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**The relationship between multinational companies' income and stock price with the
RMB depreciation**

In Partial Fulfillment of the Requirements
for the Bachelor of Science in Finance

by

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Abstract

The purpose of this study is to help Chinese multinational companies have a good performance when the RMB changes rates changes. By studying the relationship between companies' income and stock price could provide some ideas to reduces the loss. My hypothesis is that when the foreign exchange changes, there is a positive relationship between company cooperate performances and companies' income. According to the graph of RMB/USD in 10 years, I chose 2015, 2016 and 2017 as the time period of this study. To find the relationship between stock price and income, I chose to use GLS regression model. The result shows that during the RMB depreciation, the income of Chinese multinational companies has positive influence on their performance.

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Introduction

On August 5, 2019, the People's Bank of China set the yuan's daily reference rate below 7 per dollar for the first time in over a decade. This, in response to new tariffs of 10% on \$300 billion worth of Chinese imports imposed by the Trump administration, set to go into effect September 1st, 2019. Global markets sold off on the move, including in the U.S. where the DJIA lost 2.9% in its worst day of 2019 to date.

Many Chinese multinational companies Influenced by RMB depreciation. Nowadays, economic integration in the world context, companies will not only do their business in homeland, but also occupy the market in other countries. Therefore, the companies have to face the currency risk. That means their profit may change when the RMB depreciation. According to financial knowledge, multinational companies could use derivatives or other methods to hedge, when the currency exchange rates changes. It could help them avoid the currency risk a little and have a better performance. In order to help Chinese multinational companies have a good performance when the RMB changes rates changes, studying the relationship between companies' income and stock price could provide some ideas to reduces the loss. Thus, my hypothesis is that when the foreign exchange changes, there is a positive relationship between company cooperate performances and companies' income.

In the beginning, find the historical record of the RMB to USD rate to decide the time period. Then, collect the Chinese multinational companies' report to find their historical income and stock price. After the data collection, I could get the result which If

the relationship is positive and significant, the company could take the ways to increase their income to maintain companies' performance. If the relationship is weak, the hypothesis could be rejected. There is no relationship between income and companies' performance. Chinese multinational companies could not care their income when the RMB is depreciation.

Literature Review

According to the Hua Wang and Junjun Zhu's article, they study the influence of USD/CNY foreign exchange rate on China's foreign trade. In the article, they find when the USD/CNY changes, there will be more significant in effecting in Chinese export. They find when RMB against USD appreciates 1 percent, the Chinese export will decrease 1.532 percent, while 1 percent appreciation CNY NEER only cause 0.42percent decline. In addition, Chinese export will decrease 0.579 percent, when the volatility of USD/CNY increases 1 percent. In order to improve the ability of Chinese economy to solve the problem caused by currency risk, they recommend that there should be more foreign exchange derivative markets formed and more currency derivatives provided.

In Lan Dong's research, he thinks exchange rate elasticity and exchange rate of RMB will increase by international trade and RMB internationalization process developing. Thus, the foreign exchange exposure of Chinese enterprises to further increase by effected. What's more? The currency risk through affecting the product prices, raw material prices and labor prices will affect corporate. The currency risk also

has the influences on the Chinese enterprises' competitiveness in the international market. As a result, Lan Dong thinks it is very significant for Chinese enterprises to learn how to deal with currency risk in international trade.

Saier Su investigates Chinese Multinational companies' currency risk management and compares them with US and UK MNEs in research. He collects data from the annual reports of 14 MNEs which selected from each country. According to the data, Chinese MNEs is less active in hedging than USA and UK MNEs. Many Chinese MNEs don't indicate to how they measure currency risk. Besides, some Chinese MNEs which are large scale have not hedged. He also finds the currency risk management, goals, and external hedging techniques used by the USA, the UK and China are very similar. Chinese Multinational companies could try to take more hedging ways to deal the currency risk.

Huang Luo and Rui Wang in their research investigate the use of foreign currency derivative's relation to corporate value in China. They collect the firms' quarterly data and exam them. Some Chinese firms with higher corporate value will be active in hedging with derivative to deal their currency risk. This finding is also happened among the firms which have greater profitability and investment opportunities. When the exchange rate goes down and the economy is well development, the foreign currency derivatives have more influence on the firm value. However, when there is a crisis period, the relationship between firm value and derivative use is weak. According to different industries, the value-enhancing's effect is different. Their findings give policy maker and firm managers some meaningful guide.

They suggest the firm managers should design their hedging strategy to deal with the currency risk.

Li Wu discusses the impact of RMB exchange rate to the export of Chinese mechanical and electrical industry in his research. Exchange rate fluctuation has an important influence on import and export trade. It can affect the total volume of trade by affecting trade commodity price and national income. He reviews theory of RMB exchange rate's influence on export and summarize the historical volatility of the RMB exchange rate situation and the historical changes of RMB exchange rate policy. The mechanical and electrical industry will use derivatives to deal with the RMB exchange rate to keep export amount.

Research Design

According to the graph of RMB/USD in 10 years, it shows that the RMB/USD rate has a significant decline during the March 2015 to January 2017. So, this period is chosen to be the time range of study. The companies' data of 2015, 2016 and 2017 are collected to be used in this study.

In this research, the model is regression analysis model. Because data are drawn from different multinational companies over 2015, 2016 and 2017 in this paper. Therefore, random-effects GLS regression is suitable for my research. To process the data I collected, Stata can help me get the result in easy way.



(Graph 1: the RMB/USD rate in 10 years)

Data

The company data are from the CSMAR database. At first, there are 750 companies' three-year income and stock price. After I exclude the companies which are not a multinational company or whose data are not complete in 3 years, there are 275 companies which are multinational company and have three-year income and stock price data.

Frim	Year	stock price	income
000002	2015	20.55	240477236923.34
000002	2016	31.06	242897110250.52
000002	2017	23.82	297679331103.19
000004	2015	44.9	287670026.58
000004	2016	22.38	138605841.98
000004	2017	16.03	366868804.70
000005	2015	6.76	481863433.31
000005	2016	4.14	530922230.53
000005	2017	2.68	486180975.75

(Graph 2: the example of data collection)

Model

To find the relationship between stock price and income, I chose to use GLS regression model. The formal I set is:

$$\text{Stockp} = \beta_0 + \beta_1 \text{Inc} + u_t$$

Stockp	The stock price of the company	CSMAR
Opertic	The income of the company	CSMAR

(table 1: variable definition)

Stockp stands for the stock price of the company and the Opertic stands for the income. Both of these data are from the CSMAR database.

Result

1) Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
stockp	825	12.10126	14.07667	.61	183
opertic	825	1.19e+10	2.89e+10	1.01e+07	2.98e+11

(Graph 3: descriptive statistics)

Descriptive statistics is in graph 3. The average of stock price is 12.10 with a minimum of 0.61 and maximum of 183. The average of the income is 1.19×10^{10} . The maximum is 2.98×10^{11} and the minimum is 1.01×10^7 .

2) Regression result

Source	SS	df	MS	Number of obs	=	825
Model	2327.23976	1	2327.23976	F(1, 823)	=	11.90
Residual	160950.604	823	195.56574	Prob > F	=	0.0006
Total	163277.844	824	198.152723	R-squared	=	0.0143
				Adj R-squared	=	0.0131
				Root MSE	=	13.984

stockp	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
opertic	5.81e-11	1.69e-11	3.45	0.001	2.51e-11 9.12e-11
_cons	11.41142	.5263456	21.68	0.000	10.37828 12.44455

(Graph 4: Regression result)

Graph 4 is the regression result from Stata calculation. The t value of income is positive which means the relationship between stock price and income is positive. Because P value is 0.001 which is lower than the significant level of 1%. Income is significantly influenced on the stock price. Therefore, the coefficient is positive and significant which shows the relationship between stock price and income is positive and significant.

Discussion

The positive and significant coefficient with the significant level of 1% shows stock price and income have a positive relationship which support my hypothesis. Because the higher income of company could provide more profit for company which could maintain or improve the performance of the company. The same condition happens when RMB depreciation.

Limitation

1. This study only study one variable which is the income. There may be exist other variable could have influence on the stock price of companies under the background of RMB depreciation.

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2. There may be some government policy to manage the Chinese multinational companies when the RMB is depreciated.
 3. The range of time in this study can not include the whole period of RMB depreciation.

Contribution

1. This study provides ideas for Chinese multinational companies to maintain their performance during RMB depreciation.
2. This study confirms the relationship between stock price and income are positive which is same in RMB depreciation and normal conditions.

Conclusion

During the RMB depreciation (from 2015-2017), the income of Chinese multinational companies has positive influence on their performance.

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