

The Investment Opportunity in Global Commodity Equities

By Skye Macpherson

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Skye was promoted to Portfolio Manager in November 2009 and in her role, she is actively involved in the management of the soft commodities fund and researching forestry, pulp and fertiliser companies within the global resources universe. Skye has a genuine interest and knowledge of agriculture having grown up in Central West NSW and grew up working in the industry while completing high school and university.

Skye originally worked in the finance department as a fund accountant while completing her final year of university. She then moved into an analyst role in the Investment Markets Research team, gaining experience in economic analysis and across the broader investment categories of the business. She then relocated to the London office to join the Information and Research team, where she managed the team responsible for all investment communications.

Skye holds a Bachelor of Agricultural Economics from the University of New England, Armidale where she won the University Medal. She also holds a Graduate Diploma in Applied Finance and Investments specialising in Investment Analysis from the Securities Institute of Australia. Skye is a Chartered Alternative Investment Analyst charterholder.

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Executive summary

The global soft commodity sector is experiencing a structural change predominately driven by growing demand from the developing world and constrained supply. The important question from an investor's perspective is: how can I benefit from this trend? This research paper argues that superior investment returns can be made from investing in companies that are able to grow volume to meet this demand.

For the purposes of this paper, soft commodities are commodities that are grown not mined. They include:

- ➔ coarse grains such as corn, wheat, barley and soybeans
- ➔ speciality products such as coffee, cocoa, sugar and palm oil
- ➔ proteins such as beef, pork, chicken and fish
- ➔ forestry products.

The rising long term demand for soft commodities is being driven by three factors:

1. **Population growth** – With a 40% increase in world population by 2050¹ forecast by the United Nations, agricultural volume will need to increase significantly to feed these additional people.
2. **Rising living standards** – Increasing wealth per capita in emerging economies is resulting in shifting patterns of food consumption and a rise in demand for grain and other soft commodities.
3. **Biofuels** – While not as strong a driver, the growth in biofuel consumption is also increasing demand.

At the same time, supply of soft commodities is being constrained by:

1. **Falling arable land per person** – Population growth has outpaced growth in global cultivated land area.
2. **Slowing productivity gains** – While productivity improvements continue to increase yields across soft commodities, the growth is slowing.
3. **Water** – is currently being consumed above its replacement rate.
4. **Climate change** – could have a serious impact on both yields and growth in arable land.

Many market participants focus solely on soft commodity prices to capture the changing dynamic between demand and supply. But commodity prices are just one driver of company earnings. A more reliable predictor of future company earnings, and hence share price performance, is a company's volume growth.

This paper identifies the medium to longer-term dynamics that could impact both demand and supply for soft commodities. It then builds an investment thesis that seeks to capitalise on these changing dynamics.

¹ Source: United Nations World Population Prospects: The 2008 Revision

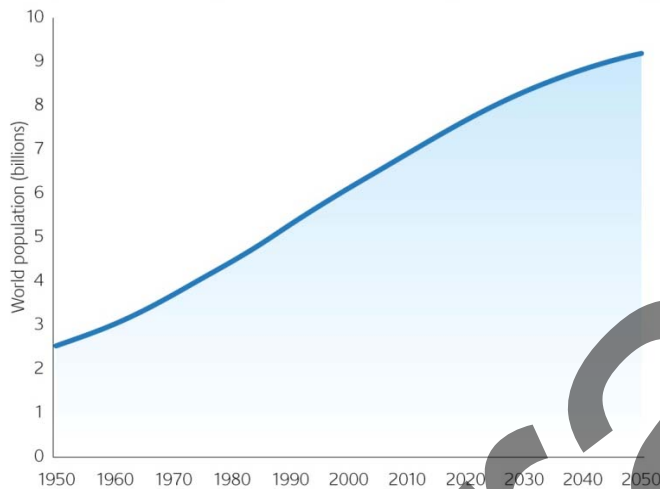
Growing demand

This paper argues that there are two main drivers of increased demand of agricultural produce over the long term: population growth and growing affluence in emerging economies. The rise of biofuel over the past decade also has a role to play but its significance on demand is smaller in comparison.

1. Population growth

According to the United Nations, the global population is set to grow 40% by 2050 to 9 billion people compared to 6.5 billion today². This equates to an average growth rate of 1% pa or 77 million people each year. Agricultural volume will need to lift substantially in order to feed these additional people.

Figure 1: World Population Growth forecast (United Nations)



Source: United Nations World Population Prospects: The 2008 Revision.

2. Rising living standards in emerging nations

The rise in income per capita in emerging economies such as China and India is well documented. As wealth per person rises, particularly for people on very low incomes, an increased proportion of this wealth is spent on improving their nutrition and general wellbeing. McKinsey & Company estimates that about 1.1 billion people will join middle class income groups in China and India alone between 2005 and 2025³. This involves consuming more food as well as introducing protein such as chicken, pork and dairy, while reducing starches such as rice. This increase in demand for protein has an important multiplier effect on grain consumption. As a rule of thumb, it requires 2kg grain to produce 1kg chicken, 4kg grain for 1kg of pork and 7kg of grain for 1kg of beef⁴. Consequently, an increase in protein demand implies an even larger increase in grain demand.

Figure 2 below shows that over the past 40 years calorie consumption per day has grown more than 20%. The Food and Agriculture Organisation of the United Nations (FAO) estimates that half the increase in global calorie consumption over the past 10 years has come from greater meat consumption. This multiplier effect on grain consumption, on top of population growth, will increase the pressure to be more productive with agricultural land.

Figure 2: World calorie consumption per capita

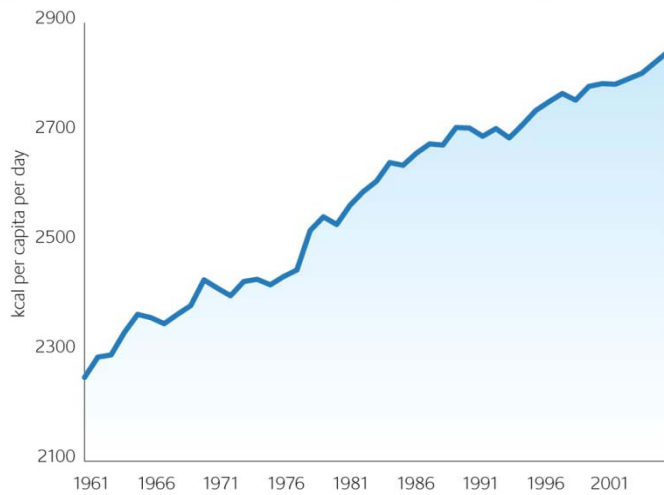
² United Nations World Population Prospects: The 2008 Revision

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"The value of China's emerging middle class" McKinsey Quarterly JUNE 2006; Diana Farrell, Ulrich A. Gersch and Elizabeth Stephenson

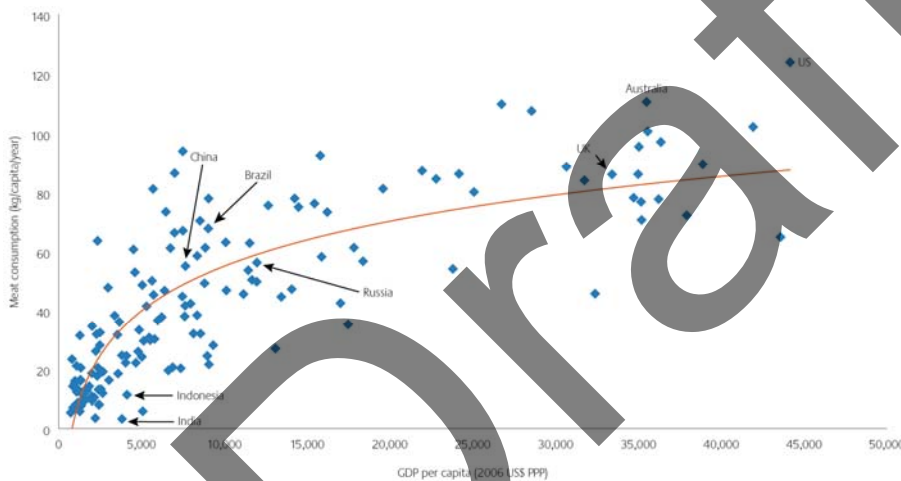
"Tracking the growth of India's middle class" McKinsey Quarterly AUGUST 2007; Eric Beinhocker, Diana Farrell and Adil Zainulbhai

⁴ Potash Corp "More per acre....producing for a growing population" August 2009



Source: The Food and Agriculture Organisation of the United Nations (FAO), Credit Suisse

Figure 3: Meat consumption per capita versus income per capita



Source: Meat consumption per capita FAOSTAT: Agricultural Statistics, Food Supply, Livestock and GDP per capita data UN Statistics Division.

Figure 3 highlights the huge demand potential for meat products from developing countries like China, Indonesia, India and Russia should their GDP per capita continue to grow towards developed country levels like Australia and the United States.

According to December 2008 figures from the United Nations, China and India accounts for 20% and 17% respectively of the global population. Both countries have made significant progress reducing the percentage of their populations below the poverty line, however there is still much further to go. They will both be significant drivers of global calorie consumption over the coming decades. As real incomes in emerging economies rise, calorie growth is likely to be strong.

3. Biofuels

Current biofuel production uses about 2% of the global arable land acreage⁵. If the expected future increased demand from the major biofuel countries (Argentina, Brazil, Canada, China, EU and US) kept to their stated targets, then land used for biofuels would account for 4.6% of global arable land⁶. While biofuels are important, the main driver of soft commodity demand over the coming decades will be population growth and rising living standards.

Supply constraints

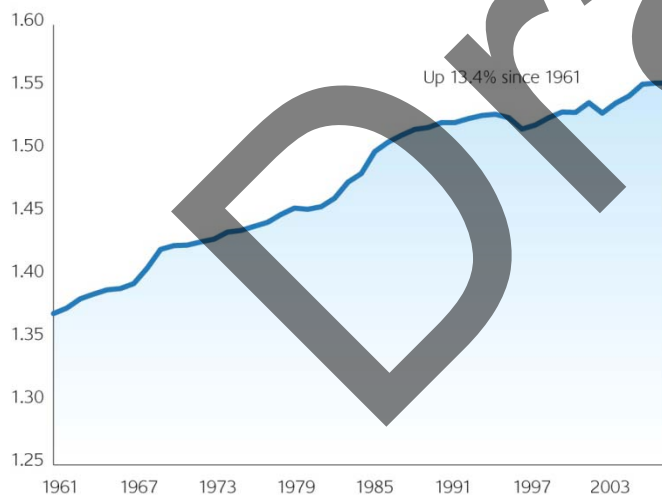
This research paper argues that the world needs to double food production by 2050 to meet the expected rise in demand. While this has been achieved in the past, a number of supply constraints have developed in recent years.

1. Falling arable land per person

There are restrictions on the amount of arable land that can be brought into production. Those restrictions relate to the quality of the soil, water availability and length of growing seasons. It is also affected by competing uses for land such as urban sprawl, forestry and industrial uses. Exacerbating the problem is desert encroachment.

Over the past 50 years, global population growth has outstripped growth in cultivated land. The amount of land cultivated globally has increased 13% pa since 1961⁷. Over the same time period the global population has risen from 3 billion to 6.5 billion – a rise of 115%⁸. As a result, the amount of arable land per person has declined. The majority of the acreage expansion has come from South America. In Brazil, the area used for crop farming has grown 135% since 1961 and accounts for 4.2% of global agricultural land⁹.

Figure 4: Global arable and permanent cropland 1961-2006



Source: The Food and Agriculture Organisation of the United Nations (FAO), Credit Suisse

Urbanisation and land degradation have reduced the amount of arable land available for production of soft commodities. The United Nations reported in 2008 that the global urban population exceeded the global rural population for the first time in history¹⁰. In 1920, only 30% of the world's population lived in urban

⁵ United States Department of Agriculture (USDA) Economic Research Service (ERS), Food and Agriculture Organisation (FAO), European Biodiesel Board, Renewable Fuels Association, World Resources Institute and Credit Suisse Research Report "Agriculture – a structural story" 10 June 2009

⁶ Ibid

⁷ FAOSTAT: Agricultural statistics, world arable land and permanent crops 1961-2006 www.fao.org

⁸ United Nations World Population Prospects: 2008 Revision Population Database <http://esa.un.org/unpp>

⁹ FAOSTAT: Agricultural statistics, world arable land and permanent crops 1961-2006 www.fao.org

¹⁰ UN World Urbanisation Prospects: 2008 Revision Population Database

environments¹¹. The United Nations predicts that 60% of the world's population will be urban dwellers by 2030¹². To give an example of the impact on urbanisation, China has lost 6% of its arable land over the last decade, according to research by Credit Suisse¹³.

There are however several regions in Brazil, Indonesia and Eastern Europe where more land can be brought into production in the future. Brazil has the largest potential for increased arable land. The country's total size is 850 million hectares. Just over 60 million hectares are currently cultivated, with a further 220 million hectares that could be converted from natural pastures to more intensive cultivated farming.¹⁴ The issue is that these hectares are located in the far west of Brazil where distances to port of 2000km are not uncommon. Infrastructure is poor and logistics are a significant cost for Brazilian farmers. Thus, while there is still arable land available in the world, the question is how long it will take for this land to be brought into production given the infrastructure bottlenecks and attractiveness for foreign investment.

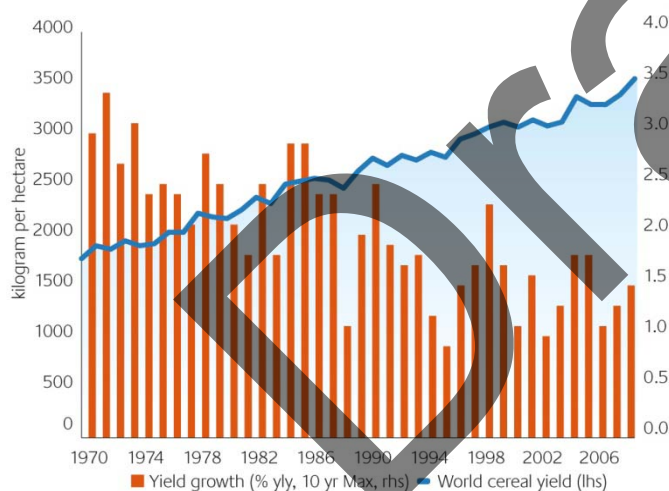
2. Water resources

Water shortages and availability can constrain the ability to produce food. Only 3% of world's water is fresh¹⁵ and agriculture is a key user. The demand pressure on water is rising as the population grows and industrial use increases – both are competing users to soft commodities.

3. Slowing productivity growth

While soft commodity productivity continues to increase, there is evidence that it is not increasing as quickly as it has in the past. For example, world cereal yields have increased on average by 1.9% pa¹⁶ over the past 47 years, however over the past 20 years the growth in yield has slowed to 1.4% pa¹⁷, (refer figure 5 below).

Figure 5: World cereal yields



Source: FAO, Credit Suisse research.

4. Climate change

Climate change may have serious ramifications for food production. Scientists estimate that a one degree celsius increase in the optimal temperature during the growing season may negatively impact yields by 10% in wheat, corn and rice¹⁸. Worse still, very high temperatures, particularly during the flowering period for these grains can severely impact yield.

¹¹ Ibid

¹² Ibid

¹³ Credit Suisse Research Report "Agriculture – a structural story" 10 June 2009

¹⁴ Conab

¹⁵ The World's Water 2008-2009; Meena Palaniappan and Peter H. Gleick www.worldwater.org

¹⁶ Credit Suisse Research Report "Agriculture – a structural story" 10 June 2009

¹⁷ Ibid

¹⁸ Global Agriculture and Forestry in the 21st Century. B Easterling and M Apps presentation; slides 16-17

Portfolio considerations of investing within the listed soft commodity sector

Given the strong thematic drivers behind the investment case for soft commodities, how does it fit into a client's portfolio?

Importantly, it is unlikely that investors will gain access to the broad macro drivers of soft commodities via an investment in a typical global equity fund. The stocks that would typically make up the investible universe for a global soft commodity share fund would be only a:

- 1.39% weighting within the broader MSCI World Index
- 1.35% weighting within the MSCI Global Emerging Markets Index

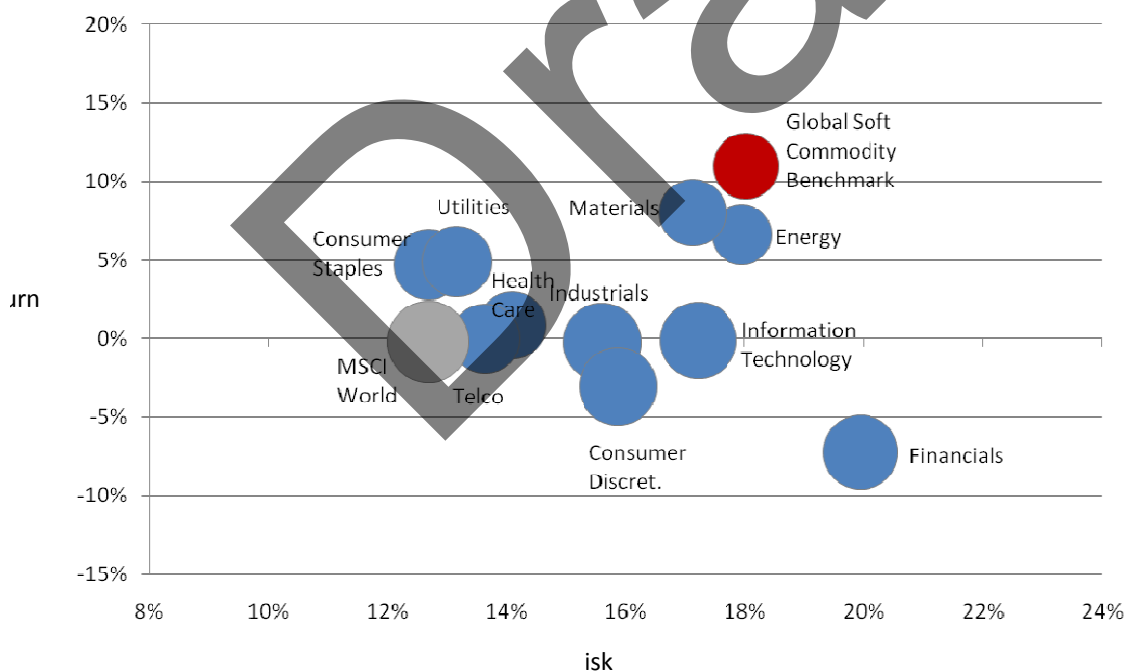
Statistics as at 11 January 2010, data source: CFS

Therefore, investors may not gain access to the thematic that drives the fundamentals of the global soft commodity sector via an allocation to a traditional global equity portfolio. A direct investment in the sector is necessary in order to participate in the thematic.

How do the returns of the sector compare to the MSCI?

The global soft commodity sector has provided strong absolute returns over the market cycle along with higher risk. The sector provides a strong opportunity for investors to diversify their overall portfolio given its risk and return characteristics. In figure 6 below, correlations are shown by the size of the bubble – note that most sectors are strongly correlated to MSCI World, the soft commodity sector has one of the most attractive risk/return profiles. This chart depicts the period from January 2005 to December 2009.

Figure 6: Returns of soft commodity sector compared to MSCI World

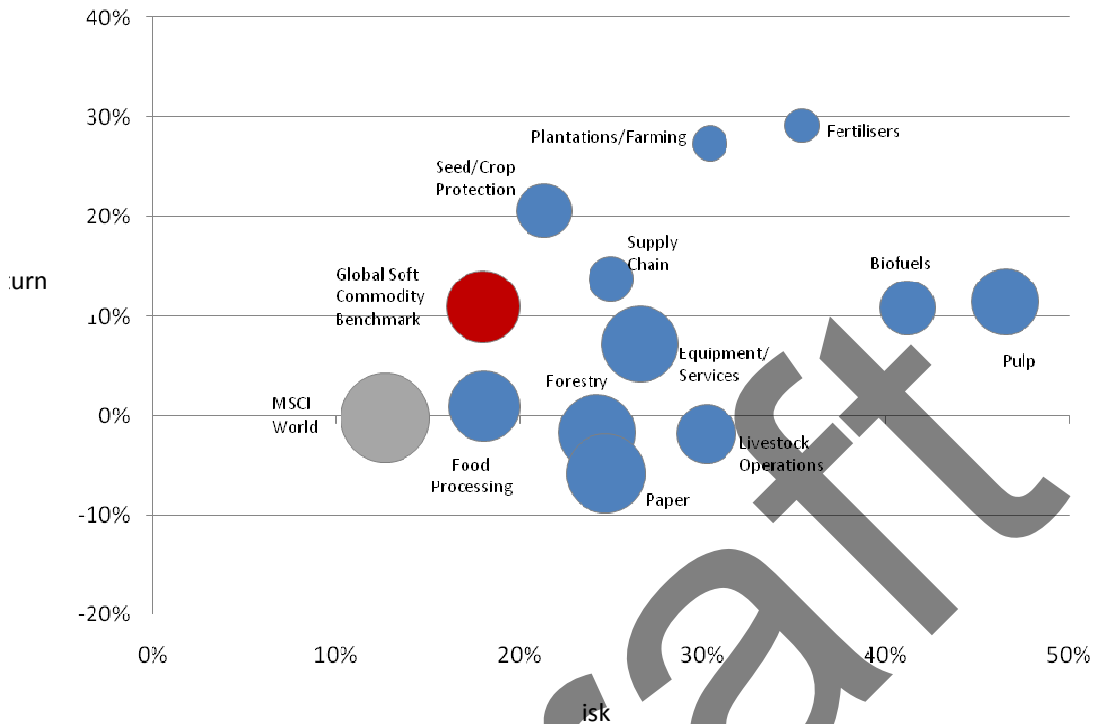


The three highest returning sectors are the global soft commodity benchmark, materials and energy sectors.

How do the underlying subsectors of the soft commodity universe compare to MSCI World?

The figure 7 analyses the risk and return characteristics from January 2005 to December 2009 for the soft commodities subsector.

Figure 7: Returns of soft commodity sub-sectors compared to MSCI World



The sub-sectors within the soft commodity share universe have quite diverse risk and return characteristics. Largely, the resource owners (namely fertilizers, plantations/farming, seeds/crop protection, supply chain and equipment/services) have the most attractive risk and returns. While the downstream sectors such as food processing, paper and livestock operations have the poorest risk and returns.

Resources owners tend to have the highest margins while the downstream processors tend to make very thin margins that can occasionally become negative.

The figures above indicate that the soft commodities sector has higher risk compared to the MSCI World Index, however this additional risk is compensated by the higher return.

Figure 8: Risk and Returns

	MSCI World	Soft commodities benchmark*
Annualised Return	-0.21%	10.98%
Standard Deviation	12.69%	18.02%

* Soft Commodities Benchmark: 75% DAX Global Agribusiness Index & 25% S&P Global Forestry & Timber Index. For the period January 2005 to December 2009

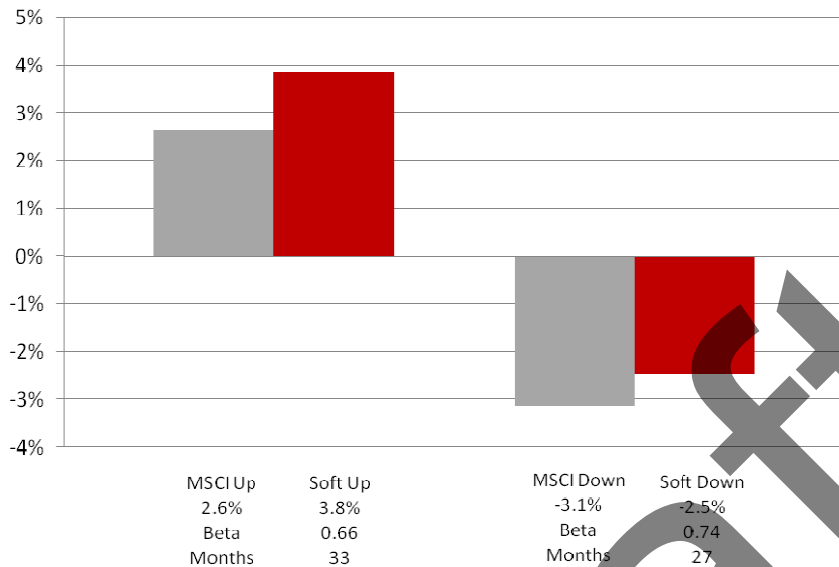
The annualised return for the soft commodities benchmark over the period January 2005 to December 2009 is 10.98% p.a. In comparison, the annualised return for MSCI world over the same period was negative, at -0.21% p.a. This indicates that over the period of January 2005 to December 2009, the soft commodities benchmark has performed significantly better than MSCI World, in what could be viewed as a full cycle.

The standard deviation for the soft commodities benchmark over this period is 18.02%, which is significantly higher than the standard deviation for MSCI World of 12.69%. These standard deviation and return results are

consistent with Chart 1 (above), as they reflect that the soft commodities sector has higher risk (standard deviation) compared to MSCI World, and a higher return to compensate for this higher risk.

This supports the investment case to include soft commodities into a client’s portfolio for the diversification benefits given the moderate correlation and superior returns.

Figure 9: Returns in MSCI Up* and MSCI Down* Markets



MSCI: MSCI World Index – soft 75% DAXglobal Agribusiness Index and 25% S&P Global Timber and Forestry Index.

Figure 9 above shows the average returns for the MSCI (grey) and for Soft Commodities (red) during “Up” and “Down” markets over the period January 2005 to December 2009.

Figure 10 shows that the average return of soft commodities relative to the MSCI World seem quite attractive in up and down MSCI markets. This average does disguise a very large variation in the top and bottom performers within the global soft commodities sector. This variation, which is shown by the minimum and maximum returns in up and down MSCI markets in Figure 10, provides the opportunity for an active stock picker to add value over a cycle in both absolute and relative terms. The correlation in Figure 10 also highlights a negative correlation that is attractive for portfolio diversification.

Figure 10: Return characteristics and correlations in MSCI up and MSCI down markets

Down markets	MSCI World	Soft commodities benchmark*
Max return	-0.01%	11.24%
Min return	-10.58%	-15.93%
Average return	-3.11%	-2.46%
Median return	-3.02%	-1.40%
S.D.	9.19%	18.11%
Correlation	-0.38	

Up markets	MSCI World	Soft commodities benchmark*
Max return	7.73%	9.08%
Min return	0.07%	-2.19%
Average return	2.64%	3.85%
Median return	2.22%	4.15%
S.D.	6.75%	10.36%
Correlation	-0.43	

* The two tables above compare the performance of the soft commodities benchmark to the MSCI World during MSCI 'up markets' and MSCI 'down markets' over the period of January 2005 to December 2009. During this period, there were 33 months in which the MSCI World rose, i.e. 'up markets', while there were 27 months in which the MSCI World fell, i.e. 'down markets'.

Down markets

- The returns of the MSCI World and the soft commodities benchmark during down markets over this period show that on average, the Soft commodities benchmark fell by -2.46%, while the MSCI World fell by more than this (-3.11%)
- The standard deviation of returns over down months was 18.11% for the soft commodities benchmark, compared to the standard deviation of returns for MSCI World (9.19%). This reflects the fact that returns to the soft commodities benchmark in down markets varied more than the returns to MSCI World over the period.
- The soft commodities benchmark has negative correlation to the MSCI World (-0.38) during down markets, this highlights the diversification benefits that holding soft commodities can bring to an equity portfolio.
- Historically, the beta of the soft commodities during MSCI World was 0.74 during down markets. This suggests that past performance of the soft commodity sector is less volatile than the MSCI World.

Up markets

- During up markets, the soft commodities benchmark on average rose by 3.85%, which is more than the average return experienced by MSCI World (2.64%)
- The standard deviation of returns over up months was 10.36% for the soft commodities benchmark, compared to the standard deviation of returns of 6.75%.for MSCI World. This reflects the larger variance returns achieved in up months by the soft commodities benchmark compared to the returns of MSCI World
- The soft commodities benchmark has negative correlation to the MSCI World (-0.43) during up markets, this highlights the diversification benefits that holding soft commodities can bring to an equity portfolio.
- Historically, the beta of the soft commodities benchmark to the MSCI World was 0.66 during the up markets. This suggests that past performance of the soft commodity sector is less volatile than the MSCI World.

Figure 11: Soft Commodity sub-sector returns in up and down markets – Jan 2005 to Dec 2009

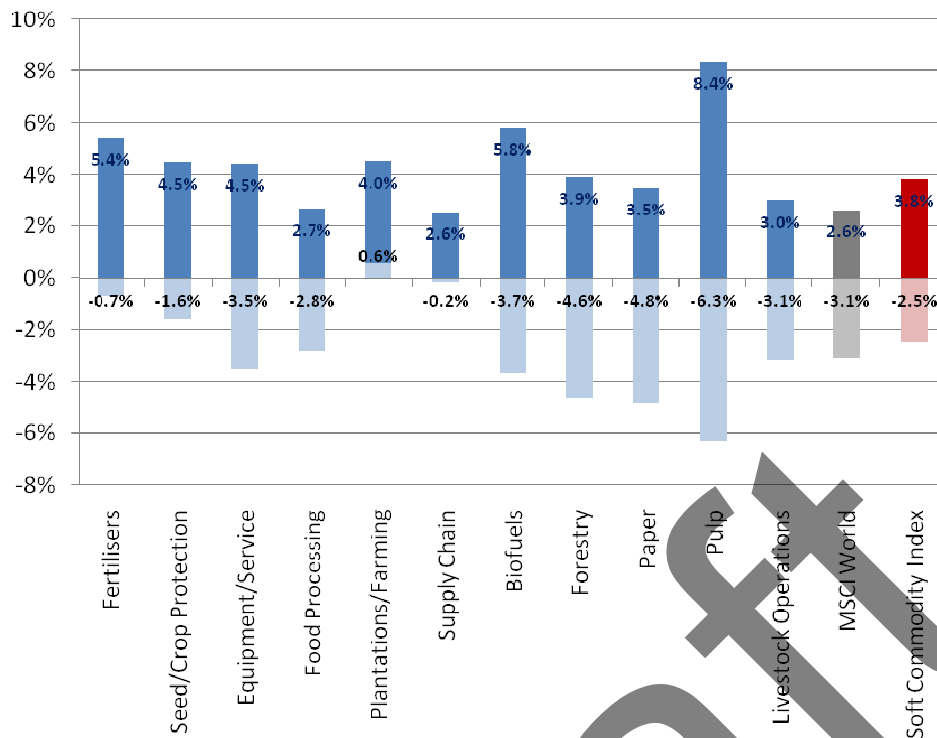


Figure 11 shows the average return in MSCI “Up” months and “Down” months for MSCI World, the Soft Commodity Index, and sub-sectors of the soft commodity index over the period January 2005 to December 2009. The dispersion of returns within the soft commodities sector highlights that a bottom-up, active management strategy within this sector could add significant alpha over time.

Defining the listed global soft commodity universe

Broadly the universe can be described as companies that are involved in the production, distribution, marketing and trading of soft commodities as well as companies that provide products and services to the industry. There are a wide variety of companies that fall into the global soft commodity universe; categorised into eleven sectors below:

Seeds and crop protection

In the author’s opinion, this sector is dominated by large global organizations which have access to large amounts of capital that is required for innovation to drive the businesses forward. Seed companies aim to develop higher yielding seeds that suit various soil and environmental conditions via breeding in preferred traits such as higher drought tolerance or tolerance to a particular pest or fungal disease. Seed companies typically have relatively stable earnings as this is an essential input to crop operations. Crop protection involves formulating chemicals that are used to protect plants from pests, weeds and fungal diseases. Crop protection is important to protect the financial investment that a farmer has already made into seeds and fertilizer, and therefore tends to be a relatively defensive sector.

Both seed and crop protection companies can be viewed like a pharmaceutical company. They tend to spend large amounts on research and development of new products and have many patented products. The companies can be valued based on the revenue stream of their current or base business plus additional value for their product pipeline.

Fertilisers

The main nutrients added to crops are nitrogen, potassium and phosphate. This sector comprises companies that mine for potash and phosphate as well as produce nitrogen based fertilisers such as urea. Companies that are involved in the distribution of fertilisers are also included in this sector.

Potash has an attractive industry structure with very few potash deposits which are controlled largely by Canada and Russia supplying the rest of the world.

Evidence suggests that there are many phosphate deposits globally, but not in the grades or locations that make them economic. Therefore the producers that own high quality phosphate rock, close to logistics and then produce through to final product such as diammonium phosphate (DAP) make the largest margins.

Nitrogen producers use natural gas as their major feedstock. Natural gas is priced regionally and not globally, therefore there are companies that have natural advantages over others that allow them to extract decent margins.

Agricultural equipment

The agricultural equipment sector includes the manufacture of tractors, planters, harvesters, irrigation equipment, storage silos and sheds. This sector is dependent on the health of farmer balance sheets as the evidence would suggest that farmers need to feel comfortable with their financial outlook before committing to such large capital equipment purchases.

Based on the author's analysis of the agricultural equipment segment, there are distinct areas of growth. The potential growth in cultivated land in Brazil, highlighted earlier in the paper, is providing growth opportunities for large and high horse power tractors and harvesters. There is also growing demand for mechanization in the sugar industry in Brazil. In some of the former Russian states, evidence supports a rejuvenation of the agricultural industry which is driving increased demand for agricultural equipment. In Asia, where it is estimated that mechanization remains low in most areas, specialized equipment for rice planting and harvesting are being encouraged and subsidized by government.

Supply chain

This is a category where no two companies are the same. It involves companies who source and trade soft commodities and/or own grain handling assets. The observation of the author is that grain handlers tend to have high capital intensity and their asset bases are difficult to replicate. Higher throughput leads to greater profits. Traders have their capital tied up in physical commodities and tend to make good profits in times of soft commodity price volatility or where there are dislocations in supply. Most companies in this sector also have exposure to some type of processing such as soy crushing, wheat milling or corn processing.

Plantations and farming

Plantations can involve any type of agricultural produce. The sector is currently dominated by the palm oil plantation companies in Malaysia and Indonesia. Palm oil is edible oil which can also be used in biodiesel production. Analysis conducted by the author indicates that these companies are growing their plantation area and have very attractive margins. Some of the companies also have crude palm oil refining capacity which is a lower margin business.

Farming is any operation that grows or sustains produce from rural land or even from the water. Farms have two sources of returns for investors: the capital gain made from rural land appreciation and also the operating profit generated from annual cropping and livestock. The evidence indicates that this sector has a large opportunity to grow with an ageing farmer population and the need for large quantities of capital leading to many private land aggregators potentially coming to the market.

Food processors

Food processors can be involved in protein and/or grain processing such as soy crushing, wheat milling, malting, high fructose corn syrup manufacturing and meat slaughtering of pork, chicken and beef. The author

has observed that food processors tend to have very thin margins and the margins can sometimes turn negative. This is because companies are unable to control their input costs, such as livestock or grains and also do not have control of their final product prices, especially when supermarkets have considerable buying power.

However there is evidence that there are quality companies in this space that can hedge their final product price. In addition, where in emerging economies greater capacity is needed and their production is growing strongly, these companies are encouraged by decent margins.

Livestock operations

This sector includes cattle, pigs and chicken. Unlike the food processors, these companies are involved in the reproduction and growing of livestock prior to selling on to the food processors. Some companies are a combination of both of livestock operations and food processors. They are categorized depending on which sector delivers the highest profit contribution.

Evidence indicates that this sector has very volatile margins as feed costs and meat prices don't always move in the same direction. Feed costs are driven by grain prices. The final carcass price is determined by supply and demand in the market for that particular meat. Typically this industry has little discipline and has historically added capacity in a disorderly fashion.

Biofuel

Biofuel companies make fuel from renewable resources and can take the form of either ethanol or biodiesel. Feed stocks include corn, sugar beet, sugarcane, palm oil, rapeseed, soybeans and biomass. These companies have struggled to perform given that their input costs are not linked to the output price which is driven by global oil prices. The industry is characterized by oversupply and a large number of corporate failures.

Forestry

Forestry companies are those that have either natural or plantation forests. They sell the trees or process the wood into lumber, plywood, chipboard, pulp and biomass. Their fortunes are generally linked to the health of the local home building industry given lumber is relatively expensive to transport.

Pulp

Pulp producers generally have large forest plantations and pulping facilities close to port locations. The forests tend to be located in geographies such as Chile and Brazil, which have high rainfall and plenty of sunshine to ensure fast growth of the trees. Their end product is sold directly to paper and tissue manufacturers all over the world. Analysis on the sector conducted by the author indicates that these companies have very good margins as their growing time is very short (seven years), compared to the softwood trees in Scandinavia which takes over 50 years to grow.

Paper and Packaging

This sector is quite diverse and again where no two companies are the same. Ultimately, these companies are the processors of wood products into varying paper grades, newspaper and containerboard. Paper and newspaper demand is in secular decline in the Western World as online subscriptions and eBooks are reducing demand. Containerboard is used for packaging consumer related products from food through to refrigerators.

This segment performs inline with economic growth, so in developed economies growth is quite strong compared to the western world. There are also companies in the sector that produce products such as diapers and incontinence products that are made from fibre based fluff pulp.

The investment thesis

There is much evidence to suggest that in the future more agricultural output will need to grow dramatically to meet the ongoing rise in demand.

There are three major ways investors can position their portfolios to get exposure to this thematic. The first is by investing in soft commodities through futures contracts. The second is to invest in land used for agriculture. The third method is to invest in listed agricultural companies.

Investing in the listed agricultural companies involved in helping to produce more food can deliver strong returns over the medium to long-term. Businesses that are able to help overcome supply constraints to increase food production volumes or assist other companies to do so are likely to be the main beneficiaries of the rise in demand for food over the long term. These companies will benefit from any rise in soft commodity prices. In addition, as capital intensive businesses, they have a far greater exposure to volume than to price and will reduce costs per unit if they can increase throughput to meet growing future global demand. In doing so, return on equity will increase.

In addition, geographic, market capitalisation, crop and business diversification can be gained by investing in equities as opposed to, for example, the land used for soft commodity production.

In addition to the prospect of strong returns from individual firms within the listed agricultural sector, inclusion of soft commodities equities in a portfolio also has strong diversification benefits.

Draft