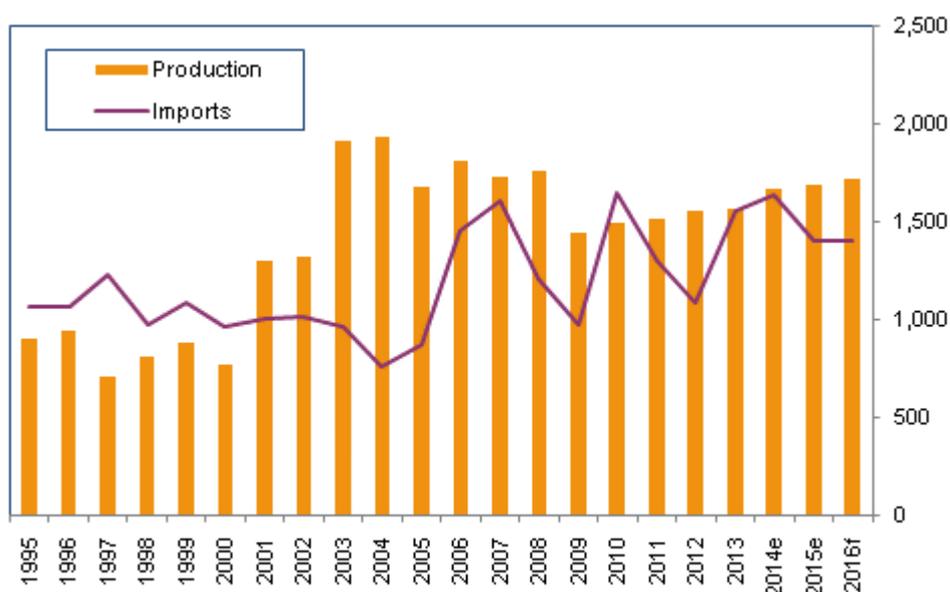
Source: USDA, BMI

Table: Sugar Production & Consumption (Iran 2009-2014)						
	2009	**2010**	**2011**	**2012**	**2013e**	**2014e**
Sugar production, '000 tonnes	610.0	1,085.0	1,200.0	1,250.0	1,300.0	1,340.0
Sugar production, % y-o-y	-46.7	77.9	10.6	4.2	4.0	3.1
Sugar consumption, '000 tonnes	2,467.0	2,724.0	2,124.0	2,200.0	2,280.0	2,350.0
Sugar consumption, % y-o-y	8.4	10.4	-22.0	3.6	3.6	3.1
Sugar market value, % of total	3.8	5.9	6.5	5.5	5.2	5.5

e = BMI estimate. Source: National sources, BMI

Risks To Outlook

The main risk to our sugar production forecast relates to the potential for greater levels of investment in the sector. Public sector support for the sugar industry does not appear forthcoming in spite of import tariff

increases. Meanwhile, the prospect for private sector investment is similarly bleak. The likely imposition of further UN sanctions, in addition to the pressure already exerted by US sanctions on financial transactions, would prejudice future investment in the sector.

On the demand side, the biggest risk to our consumption forecast comes from high prices. Prices are expected to remain high by historical standards, and this could pose a threat to the sustainability of domestic demand in a country that is dependent on costly imports. If sanctions are maintained in the longer term, the costs of such imports will only increase.

Dairy Outlook

BMI Supply View: The short- and medium-term outlook for Iran's dairy sector is looking brighter, as the upcoming lifting of international sanctions bode well for dairy production and consumption growth. Milk production has been hurt in recent years by international sanctions - although the sanctions have an explicit exemption for food - as they made more difficult the import of grains and feed.

The easing of restriction will lead to a decrease in feed import prices, especially at a time when international grain prices are relatively low. This will help dairy production to accelerate in the coming years. However, low domestic milk prices, kept artificially low by the government, will prevent a boom in output growth. Over our five-year production forecast to 2018/19, we see output expanding moderately, by 14.3% on the 2013/14 level to 8.8mn tonnes.

BMI Demand View: The improvement in domestic production, coupled with a more favourable economic growth over the coming years thanks to the lifting of the international sanctions will support dairy products consumption in the medium term. We forecast consumption out to 2019 to grow by 15.1% to 3.1mn tonnes and per capita consumption to rise by an even smaller 8.5% to 36.9kg, suggesting that population growth surpasses consumption growth per capita.

Table: Milk Production & Consumption (Iran 2014-2019)						
	2014e	**2015f**	**2016f**	**2017f**	**2018f**	**2019f**
Milk production, '000 tonnes	7,700.0	7,777.0	8,010.3	8,258.6	8,522.9	8,804.2
Milk production, % y-o-y	2.7	1.0	3.0	3.1	3.2	3.3
Liquid milk consumption, '000 tonnes	2,666.2	2,684.8	2,765.4	2,856.6	2,956.6	3,069.0
Liquid milk consumption, % y-o-y	3.0	0.7	3.0	3.3	3.5	3.8
Milk market value, % of total	31.9	31.8	31.8	32.0	32.0	32.1

e/f = BMI estimate/forecast. Source: National sources, BMI

Improving Outlook Amid Lifting Of Sanctions

The short- and medium-term outlook for Iran's dairy sector is looking brighter, as improving profitability conditions, coupled with the upcoming lifting of international sanctions, bode well for growth. The Iranian nuclear deal will generate an uptick in foreign investment in the food and drink sector from 2016, thanks to lower insurance and transport costs, the reintegration of Iran into the international banking system and the

attractiveness of Iran's largely untapped consumer base. High operational costs will prevent a boom and Western European and GCC companies will be the strongest beneficiaries.

Below we highlight some favourable characteristics of the Iranian consumer.

- **Scalable and young population:** Iran's population of 78.5mn is attractive for fast-moving consumer goods (FMCG) whose strategies often rely on high volumes, especially given that more than 40% of the population is below 25.

- **High urbanisation:** Almost 70% of the population lives in urban areas, making it easier for F&D companies to reach consumers.

- **Strong taste for Western products:** Iran offers a well-educated population, with a developed taste for Western products and consumption patterns. Anecdotal evidence suggests that even during the sanctions-era, Western brands were still finding strong resonance, as illustrated by the Western-style shopping centres flourishing in the country and the popularity of local fast-food chains largely inspired by their American counterparts.

- **Widespread access to financial services:** Despite the sanctions excluding Iran from the international banking sector, Iranian consumers have a good access to financial services compared with the rest of the MENA region. More than 90% of adults (above 15) had a bank account in 2014, and more than 75% had a debit card. We believe that access to banking services will facilitate the development of modern forms of consumption.

- **Sizeable middle class:** According to our estimates, more than 75% of households had net incomes above USD5,000 in 2014. In addition, the repartition of income is relatively equal in Iran, with the middle 60% of the population accounting for 52.9% of total income in 2014. This is positive for F&D companies, which can distribute their products to a greater share of the population.

While we expect an uptick in foreign investment as sanctions are removed, we caution that we will not see a boom in the F&D sector. Operational and political hurdles will remain for foreign companies, on the back of widespread corruption, a high tax burden and inefficient bureaucratic procedures. Therefore, we believe that companies that were already present in Iran before the sanctions and that maintained a presence in the country will have a competitive advantage, as they have the experience of navigating the complex regulatory environment, ties with local operators and a better knowledge of the market.

Therefore, we maintain our view that Western European food companies are better positioned than their US peers, as many of them continued to operate in the country under the sanctions regime. Our outlook for Saudi food companies like **Savola** is also positive. Despite political tensions between Saudi Arabia and Iran, Saudi food companies have been present in Iran for a certain number of years. As they try to expand their presence regionally, we believe that their expertise of the market and trade procedures will give them a strong advantage. Although it does not operate in Iran at the moment, a company like **Almarai** is well positioned to tap the market.

Large European agribusiness companies are already present in Iran and most, such as Danone entered the market before international sanctions were imposed against the country in 2012. Danone markets fresh dairy and baby nutrition products via its partnership with local dairy company Sahar and sells water under the brand **Damavand**. **Danone** also established its own factory in 2011, located in Qazvin province. Bel Groupe, also involved in the dairy sector, sells some products to Iran.

Table: Milk Production & Consumption (Iran 2009-2014)						
	2009	**2010**	**2011**	**2012**	**2013e**	**2014e**
Milk production, '000 tonnes	7,530.0	7,250.0	7,240.0	7,390.0	7,500.0	7,700.0
Milk production, % y-o-y	9.1	-3.7	-0.1	2.1	1.5	2.7
Liquid milk consumption, '000 tonnes	2,439.6	2,446.9	2,451.8	2,525.4	2,588.5	2,666.2
Liquid milk consumption, % y-o-y	5.0	0.3	0.2	3.0	2.5	3.0
Milk market value, % of total	28.0	25.5	26.1	26.3	30.7	31.9

e = BMI estimate. Source: National sources, BMI

Risks To Outlook

Iran's regular unwillingness to adhere to international norms often leaves it ostracised from the global community, thus limiting its trade links. With the local milk market relatively oversupplied, the absence of strong export potential could discourage production. UN-backed sanctions, if they continue in the medium-to-long term, present a significant downside risk to both production and consumption. Production would be affected in the form of the government's inability to direct investment towards much needed upgrading and expansion of the infrastructure needed for efficient distribution. Consumption will also be affected if Iranian incomes fall sufficiently to render dairy products too expensive for consumers.

Livestock Outlook

BMI Supply View: The short- and medium-term outlook for Iran's livestock sector is looking brighter, as improving profitability conditions, coupled with ongoing easing of international sanctions, bode well for growth. Meat production has been hurt in recent years by international sanctions - although the sanctions have an explicit exemption for food - which made the import of grains and feed more difficult. We expect Iran's livestock sector to continue on the path to recovery after skyrocketing feed prices led to a decline or stagnation in meat and milk output over the past two seasons.

We forecast poultry production to grow by 3.0% y-o-y in 2014/15 to 824,000 tonnes (an improvement from historically weak growth of 0.3% y-o-y in 2011/12 and 2012/13). For beef and veal, output is forecast to grow by 1.5% y-o-y to 242,700 tonnes in 2014/15. Easing feed and meat prices will boost profitability and domestic demand for meat. Our five-year forecast to 2018/19 envisages poultry production expanding by 15.9% on the 2013/14 level to 927,400 tonnes, driven by domestic demand and the effects of increased investment. For beef and veal, we see production expanding by 7.7% between 2013/14 and 2018/19 to 257,600 tonnes. Although it was once dominated by small holdings, the Iranian beef sector has begun to commercialise, which is likely to help to improve efficiency and production volumes. Stronger growth could be achieved were it not for the limitations of grazing room and the beef industry's reliance on relatively expensive grain imports. The production and import of pork and pork products is prohibited under Iran's Islamic law. We deem the government's goal to reach self-sufficiency in poultry and beef as overly optimistic.

BMI Demand View: We believe meat consumption slowed in 2012 and 2013 on the back of rising domestic meat prices resulting from international sanctions and high feed prices. We expect demand to continue its recovery in 2015, with poultry consumption growing by 3.3% y-o-y and beef by 4.6% y-o-y. Over our forecast period to 2019, we expect poultry and meat production to grow in line with population and disposable income growth. Rising disposable incomes are likely to benefit the consumption of beef at the expense of poultry as higher-income consumers trade up to the more expensive meat. We expect poultry consumption to expand by 17.9% on the 2014 level to 1.0mn tonnes in 2019. Beef consumption is expected to make up the ground lost in the early years of our forecast period, increasing by 28.1% to 550,500 tonnes in 2019. The high growth rate is due to base effects, as demand was weak in before 2014.

Table: Beef Production & Consumption (Iran 2014-2019)						
	2014e	2015f	2016f	2017f	2018f	2019f
Beef & veal production, '000 tonnes	239.1	242.7	246.4	250.1	253.8	257.6
Beef & veal production, % y-o-y	0.9	1.5	1.5	1.5	1.5	1.5
Beef & veal consumption, '000 tonnes	429.7	449.4	472.8	497.4	523.3	550.5
Beef & veal consumption, % y-o-y	4.8	4.6	5.2	5.2	5.2	5.2

e/f = BMI estimate/forecast. Source: National sources, BMI

Table: Poultry Production & Consumption (Iran 2014-2019)						
	2014e	2015f	2016f	2017f	2018f	2019f
Poultry production, '000 tonnes	800.0	824.0	848.7	874.2	900.4	927.4
Poultry production, % y-o-y	1.4	3.0	3.0	3.0	3.0	3.0
Poultry consumption, '000 tonnes	865.3	893.8	923.5	954.4	986.6	1,020.1
Poultry consumption, % y-o-y	1.8	3.3	3.3	3.3	3.4	3.4

e/f = BMI estimate/forecast. Source: National sources, BMI

Beef Self-Sufficiency Nowhere In Sight

The government announced in 2013 plans to increase Iran's meat production capacity with large-scale investment over three years. The Central Association of Animal Breeders has submitted a programme to parliament in which Iran will reach self-sufficiency in beef production by 2016. According to this association, the government plans to allocate IRR900bn (USD735mn) for the implementation of the programme, with investments in animal facilities.

We deem this goal as overly ambitious. In fact, we forecast Iran's beef production deficit to widen from 190,500 tonnes in 2013/14 to 292,900 tonnes in 2018/19. Various livestock companies currently operate at only 20-30% of their production capacity. Animals delivered to slaughterhouses are often underweight and do not meet the accepted quality standards.

The government is trying to put a brake on imports, which have been increasing in recent years due to the growing imbalances in the domestic sector. Beef imports were estimated to be 200,000 tonnes in 2013/14,

compared with the 10-year average of 133,000 tonnes. Iran mainly imports beef from low-price producers such as India and Pakistan. Iran is also close to signing a deal with New Zealand for the import of meat from that country, according to the Veterinary Organization of Iran.

Table: Beef Production & Consumption (Iran 2009-2014)

	2009	2010	2011	2012	2013	2014e
Beef & veal production, '000 tonnes	249.0	220.0	232.0	235.0	237.0	239.1
Beef & veal production, % y-o-y	-7.8	-11.6	5.5	1.3	0.9	0.9
Beef & veal consumption, '000 tonnes	382.0	516.0	457.0	399.0	410.0	429.7
Beef & veal consumption, % y-o-y	-5.7	35.1	-11.4	-12.7	2.8	4.8

e = BMI estimate. Source: National sources, BMI

Table: Poultry Production & Consumption (Iran 2009-2014)

	2009	2010	2011	2012	2013	2014e
Poultry production, '000 tonnes	745.0	765.0	785.0	787.0	789.0	800.0
Poultry production, % y-o-y	3.2	2.7	2.6	0.3	0.3	1.4
Poultry consumption, '000 tonnes	763.0	824.0	838.0	830.0	850.0	865.3
Poultry consumption, % y-o-y	4.2	8.0	1.7	-1.0	2.4	1.8

e = BMI estimate. Source: National sources, BMI

Risks To Outlook

Some poultry farmers believe that the government should exercise a more active role in buying from farmers so as to stabilise production - and prices - in order to prevent a glut of domestic poultry in the event of an external shock dampening export demand. Such government support could result in a rise in production, although it would also represent a risk in terms of encouraging greater production efficiency.

Rising costs of feed and farm inputs also pose a risk to our production forecasts. As much of Iran's livestock is grown on small-scale farms, the impact of rising grain and input costs such as fertiliser and diesel will no doubt drag on production growth in the long term.

Commodities Price Analysis

Monthly Grains Strategy

BMI View: *We will be revising down our grain price forecasts in the wake of the August USDA WASDE report, as fundamentals and external forces have been detrimental for prices so far in 2015. We still forecast global market deficits for 2015/16, which will provide modest support for prices over the coming months.*

Upgraded Supplies To Weigh On Prices

Following surprising upward US grain yield and stock revisions by the USDA on August 12, we believe grain prices will show only limited gains in the coming months and consequently we will be revising down our average grain price forecasts for 2016 and beyond. **BMI**, along with several other forecasters, was expecting the USDA to revise US corn and soybean production lower on account of reduced yields stemming from bad weather. Moreover, we had been expecting grains stocks to decline due to increased livestock production, especially poultry. Further still, according to the USDA, total acreage remained unchanged, contrary to our belief that some acreage was lost due to excessive wet weather in some planting areas. Instead, USDA revised up production for corn and soybean as well as US grain stocks, sending prices plummeting: At one point on August 12, both corn and soybean prices fell by the maximum amount allowed in one day by the CBOT exchange.

Big Crash After WASDE Release

S&P GSCI Grains Index (Hourly Chart)
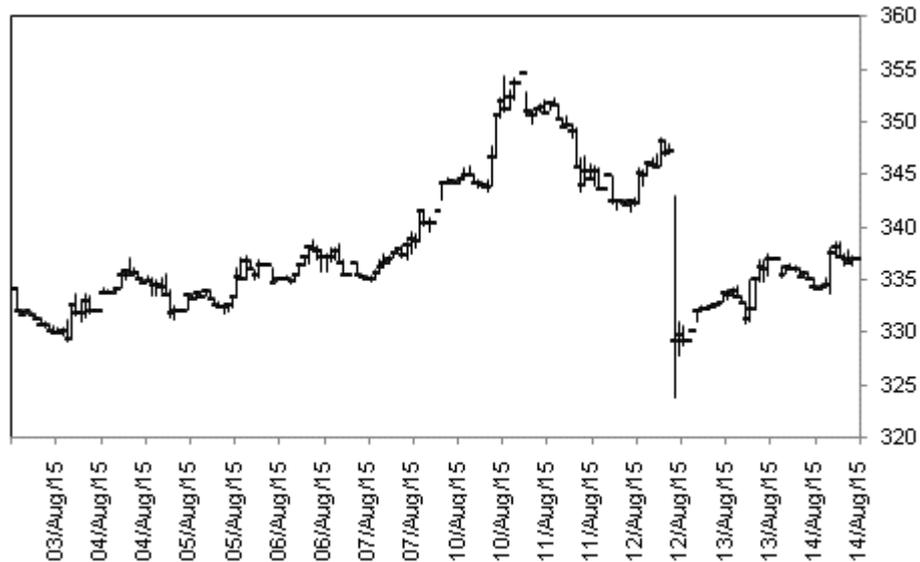
Sources: Bloomberg, BMI

Given that our production forecasts for many key harvests in 2015/16 have been long been slightly below consensus, since the start of 2015 we had expected prices to head moderately higher from the spot levels seen at that time (*see 'Monthly Grains Strategy, January 21'*). However, the fundamentals have changed, especially the trajectory of prices over H115. Despite limited changes to fundamental consensus estimates, grain prices tracked lower over H115, and outside a brief rally in early August, this has continued into H2. We believe the continued weakness is partially due external factors resulting in the continued strength of the US dollar and weak appetite from investors for risky assets like commodities.

More Room For Selling Pressure

Select Grains - Net Long Speculative Positions
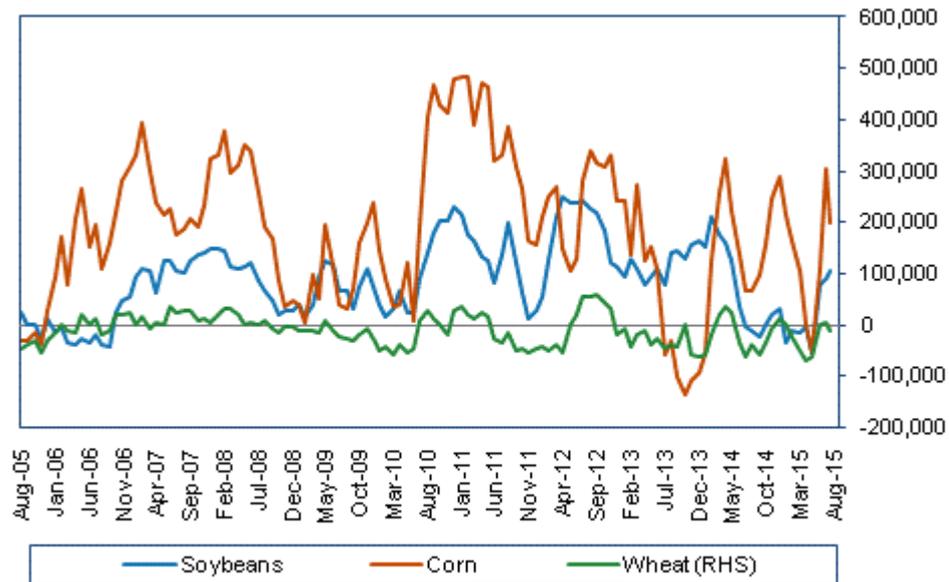
Sources: BMI, Bloomberg

Only A Modest Rally In Prices Ahead

Over the coming months, the fundamentals suggest that grain prices are due for another rally, but external forces will probably prevent a significant move higher. We continue to believe that the USDA will ultimately revise 2015/16 US grain production lower in the coming months, which will cause grain prices to eventually head higher from spot levels. Indeed, although grain prices (particularly corn and soybean) initially crashed following the data release, they have since rebounded slightly amidst discussion that the USDA has overestimated production. We believe there is merit to these concerns, as soil conditions have deteriorated slightly in recent weeks (impacting yields).

Furthermore, we expect the USDA to ultimately revise down US grain stocks totals over the next few weeks (especially corn), due to strong livestock production growth in 2015. This will also provide support to prices. Overall, we are forecasting corn and soybean production at 340mn tonnes and 104mn tonnes, respectively, compared to 347mn tonnes and 106mn tonnes by the USDA. Elsewhere, the USDA kept most

of its key South American forecasts the same. Generally speaking, our key South American forecasts are similar to the USDA forecasts.

These eventual revisions will provide some short-term support to prices. However, the external factors that have been dragging down grain prices will remain in place (*See 'Continued USD Strength To Anchor Commodities, August 12*). Moreover, speculative sentiment is no longer year multi-year lows, providing additional room for prices to move lower if selling pressure increased. Consequently, we believe any rally over the next few months will be modest at best.

Forecasts To Be Revised Lower

Select Grains - Prices & Current BMI Forecasts (USc/bushel)
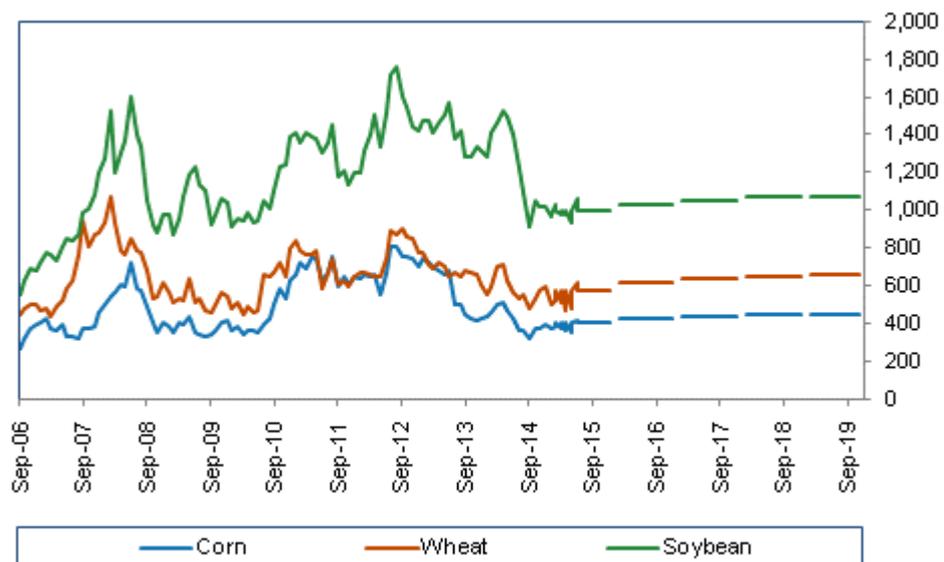
Note: Horizontal lines represent BMI average forecasts. Source: BMI, Bloomberg

Long-Term Forecasts To Be Revised Lower

We are maintaining our long term supply and demand forecasts despite the recent USDA revisions, and expect the global grain market to register declining deficits between 2015/16 and 2018/19. Consequently, we are maintaining the trajectory of our forecasts for higher average prices over the coming years from current levels. However, we will be revising down our forecasts to reflect current spot prices.

Monthly Softs Strategy

BMI View: *El Niño-induced weather risks have not yet been priced into agricultural commodities, despite the phenomenon being confirmed, as conditions in vulnerable countries have been normal over recent months. However, meteorological forecasts are still for a moderate-to-strong El Niño event in 2015, which will prop up palm oil, sugar and rice prices the most.*

In spite of looming disruption from the re-emergence of El Niño in 2015, the weather in countries that are usually affected by the phenomenon has been normal. In fact, in India, the summer monsoon (June-September) has been significantly above normal in June, despite the India Meteorological Department (IMD) forecasting that the country would receive 12% less rainfall (which is technically characterised as a drought) this year when compared with long-term averages (*see 'Another Challenging Year For Indian Agriculture', June 9*). In other parts of Asia, the weather and rainfall levels have been broadly in line with historical averages, except in Thailand and some parts of Vietnam.

Bottom For Sugar Prices Approaching

Front-Month ICE Sugar, USc/lb (daily chart) & RSI (below)

Source: Bloomberg, BMI

However, we argue that the current prices of several commodities that will be affected by El Niño underestimate weather risks and that the phenomenon has yet to be priced in. Market sentiment regarding El Niño-induced risks has eased due to the more favourable weather of late, but could shoot up again should unseasonal weather materialise. Meteorological agencies in Japan and Australia warned around mid-June that El Niño had strengthened in recent weeks and is showing characteristics similar to the 1997-1998 event.

That system was the strongest on record, according to the National Oceanic and Atmospheric Administration.

El Niño Will Keep Prices Supported

Three-Month MDE Palm Oil, MYR/tonne (weekly chart) & RSI (below)

Source: Bloomberg, BMI

Therefore, we continue to believe that prices of rice, sugar and palm oil could strengthen significantly if unseasonal weather actually materialises in the coming months. The impact of El Niño could be even more significant because international agriculture prices (notably for palm oil, sugar, rice and other grains) have been weak for several years and could easily rally on renewed weather concerns. Net long speculative

positions for many commodities, including rice and sugar, remain at multi-year lows, which may rapidly prop up prices if sentiment turns.

Prices Exposed To Sentiment Turnaround

Select Commodities - Net Speculative Positions
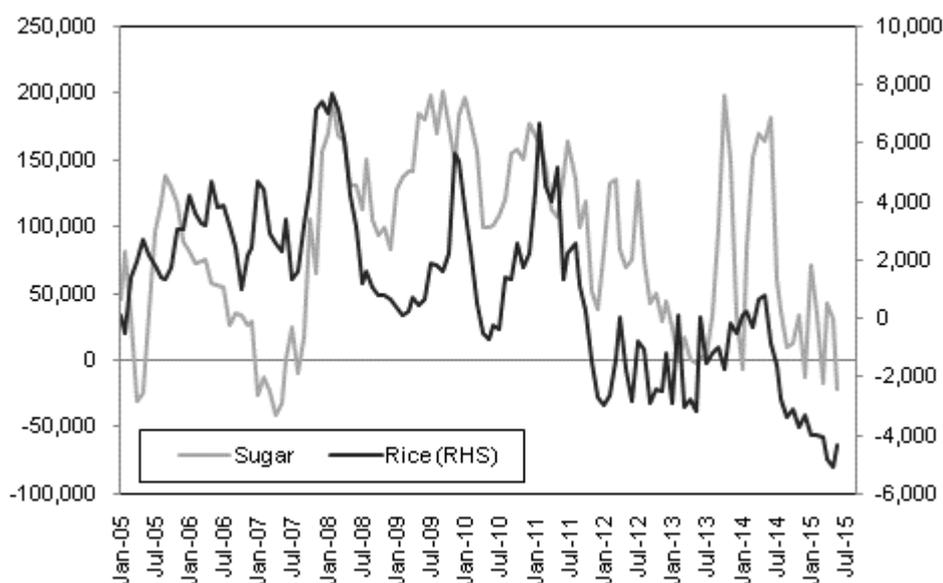
The return of El Niño this year implies that there is a greater-than-normal chance of below-average yields and weak output of key commodities in 2015/16. We believe downside risks to production are most acute for palm oil, rice and sugar (*for more details on how crops will be affected, see 'El Niño 2015: Key Implications For Commodities', May 15*). For palm oil, the upside will mostly come from lower than expected output in Malaysia and Indonesia. Palm oil import demand could also be boosted by dry weather in India, where domestic oilseed production is highly dependent on monsoon rains. However, the outlook for Indian palm oil imports is not as bright as it was a few months ago, especially as above-average monsoon rains in June boosted oilseed plantings (*see table below*).

Table: India - Monsoon Rainfall, Irrigation And Production In The Main Agricultural States

	Rainfall (% chg compared with normal levels)	Production (% of total)								
		Rice	Coarse grains	Soybean	Rapeseed and mustard	Sugarcane	Cotton	Wheat	Corn	Pulses
Haryana	5	3.6	3.3	-	12.7	2.0	7.5	13.5	-	0.7
Punjab	-11	10.1	1.3	-	0.6	1.3	6.5	18.3	2.3	-
Uttar Pradesh	-20	13.4	8.5	-	10.6	36.0	-	32.3	6.1	14.1
Andhra Pradesh	52	12.4	10.1	1.7	-	4.7	13.9	-	17.4	7.3
Madhya Pradesh	27	1.8	5.9	51.1	12.8	0.8	5.7	11.3	6	24.2
Maharashtra	29	2.7	14.2	32.8	-	22.9	20.5	1.4	10.7	12.9
Bihar	-24	6.9	3.7	-	1.5	3.4	-	5.1	7	3
West Bengal	1	14.2	0.9	-	6.5	0.3	-	0.9	1.6	1.1
Gujarat	50	1.7	5.8	-	4.8	4.0	34.1	4.4	3.6	4.6
Tamil Nadu	37	6.6	5.6	-	-	11.0	1.3	-	7.3	2.3
Rajasthan	76	-	16.7	11.3	43.9	-	3.8	9.9	7.7	13.7
Karnataka	17	3.9	16.4	1.5	-	10.9	3.4	0.2	19	6.2
India average	19	-	-	-	-	-	-	-	-	-
Average rainfall In top five producing regions of each commodity	-	-0.4	31	40	18	23	25	15	42	33
Area under irrigation, India (%)	-	58.0	14.4	0.7	71.1	93.5	35.3	91.7	23.8	16.2

Note: All rainfall data represent the % difference between the June 1 and June 28 2015 level and long-term average rainfall. (According to IMD's specifications, 'Scanty' = -60% to -99%; 'Deficient' = -20% to -59%; 'Normal' = +19% to -19%). Source: IMD, India Statistics, BMI

Sugar and rice production is also highly concentrated in countries that will see a change in weather as a result of El Niño. This is particularly true of Thailand, which has already been experiencing a drought over recent months.

Demographic Forecast

Demographic analysis is a key pillar of **BMI**'s macroeconomic and industry forecasting model. Not only is the total population of a country a key variable in consumer demand, but an understanding of the demographic profile is essential to understanding issues ranging from future population trends to productivity growth and government spending requirements.

The accompanying charts detail the population pyramid for 2015, the change in the structure of the population between 2015 and 2050 and the total population between 1990 and 2050. The tables show indicators from all of these charts, in addition to key metrics such as population ratios, the urban/rural split and life expectancy.

Population

(1990-2050)
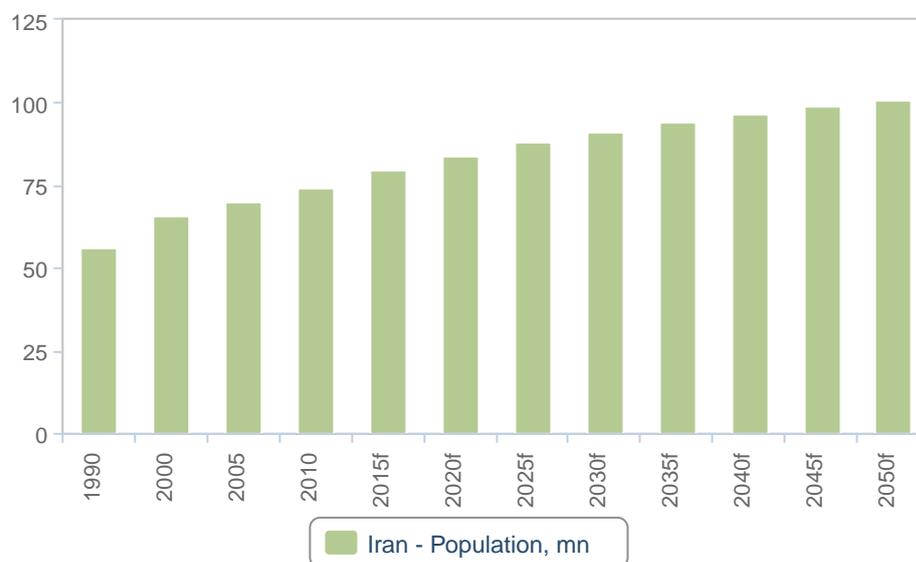
f = BMI forecast. Source: World Bank, UN, BMI

# Iran Population Pyramid

2015 (LHS) & 2015 Versus 2050 (RHS)
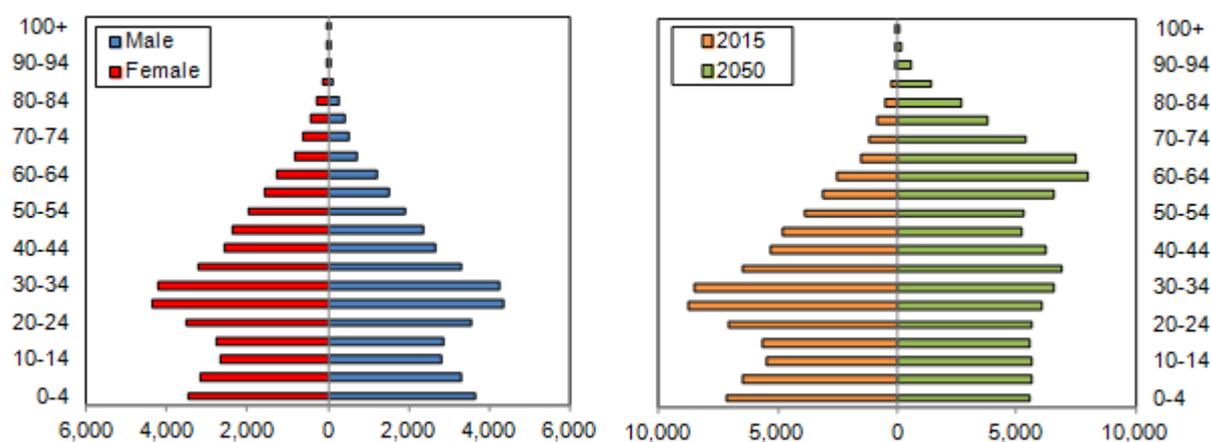
Source: World Bank, UN, BMI

Table: Population Headline Indicators (Iran 1990-2025)							
	1990	2000	2005	2010	2015f	2020f	2025f
Population, total, '000	56,361	65,911	70,152	74,462	79,476	84,148	88,064
Population, % change y-o-y	na	1.6	1.2	1.3	1.3	1.1	0.8
Population, total, male, '000	28,807	33,504	35,917	37,656	39,915	42,307	44,213
Population, total, female, '000	27,554	32,406	34,235	36,805	39,560	41,840	43,850
Population ratio, male/female	1.05	1.03	1.05	1.02	1.01	1.01	1.01

na = not available; f = BMI forecast. Source: World Bank, UN, BMI

Table: Key Population Ratios (Iran 1990-2025)							
	1990	2000	2005	2010	2015f	2020f	2025f
Active population, total, '000	28,945	40,290	48,583	53,034	55,945	58,184	60,945
Active population, % of total population	51.4	61.1	69.3	71.2	70.4	69.1	69.2
Dependent population, total, '000	27,415	25,620	21,569	21,427	23,530	25,964	27,118
Dependent ratio, % of total working age	94.7	63.6	44.4	40.4	42.1	44.6	44.5

Key Population Ratios (Iran 1990-2025) - Continued							
	1990	2000	2005	2010	2015f	2020f	2025f
Youth population, total, '000	25,543	22,850	18,115	17,585	19,140	20,362	19,984
Youth population, % of total working age	88.2	56.7	37.3	33.2	34.2	35.0	32.8
Pensionable population, '000	1,872	2,770	3,453	3,841	4,389	5,601	7,134
Pensionable population, % of total working age	6.5	6.9	7.1	7.2	7.8	9.6	11.7

f = BMI forecast. Source: World Bank, UN, BMI

Table: Urban/Rural Population And Life Expectancy (Iran 1990-2025)							
	1990	2000	2005	2010e	2015f	2020f	2025f
Urban population, '000	31,748.6	42,210.8	47,393.5	51,332.8	55,362.4	59,374.4	63,078.7
Urban population, % of total	56.3	64.0	67.6	68.9	69.7	70.6	71.6
Rural population, '000	24,613.2	23,700.3	22,758.8	23,129.5	24,113.9	24,774.2	24,985.6
Rural population, % of total	43.7	36.0	32.4	31.1	30.3	29.4	28.4
Life expectancy at birth, male, years	61.2	68.7	70.0	71.3	72.8	74.2	75.5
Life expectancy at birth, female, years	65.8	70.6	73.1	75.1	76.6	78.0	79.2
Life expectancy at birth, average, years	63.4	69.6	71.5	73.1	74.6	76.0	77.3

e/f = BMI estimate/forecast. Source: World Bank, UN, BMI

Table: Population By Age Group (Iran 1990-2025)							
	1990	2000	2005	2010	2015f	2020f	2025f
Population, 0-4 yrs, total, '000	9,312	6,316	5,483	6,555	7,146	6,751	6,148
Population, 5-9 yrs, total, '000	8,905	7,552	5,476	5,416	6,507	7,116	6,729
Population, 10-14 yrs, total, '000	7,324	8,981	7,154	5,613	5,487	6,494	7,105
Population, 15-19 yrs, total, '000	5,822	8,800	9,247	7,215	5,643	5,466	6,474
Population, 20-24 yrs, total, '000	4,697	6,932	9,143	8,993	7,067	5,595	5,424
Population, 25-29 yrs, total, '000	4,054	5,315	6,859	8,704	8,726	6,997	5,541
Population, 30-34 yrs, total, '000	3,535	4,442	5,202	6,521	8,484	8,649	6,937
Population, 35-39 yrs, total, '000	3,030	3,886	4,693	5,210	6,497	8,410	8,579
Population, 40-44 yrs, total, '000	2,123	3,372	4,112	4,833	5,262	6,431	8,333
Population, 45-49 yrs, total, '000	1,620	2,857	3,421	4,032	4,757	5,193	6,353

Population By Age Group (Iran 1990-2025) - Continued	1990	2000	2005	2010	2015f	2020f	2025f
Population, 50-54 yrs, total, '000	1,526	1,929	2,800	3,244	3,895	4,665	5,101
Population, 55-59 yrs, total, '000	1,393	1,431	1,766	2,637	3,109	3,788	4,548
Population, 60-64 yrs, total, '000	1,140	1,322	1,336	1,639	2,500	2,985	3,652
Population, 65-69 yrs, total, '000	898	1,145	1,257	1,279	1,550	2,340	2,813
Population, 70-74 yrs, total, '000	507	825	1,055	1,129	1,143	1,369	2,090
Population, 75-79 yrs, total, '000	269	508	654	802	876	902	1,105
Population, 80-84 yrs, total, '000	135	203	347	413	528	598	637
Population, 85-89 yrs, total, '000	48	66	112	172	216	290	343
Population, 90-94 yrs, total, '000	10	17	21	38	63	84	119
Population, 95-99 yrs, total, '000	1	2	3	4	8	15	22
Population, 100+ yrs, total, '000	0	0	0	0	0	1	2

f = BMI forecast. Source: World Bank, UN, BMI

Table: Population By Age Group % (Iran 1990-2025)	1990	2000	2005	2010	2015f	2020f	2025f
Population, 0-4 yrs, % total	16.52	9.58	7.82	8.80	8.99	8.02	6.98
Population, 5-9 yrs, % total	15.80	11.46	7.81	7.27	8.19	8.46	7.64
Population, 10-14 yrs, % total	13.00	13.63	10.20	7.54	6.90	7.72	8.07
Population, 15-19 yrs, % total	10.33	13.35	13.18	9.69	7.10	6.50	7.35
Population, 20-24 yrs, % total	8.34	10.52	13.03	12.08	8.89	6.65	6.16
Population, 25-29 yrs, % total	7.19	8.06	9.78	11.69	10.98	8.32	6.29
Population, 30-34 yrs, % total	6.27	6.74	7.42	8.76	10.68	10.28	7.88
Population, 35-39 yrs, % total	5.38	5.90	6.69	7.00	8.18	9.99	9.74
Population, 40-44 yrs, % total	3.77	5.12	5.86	6.49	6.62	7.64	9.46
Population, 45-49 yrs, % total	2.88	4.33	4.88	5.42	5.99	6.17	7.22
Population, 50-54 yrs, % total	2.71	2.93	3.99	4.36	4.90	5.54	5.79
Population, 55-59 yrs, % total	2.47	2.17	2.52	3.54	3.91	4.50	5.17
Population, 60-64 yrs, % total	2.02	2.01	1.90	2.20	3.15	3.55	4.15
Population, 65-69 yrs, % total	1.59	1.74	1.79	1.72	1.95	2.78	3.19
Population, 70-74 yrs, % total	0.90	1.25	1.50	1.52	1.44	1.63	2.37
Population, 75-79 yrs, % total	0.48	0.77	0.93	1.08	1.10	1.07	1.26
Population, 80-84 yrs, % total	0.24	0.31	0.50	0.55	0.66	0.71	0.72

Population By Age Group % (Iran 1990-2025) - Continued							
	1990	2000	2005	2010	2015f	2020f	2025f
Population, 85-89 yrs, % total	0.09	0.10	0.16	0.23	0.27	0.34	0.39
Population, 90-94 yrs, % total	0.02	0.03	0.03	0.05	0.08	0.10	0.14
Population, 95-99 yrs, % total	0.00	0.00	0.00	0.01	0.01	0.02	0.03
Population, 100+ yrs, % total	0.00	0.00	0.00	0.00	0.00	0.00	0.00

f = BMI forecast. Source: World Bank, UN, BMI

Methodology

Industry Forecast Methodology

BMI's industry forecasts are generated using the best-practice techniques of time-series modelling and causal/econometric modelling. The precise form of model we use varies from industry to industry, in each case being determined, as per standard practice, by the prevailing features of the industry data being examined.

Common to our analysis of every industry is the use of vector autoregressions. Vector autoregressions allow us to forecast a variable using more than the variable's own history as explanatory information. For example, when forecasting oil prices, we can include information about oil consumption, supply and capacity.

When forecasting for some of our industry sub-component variables, however, using a variable's own history is often the most desirable method of analysis. Such single-variable analysis is called univariate modelling. We use the most common and versatile form of univariate models: the autoregressive moving average model (ARMA).

In some cases, ARMA techniques are inappropriate because there is insufficient historic data or data quality is poor. In such cases, we use either traditional decomposition methods or smoothing methods as a basis for analysis and forecasting.

BMI mainly uses ordinary least squares estimators. In order to avoid relying on subjective views and encourage the use of objective views, we use a 'general-to-specific' method. **BMI** mainly uses a linear model, but simple non-linear models, such as the log-linear model, are used when necessary. During periods of 'industry shock', for example, if poor weather conditions impede agricultural output, dummy variables are used to determine the level of impact.

Effective forecasting depends on appropriately selected regression models. We select the best model according to various different criteria and tests, including but not exclusive to:

- R^2 tests explanatory power; adjusted R^2 takes degree of freedom into account;

- Testing the directional movement and magnitude of coefficients;

- Hypothesis testing to ensure coefficients are significant (normally t-test and/or P-value);

- All results are assessed to alleviate issues related to auto-correlation and multicollinearity;

Human intervention plays a necessary and desirable role in all or our industry forecasting. Experience, expertise and knowledge of industry data and trends ensure analysts spot structural breaks, anomalous data, turning points and seasonal features where a purely mechanical forecasting process would not.

Sector-Specific Methodology

Within the Agribusiness industry, issues that might result in human intervention could include but are not exclusive to:

- Technological developments that might influence future output levels (for example greater use of biotechnology);

- Dramatic changes in local production levels due to public or private sector investment;

- The regulatory environment and specific areas of legislation, such as import and export tariffs and farm subsidies;

- Changes in lifestyles and general societal trends;

- The formation of bilateral and multilateral trading agreements, and political factors.

The following two examples show the demand (consumption) and the supply (production) of rice. Note that the explanatory variables for both are quite similar, but the underlying economic theory is different.

Example Of Rice Consumption Model

$(\text{Rice consumption})_t = \beta_0 + \beta_1*(\text{real private consumption per capita})_t + \beta_2*(\text{inflation})_t + \beta_3*(\text{real lending rate})_t + \beta_4*(\text{population})_t + \beta_5*(\text{government expenditure})_t + \beta_6*(\text{food consumption})_{t-1} + \varepsilon_t$

Where:

- β are parameters for this function.

- Real private consumption per capita has a positive relationship with rice consumption, if rice is a normal good in a particular country. If rice is an inferior good in a country, the relationship is negative. So the sign of β_1 is determined by a specific product within a specific country.

- When inflation is high, people with rational expectations will consume today rather than wait for tomorrow's high price to come. Higher rice demand in year t due to higher inflation in that year leads to an assumed positive sign of β_2.

- The relationship between real lending rate and rice consumption is expected to be negative. When real lending rates increase, disposable incomes, especially for those with mortgage burdens, etc, will decrease. So the sign of β_3 is expected to be negative.

- Of course, other things being equal, growth in rice consumption can also be caused by growth in population. Consequently, positive sign of β_4 is expected.

- Government expenditure typically causes total disposable incomes to rise. So the sign of β_5 is expected to be positive.

- Human behaviour has a trend: a high level of food consumption in previous years means there is very likely to be a high level of food consumption the next year. So the positive sign of β_6 is expected.

- ε is the error/residual term.

Example Of Rice Production Model

$(\text{Rice production})_t = \beta_0 + \beta_1*(\text{real GDP per capita})_t + \beta_2*(\text{inflation})_t + \beta_3*(\text{real lending rate})_t + \beta_4*(\text{rural population})_t + \beta_5*(\text{government expenditure})_t + \beta_6*(\text{food production})_{t-1} + \varepsilon_t$

Where:

- The same as above: the relationship between real GDP per capita and rice production depends on whether rice is normal or inferior good in that country.

- If high inflation is caused by food prices increasing, farmers will be more profitable. Then they will supply more agricultural product (eg, rice) to increase their marginal (extra) profit, although this is tempered by the rising cost of other inputs in line with inflation.

- There is a global move towards corporate farming, away from small holdings, in order to achieve greater agricultural productivity. Corporate farming means more investment in the modes of production, ie, agricultural machinery. Higher real lending rates discourage investment, which in turn reduce production.

- **BMI** assumes that only the rural population has a positive effect on agricultural product supply.

- With supportive government policy, other things being equal, rice production is expected to go up. Government expenditure is likely to play some role in supporting agribusiness.

- Again, previous food production positively affects this year's prediction.

Agribusiness Market Value

The construction of the Agribusiness market value is done in two steps.

1. **BMI** constructs an in-house model of the agribusiness market. Where for each commodity, its forecasted production value is multiplied by its commodity price. This is repeated for each commodity in the **BMI** agribusiness universe and then aggregated to give a **BMI** agribusiness total market value. Commodity prices reflect either market prices or production prices, this depends on the commodity in question and whether sufficient data is available.

2. **BMI** uses their in-house agribusiness total market value model as a benchmark model to forecast FAO's gross production value. In addition analysts can also subjectively intervene into the model if necessary to take into account qualitative data.

To summarise the final BMI Agribusiness market value is historical data from the FAO gross production value which is then forecasted using an in-house **BMI** agribusiness market value model that is objectively and subjectively estimated.

The model itself is priced in US dollars. Conversion to local currency and euros is done directly using **BMI**'s country risk exchange rate forecasts.

BMI ensures that our internal model best matches the FAO gross production value definition and construction to ensure that our internal model serves as a useful benchmark.

FAO Definition of Gross Production Value (USD)

Value of gross production has been compiled by multiplying gross production in physical terms by output prices at farm gate. Thus, value of production measures production in monetary terms at the farm-gate level. Since intermediate uses within the agricultural sector (seed and feed) have not been subtracted from production data, this value of production aggregate refers to the notion of 'gross production'.