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**The effect of Sino-US trade dispute on agriculture industry: a case of soybean**

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# The Effect of Sino-US Trade Dispute on Agriculture Industry: A Case of Soybean

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## **ABSTRACT**

This paper is going to explore the effect of the recent Sino-US dispute on the soybean industry, and use some selected soybean companies as samples to do case study to show the specific effect on the soybean industry of the United States and Brazil. Researchers will collect the soybean future data from the United States market, and also the financial reports of the selected sample companies through Bloomberg database. Researcher will use the soybean future data to show the status of soybean industry in the States, stock price price of the sample companies to show the performance of the companies, and use the financial report to analyse the different cases. The news and research papers indicate that the Sino-US trade dispute is hurting American soybean industry while benefiting the Brazilian soybean industry, but the paper will focus on the specific companies but not the countries.

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## Introduction

The Sino-US dispute is an essential topic recently. It is a is an economic conflict began at 2018, when President Donald Trump set some trade barriers and a lot of tariffs on China. He did it to reduce the U.S. trade deficit, and protect the U.S. domestic industry, create more jobs, and his tariffs policies have three part, the global steel tariff, the tariff on European automobiles, and the tariffs on Chinese products. Chinese government also imposed a retaliatory tariffs on a huge amount of US products. According to a report, after U.S. administration threatened to impose a 2% tariff on \$50 billion Chinese products in April, 2018, Chinese government canceled all the soybean import contract with U.S. in May (Amadeo, 2019).

However, it seems that many economists think tariffs is not good solution for the trade deficit, for example, according to a research report, the “vast majority of economists” believe that President Trump’s tariffs policies will do more harm than good, and they think the tariffs will cost jobs in the long term, and depress the economic growth for all the involved countries (Sarkar, 2018). This trade dispute have a significant influence on China-US relations, and until today, the countries still keep adding more tariffs to each other, but people still cannot predict the result of this trade dispute.

The effect of this dispute is massive, for example, the United States farmers sold half of its soybean products to China, but now China canceled all the soybean contracts,

and the farmer do not have the time to adjust their plan. As a result of oversupply, in July, 2018, the price of soybean reach a 10 years low point. In addition, according to the report, the bankruptcies in Wisconsin, Indiana, and Illinois, where produced a half food in United States in 2017, have already reach the 10 years highest peak. Moreover, the nationally income of farmers fell by \$11.8 billion, and president Trump paid \$16 billion in 2019, and \$12 billion in 2018 as aid to partially compensate the losses of farmers. For the reason that most of the products from American Chinese government add tariffs on are agricultural products, and it seems that the tariff caused a huge influence in the agricultural industry in the United States, this paper is going to test the effect of Sino-US dispute through the case of soybean industry. China has a long history for growing soybean, and developing agriculture, but nowadays, more than a half of the soybean China consumed need to be imported aboard, and the soybean import market is increasingly important in China. The purpose of this paper is to find how the specific soybean companies are influenced by the trade dispute, and whether there are any other companies from other countries are getting benefited.

### **Literature Review**

According to a report in 2018, After joining WTO, China accepted a very low tariff, and no limitation in American agriculture product import. Moreover, China is very lack of arable land. During 2013-2018, China have to import much of the agriculture

products from the U.S (Karlin, 2018). This article provides the background of Chinese soybean industry, and also the international soybean market.

Political Transcript Wire records that during that time period, the U.S. farmers got very easy access to Chinese market. To be specific, the United States as a leading agriculture products source of China, provided more than 50% of the sorghum and 30% of the soybeans in the past five years. Even the structure of American agriculture industry changed a lot because of the big trade between China and U.S. A significant shift in American planting trends, from corn to soybeans, was observed during that time. This report also points out the risk that American farmers will pay the price for tariffs on steel and other commodities (Political Transcript Wire,2018). This concern is quite reasonable, according to another report from the United States Department of Agriculture (USDA), due to the tension trade dispute between China and the United States, China is going to add 25% additional tariffs on U.S. soybean. The price of American soybean in China will be increase by about RMB 750 (\$110)/ton. The MY17/18 U.S. soybean imports in China is about 28 MMT, significantly lower than MY15/16, which is about 36.8 MMT. This number is expected to keep declining, if the dispute cannot be resolved (USDA, 2018). The import data here is very useful for my research.

Some reports recently analyse the topic of China-U.S. trade dispute, and also the soybean trade issue. The structure and pattern of these study can be very useful. There

are several sections in the “Analytical Report on Soybean Import in China, 2018-2022”, researchers first the environment of China's soybean import, which includes supply chain and demand. Chinese domestic soybean production is also the factor in this section. Secondly, they analyse the import factors, such as import price, volume, international production environment, and sources. Third part is the analyse on the three major suppliers, U.S., Argentina, and Brazil. Researchers also mentions some specific soybean companies in U.S. and major Chinese importers of soybeans. The final part is the prediction about the soybean import in China in the future 5 years. The study pattern and factors in this research can be a perfect example for my own research (Research and Markets, 2018)

Another paper in 2018, focus on the policies of Chinese government and domestic market, it lists some policies and documents about the soybean tariff from the China's General Administration of Customs before and after the trade dispute. Furthermore, researchers also uses a differential production approach, to estimate the domestic demand of soybean. They also analysis the elasticity of the exporting countries' demand. With this paper, people can have a better understanding of the soybean market in China, the demand of the domestic market, the competitive relationship between soybean and soybean oils, and also the relationship, and engagement of China's major soybean suppliers. Some study patterns researchers mentions in this paper can also be used in my paper, for example, connecting the domestic soybean import with the demand of some specific exporting countries, and also add the

value added tax refund factors in to account (Gao, 2012).

## Research Design

First of all, researcher will select some sample companies. To be specific, there will be some sample companies in US, and also some companies in Brazil, because they were the second largest export of soybean in China, and can be the largest one after



图 2

2013 年至 2017 年间，巴西出口到中国（左）和 Matopiba 地区出口到中国（右）的主要大豆出口商。气泡的大小反映大豆的出口量。

(<http://resources.trase.earth/documents/infobriefs/Trase%20Infobrief%206%20CN>)

the US lose its position. Based on the the past studies, the three biggest soybean exporters in Brazil are Bunge, Cargill, and ADM, and the top three biggest soybean exporters in the United States are Bunge, Cargill and Amaggi &LD, which is a company founded by Amaggi and Louis Dreyfus. However, Cargill and Amaggi & LD corporation are not public owned companies, there is no stock price data about them. Therefore, the sample companies are Bunge and ADM.

To study the general effect of the Sino-US trade dispute on the agriculture industry, using the case study model. First, research is going to track the price fluctuation of soybean future and the stock price of the selected companies in the American market during the 2018 and 2019 period, especially the May, 2018, which is the month Chinese government announced the new tariffs policies. To study the relationship of the future price, and the stock price, researcher may use the regression test. Some detail information about the formation of Chinese soybean import, the data about the proportion of Chinese soybean import from different countries will be analysis, and the change of change in soybean import proportion will show the change in Chinese soybean import strategy.

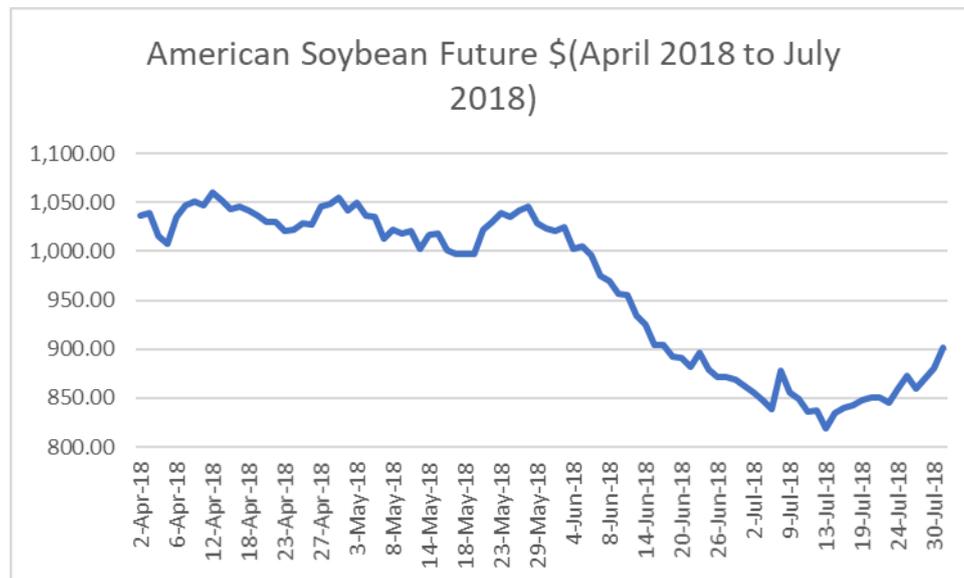
The time period researcher select is April 2018 to July 2018, because April 2018 is the time Chinese government announced the 25% soybean tariff, and May 2018 is the time a lot of Chinese companies canceled the soybean contracts.

## **Results**

First sample, Bunge Limited:



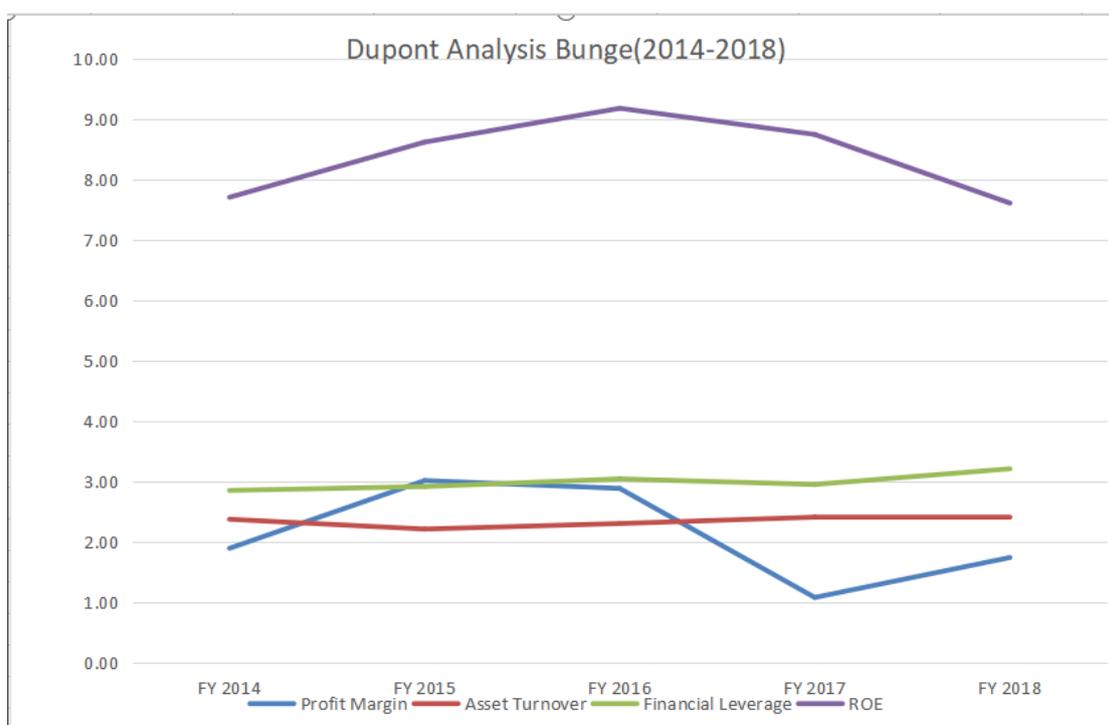
This chart shows that daily stock price change of Bunge Limited company during 01 April, 2018 to 31 July, 2018.



This chart shows the daily price change of Soybean Future in the United States market during 01 April, 2018 to 31 July, 2018.

SUMMARY OUTPUT									
<i>回归统计</i>									
Multiple R	0.652565								
R Square	0.425841								
Adjusted R Square	0.418924								
标准误差	1.679054								
观测值	85								
<i>方差分析</i>									
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>				
回归分析	1	173.5497	173.5497	61.55938	1.32E-11				
残差	83	233.9956	2.819224						
总计	84	407.5453							
<i>Coefficients</i>									
	<i>标准误差</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>下限 95.0%</i>	<i>上限 95.0%</i>		
Intercept	53.75489	2.188557	24.56179	7.86E-40	49.40194	58.10784	49.40194	58.10784	
X Variable 1	0.017801	0.002269	7.845979	1.32E-11	0.013288	0.022313	0.013288	0.022313	

This chart shows the result of the regression testing of daily Bunge stock price and American soybean future price in the same time period, using the Microsoft Office Excel Data Analysis function.



This chart shows the Result of Dupont Analysis of Bunge Limited during the latest

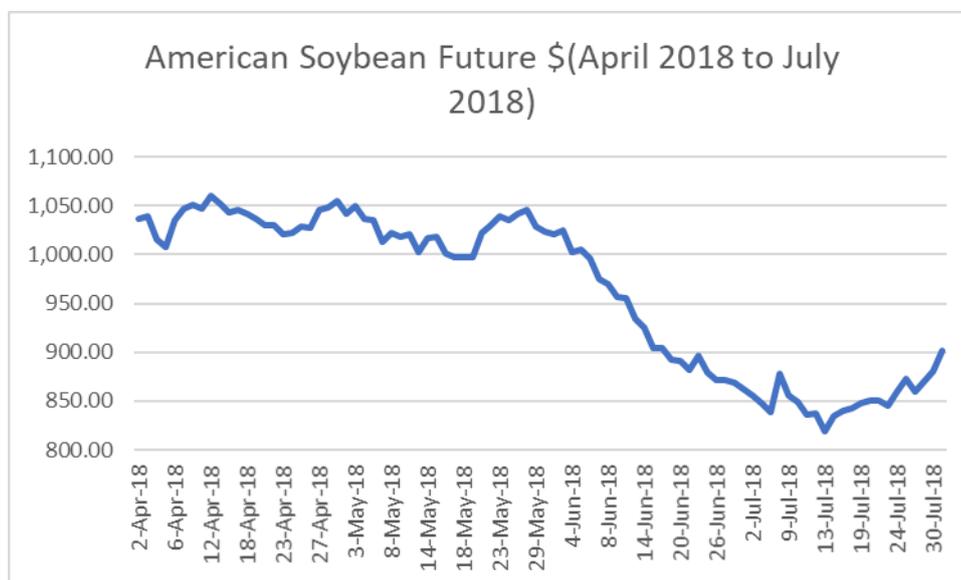
five years (2014-2018).

Second sample, ADM(Archer Daniels Midland):



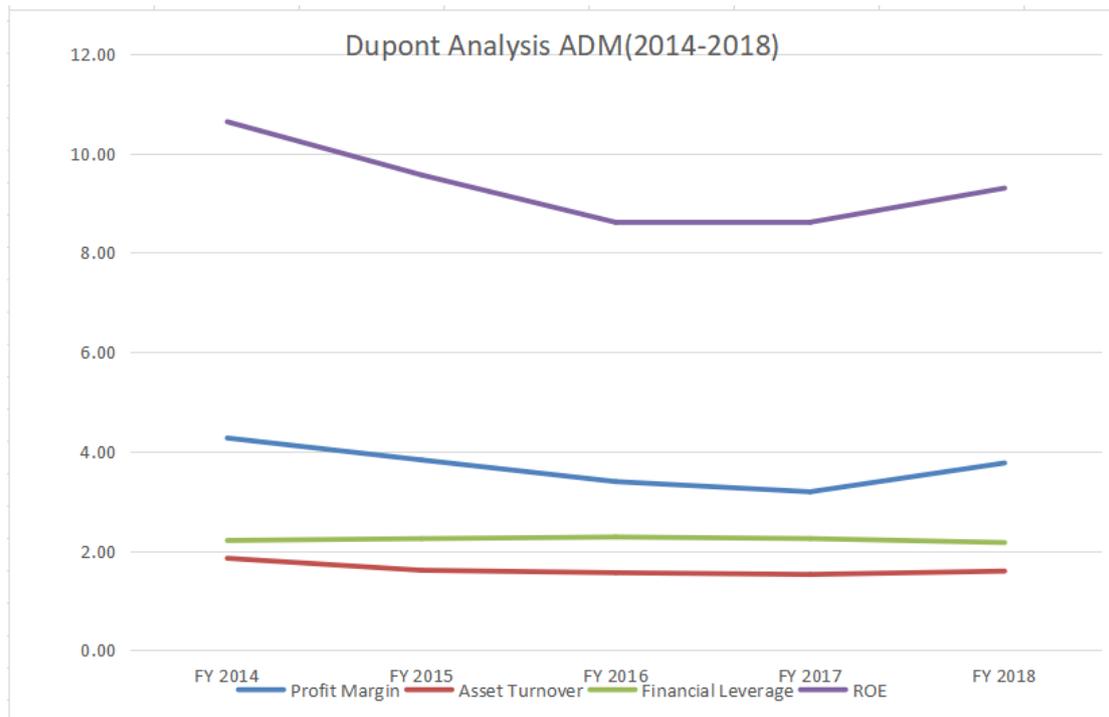
This chart shows that daily stock price change of Bunge Limited company during 01

April, 2018 to 31 July,2018.



This chart shows the daily price change of Soybean Future in the United States market

during 01 April, 2018 to 31 July, 2018.



This chart shows the Result of Dupont Analysis of ADM during the latest five years.

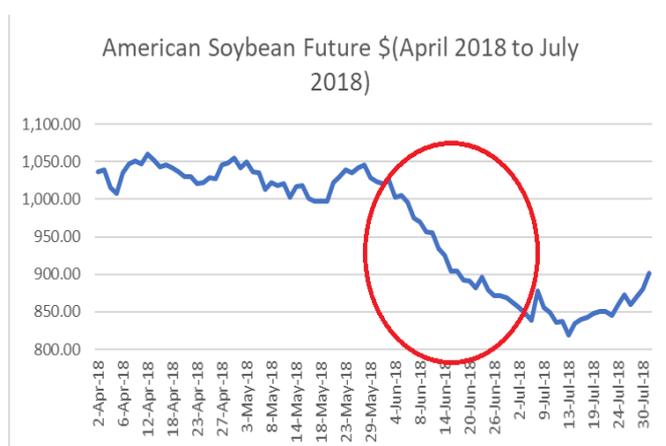
SUMMARY OUTPUT									
回归统计									
Multiple R	0.799733902								
R Square	0.639574314								
Adjusted R S	0.635231836								
标准误差	0.805292087								
观测值	85								
方差分析									
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>				
回归分析	1	95.51251	95.51251	147.2833	4.4E-20				
残差	83	53.82511	0.648495						
总计	84	149.3376							
Coefficients									
	<i>标准误差</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>下限 95.0%</i>	<i>上限 95.0%</i>		
Intercept	58.17058127	1.049655	55.41877	2.42E-67	56.08286	60.2583	56.08286	60.2583	
X Variable 1	-0.013205638	0.001088	-12.136	4.4E-20	-0.01537	-0.01104	-0.01537	-0.01104	

This chart shows the result of the regression testing of daily ADM stock price and American soybean future price in the same time period, using the Microsoft Office Excel Data Analysis function.

### Conclusions



About the first sample company Bunge Limited, researcher observe a huge decline of price in the middle of April, 2018, which is just after the time



Chinese government announce the new tariff on U.S. soybean, a similar observe decline also happened latter in June, 2018, in the price of soybean future in U.S. That indicates the stock

price of Bunge is very likely to be related to the soybean future. Overall the soybean future in the United States’ market during the observed time period is declining and the stock price of Bunge Limited is also declining. Although the two markets’ obvious reflections on the tariff was showed in different time.

<i>P-value</i>
<b>7.86E-40</b>

The further regression test proved this point, according to the test result. The P-value of the model is “7.86E-40”,

which is smaller than 0.0001, and indicate that confidence of this model is higher than

99.99%. The stock price of Bunge is related to the price of soybean future.

	<i>Coefficients</i>	
Intercept	53.75488785	If let the price of the Bunge Limited stock be y, and the price of soybean future be x,
X Variable 1	0.017800869	

researcher can conclude that  $y(\text{estimate})=53.75+0.018x$ , the coefficients of the x variable is positive, which means the soybean future is positively related to the stock price. The correlation coefficient of this model is 0.65, also prove that these two groups of data are related to each other. The Dupont Analysis also shows that the performance of Bunge in 2018 is not good. The U.S. soybean future reflect people's confidence in the soybean market in the United States, and the stock price reflect people's confidence in the specific company. Furthermore, the tariff from China will have a direct effect on the soybean future price in the United States, because it directly influence the soybean exportation. Therefore, the researcher concluded that the Bunge Limited is getting negatively influenced by the Chinese soybean tariff.

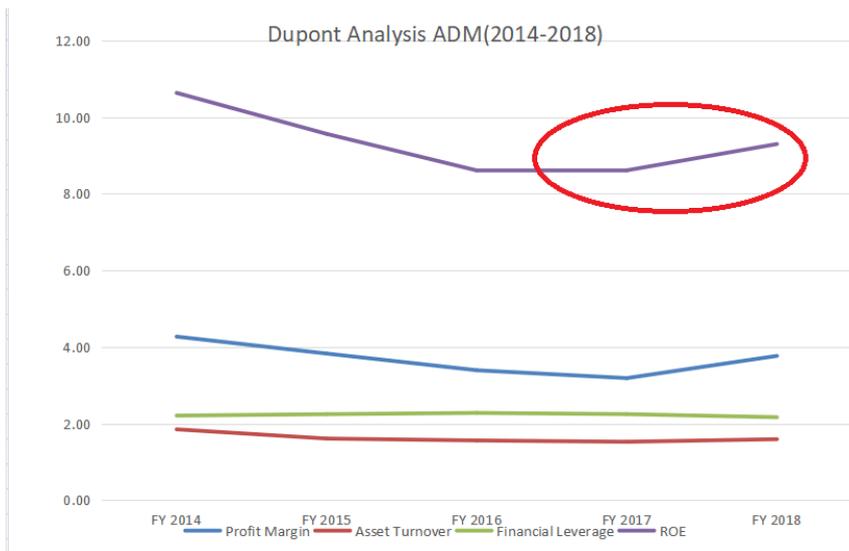


Refer to another sample company ADM, the situation is quite different. Through the

stock price chart, the researcher find no obviously recession, on the contrary, overall, the stock price of ADM is getting higher and higher while the soybean future in the United States is getting lower and lower. That trend indicates the stock price of ADM is very likely to have a negative relationship with the soybean future in the United States.

	<i>Coefficients</i>	标准误差	<i>t Stat</i>	<i>P-value</i>	The result
Intercept	58.17058127	1.049655	55.41877	2.42E-67	of the
X Variable 1	-0.013205638	0.001088	-12.136	4.4E-20	regression

test accords with the rough preliminary observation. First, the P-Value of the ADM regression model is “2.43E-67”, which means the P-Value of the model is smaller than 0.0001, and indicates that confidence of this model is higher than 99.99%. The stock price of ADM is related to the price of soybean future. However, this time the situation is different, for the reason that the X Variable Coefficient is negative, let the price of the ADM stock be y, and the price of soybean future be x, researcher can conclude that  $y(\text{estimate})=58.17-0.013x$ . This result shows two things, the first, the stock of ADM did get influenced by the soybean price in the United States market. Second, the relationship between the two groups of data is negative.



The Dupont Analysis also shows the same result, before 2017, the ROE of ADM is keep decreasing, but in 2018, the ROE of ADM increased a lot, almost went back to the

level 3 years ago. This result shows that overall, the ADM company performed good in 2018.

For this sample, the researcher conclude that the ADM company is getting influenced by the trade dispute between China and the United States, but as an American company, they are actually getting benefit form this trade dispute and the high tariff Chinese government put on American soybean.

The two sample companies are both American listed companies. However, the result of the regression test indicates totally opposite relationship. The result of the regression test shows that the Bunge Limited, which is an American agricultural company is getting negative effect from the Sino-US trade dispute. However, the regression test shows that another sample company, ADM, is actually getting benefit from the trade dispute, their stock price is negatively related with the soybean future price in the United States. This means the higher tariffs, the worse the soybean market

in United States, the higher stock price of ADM.

A lot of the past studies focused on the the soybean industry in America and Brazil concluded that Brazil soybean industry is getting benefit and American soybean industry is getting hurt through the Sino-US trade dispute. However, this paper focus on the specific the companies, result of this paper shows that the first American companies Bunge Limited did getting negative effect from the increasing soybean tariff Chinese government put on American soybean, while another American company ADM's stock price is negatively correlated with the soybean future price in America, which means this American agricultural company is actually getting benefit from the dispute. Moreover, according to the result of the regression test, even for Bunge Limited, \$1 price change in soybean future can only lead to \$0.018 change in the stock price. Therefore, the effect of China-United States trade dispute is not as significant as some people imagined before. On the contrary, some American agricultural might even earn benefit from the dispute.

A possible reason for that is that both companies, Bunge and ADM have soybean business in many different countries, they export soybean to Chinese market from both America and Brazil. When the soybean export amount declined drastically in the United States market, as a result of soybean tariff, the soybean export amount in Brazil to China also increase drastically. Therefore, when those American companies loss some benefit in the American soybean market, they actually getting more benefit

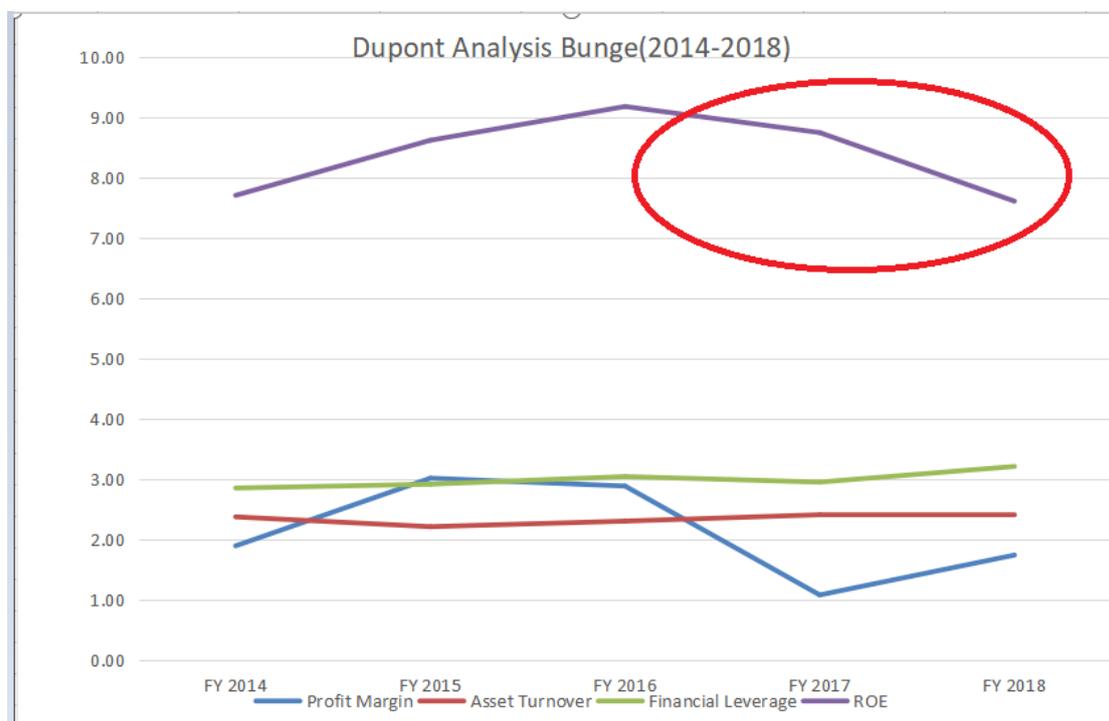
from the Brazil market, their market strategies hedge the risk, and weaken the effect of soybean tariff on their stock price.

### **Limitations**

The whole industry can be very complex, and there are many outside and internal factors can influence the performance of a company, for example, the business strategies, the seasonal reasons, and the effect of government aids. Therefore, it is very hard for the Researcher to make a conclusion, even if the stock price shows that the performance of a company changed a lot during the Sino-US dispute period, it is hard to determine if this change is totally caused by Sino-US dispute, but not some internal reasons of the company itself or other factors.

In addition, it is very hard to get the specific information of some companies. For the reason that those countries are private owned, and may have different policies about the information disclose. Therefore, it is difficult for the researcher to find out the financial reports of some selected companies. Therefore, the researcher had to change some of the sample companies as cases to study.

Moreover, this study just focus the short term effect but not long term effect, all the data is in 90 days period when Chinese government announced the new tariff, and for the reason that the China-United States trade dispute is not over yet, it is very hard to determine the long term effect of the tariff. Also, according to the Dupont Analysis the performance of Bunge is getting worse since 2016, therefore, it is very hard to figure



out, if the recession of their stock price observed in 2018 in the selected time period is also a result of long term recession in the recent 2 years.

## Other Figures



## Archer-Daniels-Midland公司 (ADM US) - 杜邦分析

以百万USD计除每股 12个月结束	FY 2009 06/30/2009	FY 2010 06/30/2010	FY 2011 06/30/2011	FY 2012 12/31/2012	FY 2013 12/31/2013	FY 2014 12/31/2014	FY 2015 12/31/2015	FY 2016 12/31/2016	FY 2017 12/31/2017	FY 2018 12/31/2018
<b>税务负担</b>										
净利润/普通/税前利润%	67.36	74.66	67.53	69.41	66.30	71.82	80.95	70.20	99.13	87.86
<b>调整系数</b>										
标准化净利润/净利润/普通	1.00	1.02	0.98	1.07	1.06	1.07	0.88	0.99	0.87	1.10
<b>利息负担</b>										
税前利润/EBIT %	84.20	85.97	86.22	81.66	83.05	90.28	88.12	86.15	82.98	84.98
<b>营业利润率</b>										
EBIT/收入%	4.29	4.88	4.33	2.68	2.71	4.27	3.83	3.39	3.19	3.77
<b>资产周转率</b>										
收入/平均资产	2.02	1.95	2.18	2.07	2.02	1.85	1.61	1.56	1.53	1.59
<b>杠杆比率</b>										
平均资产/平均股权	2.53	2.25	2.21	2.31	2.27	2.21	2.25	2.28	2.25	2.17
调整股本回报率	12.36	14.01	11.98	7.82	7.27	12.08	8.66	7.21	7.83	10.70
5年平均调整ROE	13.32	13.97	13.54	12.18	10.69	10.63	9.56	8.61	8.61	9.30
股利支付比率	20.61	19.27	19.40	33.60	37.43	27.76	37.16	54.81	45.77	41.88
可持续增长率	9.86	11.04	9.82	4.84	4.30	8.18	6.20	3.30	4.88	5.64

## 邦吉有限公司 (BG US) - 杜邦分析

以百万USD计除每股 12个月结束	FY 2009 12/31/2009	FY 2010 12/31/2010	FY 2011 12/31/2011	FY 2012 12/31/2012	FY 2013 12/31/2013	FY 2014 12/31/2014	FY 2015 12/31/2015	FY 2016 12/31/2016	FY 2017 12/31/2017	FY 2018 12/31/2018
<b>税务负担</b>										
净利润/普通/税前利润%	195.17	74.98	89.02	7.53	22.68	63.62	70.22	71.18	54.78	51.10
<b>调整系数</b>										
标准化净利润/净利润/普通	0.80	0.25	0.98	24.25	5.11	1.13	0.95	0.92	2.17	1.66
<b>利息负担</b>										
税前利润/EBIT %	28.54	90.37	77.57	55.86	73.64	67.90	80.29	80.98	46.65	57.36
<b>营业利润率</b>										
EBIT/收入%	1.21	7.38	2.34	1.09	2.24	1.89	3.01	2.88	1.08	1.74
<b>资产周转率</b>										
收入/平均资产	2.02	1.93	2.19	2.32	2.27	2.37	2.21	2.30	2.41	2.39
<b>杠杆比率</b>										
平均资产/平均股权	3.00	2.43	2.27	2.48	2.80	2.85	2.91	3.04	2.95	3.21
调整股本回报率	3.28	5.83	7.90	6.41	12.15	6.22	10.39	10.70	4.24	6.47
5年平均调整ROE	10.15	9.48	9.01	7.46	7.11	7.70	8.62	9.17	8.74	7.61
股利支付比率	36.64	5.68	15.43	41.83	129.50	44.37	29.43	31.94	196.07	121.37
可持续增长率	2.59	22.16	6.81	0.15	-0.70	3.07	7.71	7.91	-1.87	-0.83

来源: 彭博

方未显示数据源 (不适用于所有数据)

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