

Gyrfalcon Ventures

Precision agriculture international expansion

Consulting for Analytics
Group 2 Project

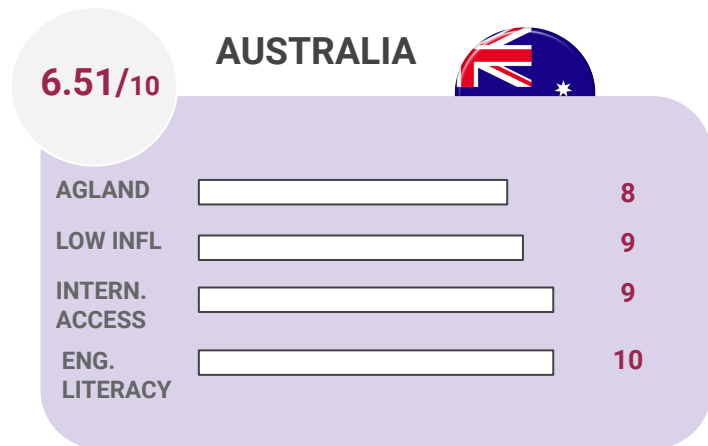
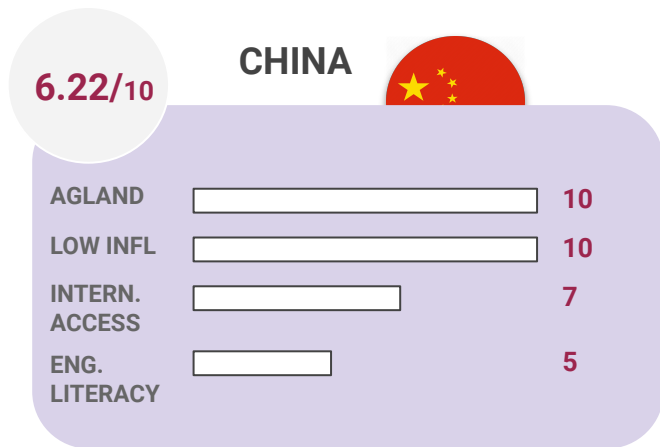
Adetoun Adeyemi, Arun Rajan, Lu Li, Garrett Hastings, Yuwen Luo

Overview

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- 1. Methodology and Results**
 - 2. Favourable Financials and Operations in China**
 - 3. China's proximity to other attractive markets**
 - 4. China's Agricultural Sector Overview**
 - 5. Examining China's Economy**

Methodology and Results

We created a scoring metric based on the data we were given and some additional data.



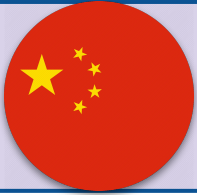
VARIABLE

MEASURE

AGLAND (% of land used in agriculture)	Agricultural Sector Measure
LOW INFL (Low Inflation)	Economic Health
INTERN ACCESS (Internet Access)	Technology
ENG LITERACY (English Literacy)	Operations

Why China over Australia ?

Australia scores slightly higher over China using our index but we would recommend China for other reasons



- Lower setup and operating costs
- Ease/Proximity to other key markets
- China has one of the best agricultural sectors in the world.
- Robust Economy

OUR RECOMMENDATION



- Higher setup and operating costs
- Australia is somewhat geographically isolated
- The agricultural economy is vulnerable to climate change
- The Australian agricultural sector is high risk because a few key markets make up a majority of exports

DRAWBACKS



Favourable financials and operations in China

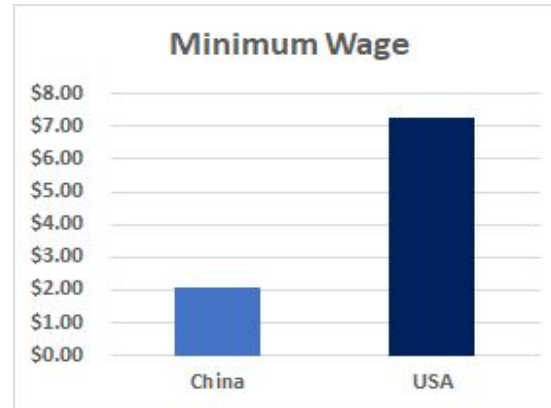
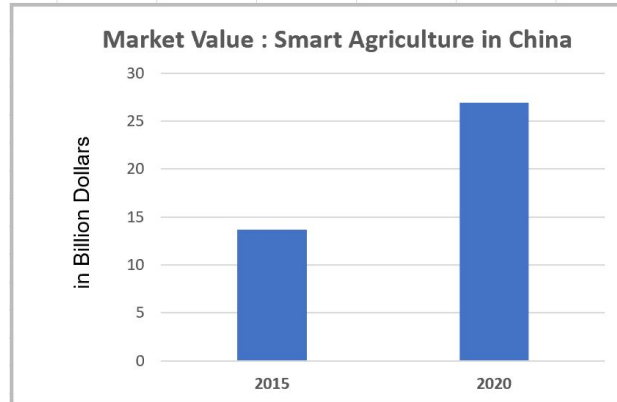
- Expected financial outcomes
- Favourable business climate

Expected financial outcomes in China

Revenue	Market Size	\$26.9 B	3% of the total agriculture market \$990 B in China
	Market Capture	\$13 B or 50%	100% expansion of smart agriculture expected in 3 years
	Price Point	\$1000 to \$40000	Offer diverse solutions: Low Cost to Sophisticated
Expense	Variable Cost	\$100	Per unit
	Overheads	15%	Percentage of Total Revenue
	Salaries	8%	Min wage: China \$1 to \$3, US \$7.25
	Shipping Cost	12%	Percentage of Total Revenue
	Marketing	40%	Percentage of Total Revenue
	Sales & Distribution	15%	Percentage of Total Revenue
	Fixed Costs	\$15000 per month	Rental for 500 Sq-m office in Shanghai

Expected financial outcomes in China

Corporate Information	WACC	10%	Optimum investment to get the best future cash flow valuation
	Taxation	35%	Assuming repatriation of 100% profits to the USA (will be affected by exchange rate fluctuations)



Favourable business climate in China

China has a higher ranking in Ease of Doing Business (Overall Rank 3)

- Opening a new business
- Getting a location, dealing with permits
- Getting electricity
- Accessing finance
- Taxation policy
- Trading across borders



China's proximity to other attractive markets

- Close to other key agricultural markets such as Thailand and Vietnam.
- Belt and Road initiative

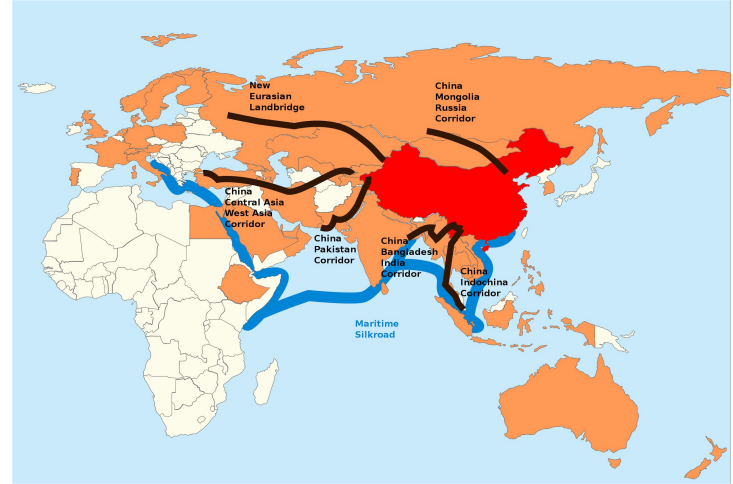
China's geographical position would help us reach other key agricultural markets such as Thailand and Vietnam.

- Thailand and Vietnam are the world's 2nd and 3rd largest rice exporting countries, according to USDA.
- They are both known for cheap agricultural exports, such as rice, coffee bean, sugarcane, tropical fruit, cassava, tobacco, etc.



China's Belt and Road initiative would help us reach markets in Central Asia, Southeast Asia, and Europe.

- The Belt and Road initiative is a global trade and infrastructure development strategy adopted by the Chinese government to invest in nearly 70 countries.
- The initiative would help us further sell the drones in the agricultural exporting countries in those regions, such as Pakistan, India, Indonesia, and Russia.

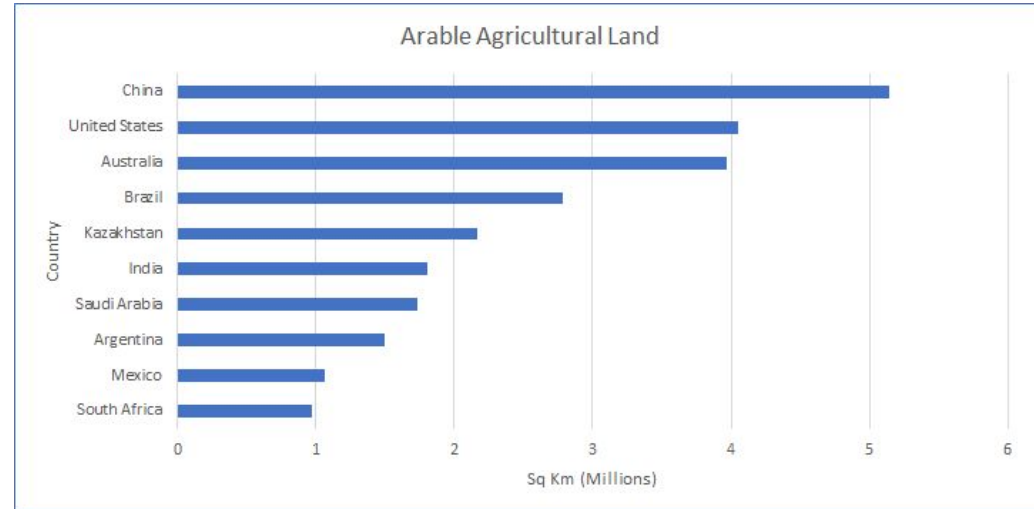


China's Agricultural Sector

- Arable Agricultural Land Area
- Agricultural Production
- Continuing Investment in its Agricultural Industry

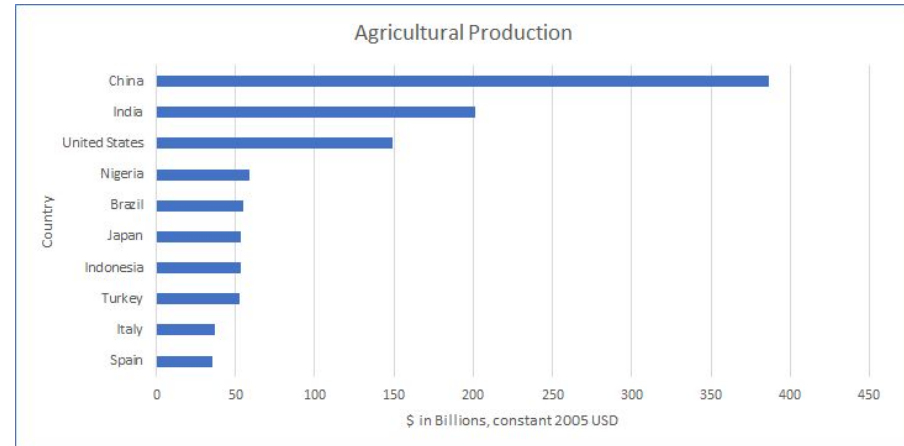
Arable Agricultural Land

- China has the most arable agricultural land area in the world - 5.1 Million sq km (Worldbank, 2013).
- Due to vast land mass and diverse topography, China is one of the world's top producers of grain, fruit, vegetable, and cotton (Fitch Solutions, 2020)



Agricultural Production

- China's agriculture production is the highest in the world (World Bank, 2014)
- This includes forestry, hunting, fishing, cultivation of crops, and livestock production
- \$386 Billion in China (in constant 2005 USD)



Continuing Investment in Agricultural Sector

- Agriculture accounts for 10% of China's GDP, and 34% of employment (Fitch Solutions, 2021)
- Healthy consumption growth projections across most agricultural categories (Fitch)
- China recorded reforms over the past 5 years, notably:
 - Liberalization of use of agricultural land and agricultural prices, and more are expected in the coming years (Fitch)



Examining China's Economy

- Pandemic Control
- GDP Growth in Pandemic
- Foreign Trade is Open

Robust Economy

Pandemic Control

China was able to effectively control the pandemic early and reopen the economy safely. (embassy.org)

2

nation

CORONAVIRUS

China has full confidence, capability to control epidemic

Statement



Qian Bo

This is a statement by Qian Bo, the Ambassador of the People's Republic of China in Fiji.

The 2019-nCoV epidemic has become a common concern of the international community. Since the outbreak of the contagion, the Chinese government has been taking the most comprehensive and rigorous prevention and control measures with a high sense of responsibility for people's health. China has also been actively developing international cooperation on disease prevention and control.

China's efforts to prevent and control the epidemic
On January 20, President Xi Jinping and Premier Li Keqiang instructed governments at all levels to pay highest attention to the de-

velopment of the epidemic. The National Health Commission and local authorities were ordered to activate all-round emergency response mechanisms, to ensure its efforts to curb the spread of the novel coronavirus-related pneumonia will be advanced in an open, transparent, scientific and orderly manner. On January 25, Premier Li was designated chair of a newly established central leading small group on battling the 2019-nCoV epidemic.

Rapid mobilization at the top level catapulted the whole nation into instant reaction. Wuhan, the epicenter of the epidemic, has been put on lockdown for more than a week to prevent further outbreaks. At present, over 6,000 medical staff including many military medics from all over the country are now in Wuhan to join the fight against the virus.

The 1,000-bed Huoshenshan Hospital and 1,500-bed Leishenshan Hospital, emergency specialty hospitals in Wuhan will start to accept patients on Feb 3 and respectively just around 10 days after plans for their construction were first announced.

To curb the spread of the novel coronavirus, China has rolled out a host of unprecedented moves, including extending the Spring Festival holiday, postponing the spring semester of schools and universities, and adopting transport restrictions in various areas.

According to the Ministry of Finance, China has allocated 2.3 billion yuan (about 3.94 billion U.S. dollars) to support the battle across the country as of Jan. 29. Financial and material donations from Chinese enterprises have been grow-

ing. Charities and Red Cross agencies in Hubei have received up to 1.26 billion yuan and 5.29 million pieces of materials in donation by the end of January.

Despite the epidemic prevention and control remained grim and complex, our efforts on various fronts are paying off, and we have the confidence, capacity and determination to defeat the outbreak.

Why has the Chinese gov't taken such strong measures?

Quarantine is a traditional and yet the most effective measure to contain a deadly epidemic. Because there is no specific cure or vaccine against virus-caused infections (including 2019-nCoV), standard public health emergency measures usually prove most efficient, including isolating the sources of infection, cutting off or interrupting transmission routes, and special care for the most susceptible people.

Had the Chinese government not taken determined efforts to quarantine the places with concentrated confirmed cases, the deadly virus may have spread all over the world and generated devastating impact on the global economic and public health systems. So far, the number of cases in the rest of the world has remained relatively small.

As WHO Director-General, Dr. Tedros Adhanom Ghebreyesus correctly pointed out at a press conference on January 20, "the Chinese government is to be congratulated for the extraordinary measures it has taken to contain the outbreak, despite the severe social and economic impact those measures are having on the Chi-

nese people".

Join hands in fighting against the 2019-nCoV epidemic

The Chinese government has been taking the most comprehensive and rigorous prevention and control measures with a high sense of responsibility for people's health. Many of these measures go well beyond the requirements of the International Health Regulations.

At the same time, acting with openness, transparency and a responsible attitude, the Chinese side informed relevant sides and shared the genome sequence of the coronavirus in a timely manner. WHO and many countries have recognized and commended China's efforts and speaks highly of China's great contribution to the world by fighting against the novel coronavirus.

Regarding WHO's declaration of the outbreak as a public health emergency of international concern, Dr. Ghebreyesus clearly stated that the main reason for this declaration is not because of what is happening in China. It is about protecting countries with weaker health systems and which are ill-prepared to deal with potential spread.

WHO continues to have confidence in China's capacity to control the outbreak. There is no reason for measures that unnecessarily interfere with international travel and trade. WHO doesn't recommend limiting trade and movement. The Chinese side hopes that the other countries will act in an objective and fact-based spirit, respect this great recommendation. Under current circumstances, soli-

darity is what the world needs. The epidemic is occurring mainly in China, with limited spread to other countries. China has made enormous contribution to the world with its concrete actions. All countries should adopt a responsible attitude, work together to combat the virus, and avoid over-reaction that may result in more negative spillover effects.

As the WHO Director-General said, "the only way we will defeat this outbreak is for all countries to work together in a spirit of solidarity and co-operation. We are all in this together, and we can only stop it together—This is the time for facts, not fear. This is the time for science, not rumors. This is the time for solidarity, not stigma."

As a Chinese saying goes, "Just as polishing refines a piece of jade, adversity makes one stronger". The Chinese nation is dedicated to social commitment and self-discipline.

China is good at mobilising resources to meet major challenges. China has gained valuable experience in dealing with SARS, H1N1 influenza, avian influenza and Ebola virus.

And China has built a solid technological and material foundation over the past seven decades since the founding of the People's Republic. With the strong leadership of the Communist Party of China, the enormous strength of the system of socialism with Chinese characteristics, and the robust support from the international community, we have every resolve, confidence and capability in winning the fight against the outbreak.

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Robust Economy

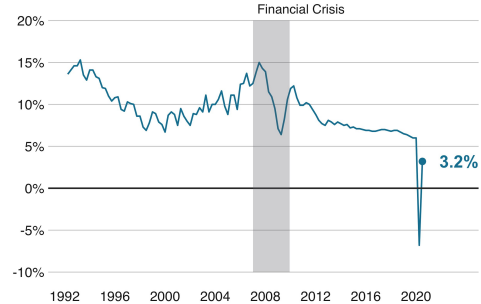
GDP Growth in Pandemic

China has GDP growth rate of 3.2% during the pandemic. (Statistics)

- Inflation at about 2%
- The Chinese Economy is projected to continue growing at 6.5% GDP growth. (Statistics)

Chinese economy bounces back into growth

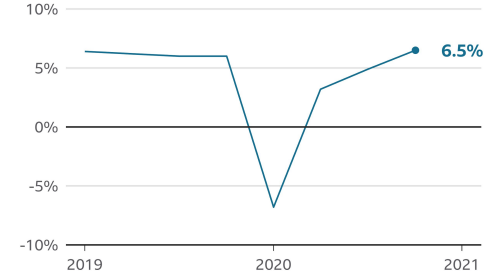
Year-on-Year GDP has now fallen into negative territory



Source: China's National Bureau of Statistics

China is the only major economy to grow in 2020

Quarterly year-on-year GDP



Source: China's National Bureau of Statistics

GDP Growth Projections for 2020

Countries with GDP decline are highlighted in grey



2009

Sign up free to view source

2020

Robust Economy

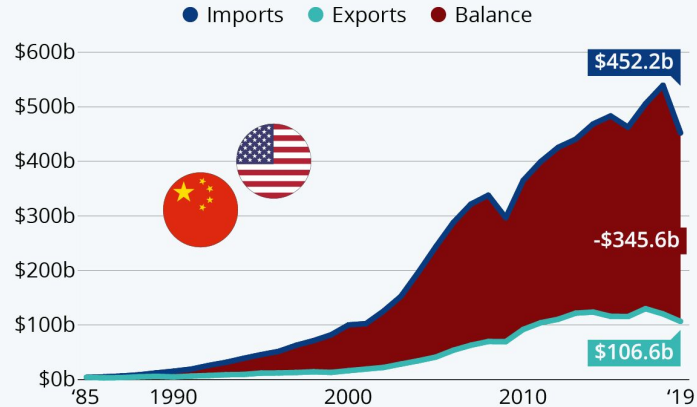
Foreign Trade is Open

The Chinese government is open to foreign direct investment (FDI).

- Chinese and US trade relations improving since Biden Administration(Statistics)

A Longterm View On U.S. Trade With China

U.S. trade in goods with China since 1985



Source: U.S. Census Bureau



Any Questions?

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Appendix

Exhibit A

Weighting	0.09	0.14	0.03	0.10	0.04	0.14	0.03	0.07	0.12	0.09	0.07	0.03	0.05	1	
COUNTRY	AGLAND Score	AGVAL SCOR	AGVAL GR sc	AGEMP SCOF	ELEC PC score	Ease of Busines	GDCAP sco	INFL SCORE	PPX score	INTERN Score	Drone Regulation Score	Proximity Score	English Literacy Score	OVERALL SCORE	RANK
Australia	7.71	5.75	5.36	0.28	10.00	9.54	6.37	9.00	6.58	8.73	2.50	0.41	10.00	6.51	1
China	10.00	10.00	2.62	6.13	10.00	4.74	1.65	10.00	2.58	6.56	2.50	3.33	4.78	6.22	2
Canada	1.27	5.49	4.64	0.22	10.00	9.25	6.11	10.00	3.17	9.18	7.50	10.00	10.00	6.15	3
South Korea	0.03	6.09	4.52	0.76	10.00	9.83	4.77	10.00	5.00	9.70	5.00	3.32	5.77	5.90	4
United Kingdom	0.34	5.12	3.27	0.04	10.00	9.60	5.47	10.00	6.00	9.33	0.00	6.69	10.00	5.78	5
Norway	0.02	3.81	3.45	0.21	10.00	9.77	9.36	10.00	2.25	9.88	7.50	6.48	8.89	5.73	6
Mexico	2.07	6.30	5.30	1.78	9.72	7.63	2.20	9.00	7.50	7.07	5.00	8.53	1.62	5.72	7
Germany	0.32	5.66	2.92	0.10	10.00	9.36	6.32	10.00	4.42	8.89	2.50	6.17	8.58	5.64	8
Spain	0.52	6.40	3.87	0.50	10.00	8.27	4.48	2.00	8.50	9.15	2.50	6.57	5.45	5.43	9
New Zealand	0.22	3.50	4.64	0.80	10.00	10.00	4.82	10.00	2.17	9.16	5.00	1.45	10.00	5.35	10
Japan	0.09	7.02	3.57	0.43	10.00	8.55	5.06	9.00	1.42	8.53	7.50	3.49	3.48	5.26	11
United Arab Emirates	0.01	1.82	4.40	0.64	9.29	8.67	10.00	9.00	7.25	10.00	2.50	3.21	2.89	5.15	12
Austria	0.06	3.24	4.82	0.47	10.00	9.02	6.35	10.00	1.33	8.85	5.00	5.91	8.85	5.13	13
Italy	0.26	6.46	3.81	0.39	10.00	7.11	4.73	10.00	2.50	7.50	5.00	5.85	5.85	5.11	14
Thailand	0.43	5.60	3.99	5.73	9.98	8.50	2.01	10.00	0.92	6.72	5.00	1.41	0.79	5.01	15
South Africa	1.88	4.09	5.42	0.62	6.69	7.98	1.63	6.00	4.67	5.66	7.50	2.12	8.22	4.99	16
Colombia	0.87	4.96	6.67	2.26	8.79	7.05	1.68	9.00	3.50	5.48	7.50	8.03	1.94	4.96	17
Malaysia	0.15	5.12	8.69	1.68	10.00	8.96	3.33	9.00	2.67	8.49	0.00	0.65	5.85	4.88	18
Argentina	2.90	5.38	2.86	0.00	9.58	2.95	2.90	0.00	8.92	7.49	7.50	5.10	6.60	4.79	19
Belgium	0.03	2.74	4.70	0.10	10.00	7.80	5.84	10.00	3.83	9.11	0.00	6.49	8.42	4.74	20
Chile	0.31	3.79	1.19	1.19	9.78	7.86	3.04	8.00	2.42	8.30	5.00	5.30	4.90	4.65	21
Peru	0.47	3.51	1.96	4.74	7.29	8.15	1.48	9.00	1.58	6.05	5.00	6.84	3.28	4.63	22
Kazakhstan	4.22	3.33	2.20	3.27	10.00	5.72	3.23	6.00	1.33	8.26	7.50	4.36	0.51	4.61	23
Bulgaria	0.10	1.85	6.73	0.82	10.00	8.03	2.35	2.00	6.92	6.85	5.00	5.40	7.11	4.60	24
Costa Rica	0.03	2.15	2.98	1.68	9.87	5.61	1.90	8.00	1.50	8.19	10.00	8.36	5.18	4.55	25
Brazil	5.42	7.06	3.45	1.93	9.70	3.01	2.03	6.00	1.50	6.80	5.00	5.53	3.60	4.54	26
Saudi Arabia	3.37	4.75	4.40	0.60	9.29	7.57	7.14	9.00	1.42	9.65	0.00	3.53	0.00	4.51	27

Exhibit B

AGLAND	Agricultural land refers land area that is arable, under permanent crops, and under permanent pastures. Arable land includes land defined by the FAO as land under temporary crops (double-cropped areas are counted once), temporary meadows for mowing or for pasture, land under market or kitchen gardens, and land temporarily fallow. Land abandoned as a result of shifting cultivation is excluded. Land under permanent crops is land cultivated with crops that occupy the land for long periods and need not be replanted after each harvest, such as cocoa, coffee, and rubber. This category includes land under flowering shrubs, fruit trees, nut trees, and vines, but excludes land under trees grown for wood or timber. Permanent pasture is land used for five or more years for forage, including natural and cultivated crops.
AGVAL	Agriculture corresponds to ISIC divisions 1-5 and includes forestry, hunting, and fishing, as well as cultivation of crops and livestock production. Value added is the net output of a sector after adding up all outputs and subtracting intermediate inputs. It is calculated without making deductions for depreciation of fabricated assets or depletion and degradation of natural resources. The origin of value added is determined by the International Standard Industrial Classification (ISIC), revision 3. Data are in constant 2005 U.S. dollars.
AGVAL-GR	Annual growth rate for agricultural value added based on constant local currency. Aggregates are based on constant 2005 U.S. dollars. Agriculture corresponds to ISIC divisions 1-5 and includes forestry, hunting, and fishing, as well as cultivation of crops and livestock production. Value added is the net output of a sector after adding up all outputs and subtracting intermediate inputs. It is calculated without making deductions for depreciation of fabricated assets or depletion and degradation of natural resources. The origin of value added is determined by the International Standard Industrial Classification (ISIC), revision 3.
AGEMP	Employees are people who work for a public or private employer and receive remuneration in wages, salary, commission, tips, piece rates, or pay in kind. Agriculture corresponds to division 1 (ISIC revision 2) or tabulation categories A and B (ISIC revision 3) and includes hunting, forestry, and fishing.
ELEC	Access to electricity, rural is the percentage of rural population with access to electricity.
EASE-RK(Arun)	The ease of doing business ranking, from the World Bank, ranks the economies based on 10 indicators of business regulation that record the time and cost to meet government requirements in starting and operating a business, trading across borders, paying taxes, and closing a business. The rankings do not reflect such areas as macroeconomic policy, quality of infrastructure, currency volatility, investor perceptions, or crime rates. Several rankings are missing because these countries are not covered by Euromonitor International (Paulau, Marshall Islands, Micronesia, Timor-Leste and West Bank and Gaza) but are included in the World Bank's survey. All Doing Business 2011 rankings have been recalculated to reflect changes to the methodology in 2012. Previous data refers to an old methodology.
GDPCAP	Gross domestic product is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Purchasing power parity (PPP): A method of measuring the relative purchasing power of different countries' currencies over the same types of goods and services. Because goods and services may cost more in one country than in another, PPP allows us to make more accurate comparisons of standards of living across countries. PPP estimates use price comparisons of comparable items but since not all items can be matched exactly across countries and time, the estimates are not always "robust".
INFL	The annual average inflation rate indicates the average percentage increase in the price of goods and services comparing every month of the year with corresponding month last year.
PPPX	Purchasing power parity conversion factor is the number of units of a country's currency required to buy the same amount of goods and services in the domestic market as a U.S. dollar would buy in the United States. The ratio of PPP conversion factor to market exchange rate is the result obtained by dividing the PPP conversion factor by the market exchange rate. The ratio, also referred to as the national price level, makes it possible to compare the cost of the bundle of goods that make up gross domestic product (GDP) across countries. It tells how many dollars are needed to buy a dollar's worth of goods in the country as compared to the United States. PPP conversion factors are based on the 2011 ICP round.
INTERN(Adetoun)	
Drone regulation and liscensing (1 - Strict, 5 - relaxed)	
Proximity	
English Literacy (Arun)	The world's ranking of countries and regions by English skills on an 800 point scale. To calculate an EF EPI score, weighted components include English tests and the EF EPI from 2019. Inclusion of the previous year's Index helps to stabilize scores year over year, but test takers from the previous year are not counted in the total test taker count for the current year. Regional averages are weighted by population.

Exhibit C

SWOT

Agribusiness SWOT

SWOT Analysis

Strengths

- China's vast land mass and diverse topography put it among the world's top producers of grain, fruit, vegetable, livestock and cotton.
- Healthy consumption growth across most agricultural categories - excluding dietary staples such as rice - has helped to keep both private and public investment in the sector high.
- The fragmented nature of many of China's agricultural sub-sectors provides room for strong production growth without the need for significant increases in acreage.
- With agriculture accounting for around 10% of GDP and 34% of employment, the sector remains a vital contributor to China's economy, ensuring strong government support and favourable investment terms.

Weaknesses

- Fast urbanisation as well as water and soil pollution have reduced harvestable acreage and arable land across almost all agricultural commodities.
- A lack of investment in storage infrastructure has left China's agricultural industry particularly vulnerable to erratic climate conditions.
- Urban migration is reducing China's rural workforce and the output of the average rural worker.
- Despite recent efforts by authorities to improve food quality and safety, there remains a lack of standardised health and safety regulations, which continues to lead some food producers to cut costs and improve margins.
- Foreign investment remains constrained as some sub-sectors are dominated by state-owned enterprises.
- Elevated production costs and prices make the sector uncompetitive on an international level, which means that government support is needed to maintain current levels of production.
- African swine fever (ASF) (2018-2020) has decimated the domestic pig population and will act as a drag on the sector.

Opportunities

- Under the 13th Five-Year Plan (2016-2020), China recorded a period of major agricultural reforms. These reforms are likely to continue in the coming years. The ongoing reforms in agriculture (partial liberalisation of land use and of agricultural prices) bode well for future investment and production.
- These changes will create major opportunities for local and international machinery makers and Chinese seed companies.
- We forecast China to allow the commercialisation of genetically modified corn seeds on a three- to five-year horizon. Yields look set to improve further.
- China will be one of the leaders in technology adoption within its agricultural sector (for example, Internet of Things and drones) along with developed markets, which opens investment opportunities and bodes well for future yield improvement.
- Despite the presence of large food multinationals, China has little in the way of fully integrated food companies. This is expected to lead to greater agricultural investment as producers seek control over their own supply chain.
- The growth in consumption and in diet diversification opens up enormous opportunities for food exporters to China in terms of meat and dairy products.
- Overseas investment in agribusiness by Chinese companies will remain robust in the coming years, opening up opportunities for companies in targeted countries.
- Under the phase one trade deal with the US, China will acquire billions of dollars worth of agricultural goods from the US.
- Poultry production will increase over the medium term owing to the severe downtrend in the pork sector.

Threats

- The ongoing Covid-19 pandemic in 2020 remains a very fluid situation and could lead to sharper economic

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Exhibit D

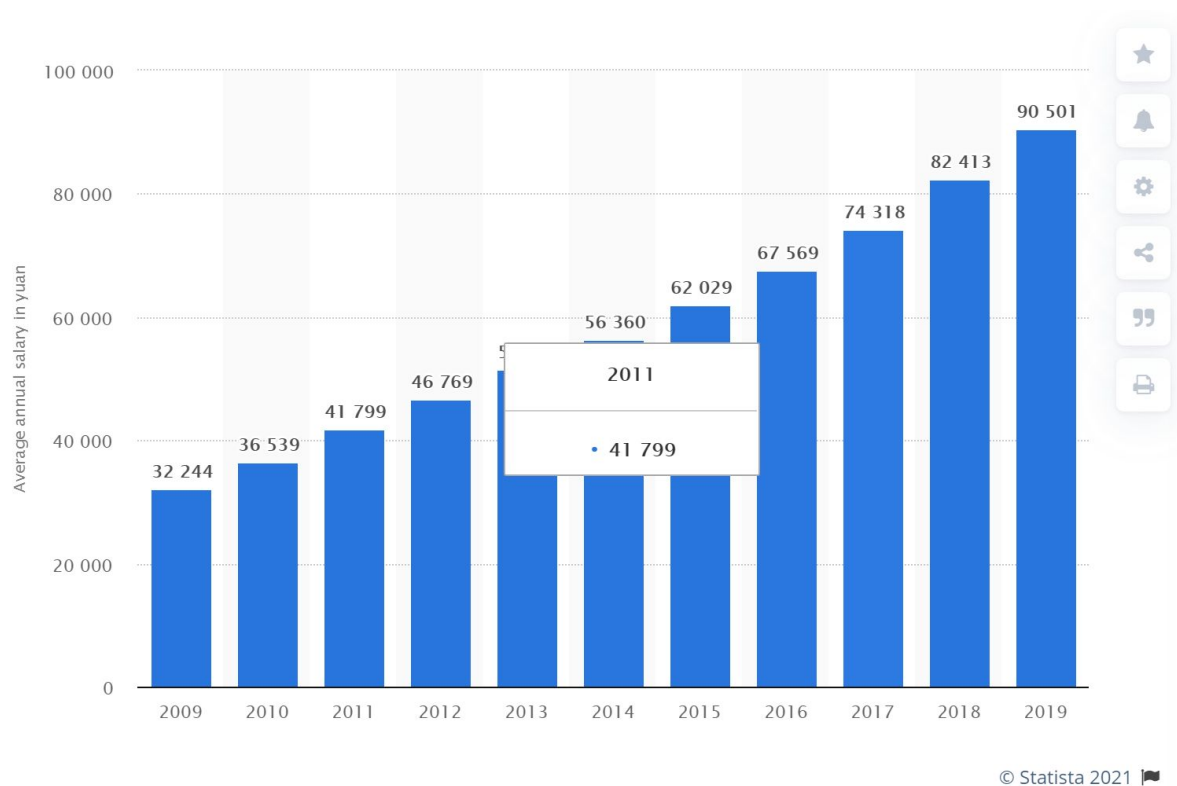


Exhibit E

