THE IMPACTS OF RMB REAL EXCHANGE RATE FLUCTUATION ON THE EXPORT STRUCTURE OF THE MANUFACTURING INDUSTRY

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ABSTRACT

This paper empirically examines the impacts of exchange rate on the real economy in China. Leveraging the variation in RMB exchange rate in China, the analysis finds that the appreciation of RMB had a negative impact on the export of the manufacturing industry and that the effect varies across industries. The appreciation of the RMB promoted the export of high-tech and capital-intensive industries and restrained that of the low-capital and labor-intensive industries, tilting the overall export structure toward high-tech and capital-intensive industries.

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TABLE OF CONTENT

1 Backgrounds

1.1 Definition and Detailed Categories of Manufacturing Industry in China

Manufacturing refers to the material production department that engages in the exploitation of natural resources and processes and re-processes extractive goods and agricultural products.

The manufacturing industry includes firms that engage in the exploration of natural resources, operation of the explored and agriculture products and a reprocessing of the previous operation.

The statistical classification methods of the manufacturing industry used in China are mainly divided into three categories. According to the National Bureau of Statistics of the People's Republic of China "Industrial Classification for National Economic Activities (GB/T 4754-2011)", the manufacturing industry contains 30 major industries (13-43) under the category of manufacturing (C). According to the World Customs Organization "The Harmonized Commodity Description and Coding System" (HS), manufacturing industry is divided into 17 major industries (4-20). According to the United Nations Statistics Division "Standard International Trade Classification, Rev.3" (SITC), manufacturing industry consists of five major industries (5-9) under the manufacturing sector category (SITC III).

Compared with the National Bureau of Statistics of the People's Republic of China "Industrial Classification for National Economic Activities (GB/T 4754-2011)" and World Customs Organization "The Harmonized Commodity Description and Coding System" (HS), the United Nations Statistics Division "Standard International Trade Classification, Rev.3" (SITC) has more data availability and international uniformity, and the classification is clear and specific. It will facilitate more convenient and full-fledged empirical analysis. Also, scholars such as Bahri Yilmaz (2003) has conducted in-depth studies on the export structure based on the Standard

International Trade Classification (SITC), leading us to have more conducive macroeconomic analysis on international trade.

Therefore, this paper adopts the United Nations Statistics Division “Standard International Trade Classification, Rev.3” (SITC) classification for further analysis.

1.2 China's Overall Manufacturing Exports Overview

The manufacturing industry accounts for a very high proportion of China’s total export. With the strengthening of international relations between China and its trading partners, the manufacturing exports have seen rapid growth in recent decades.

Figure 1.2.1 Monthly change of export volume of China's manufacturing industry

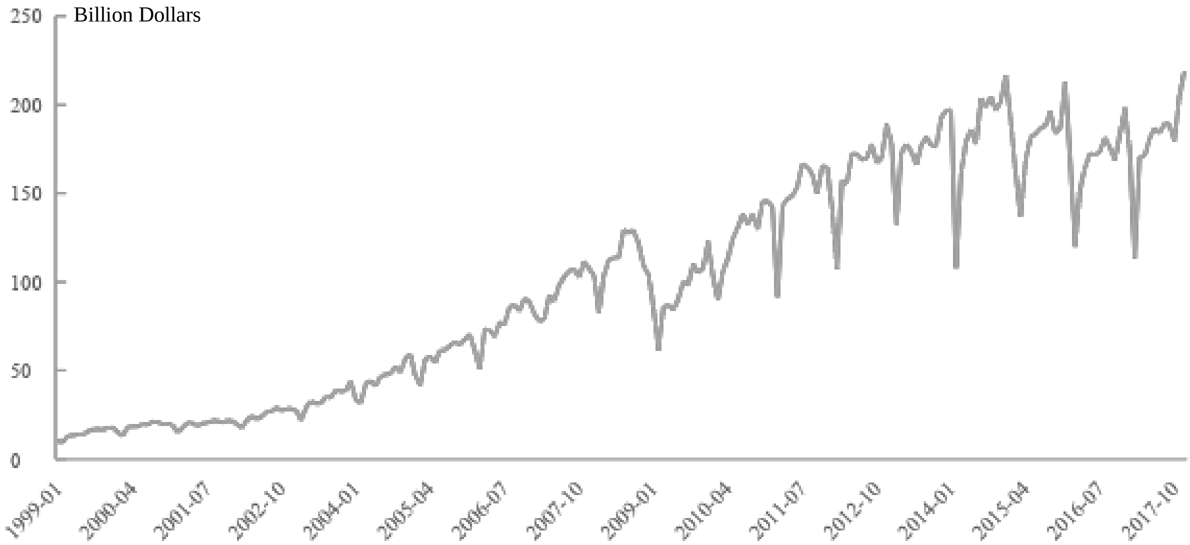

Figure 1.2.1 shows the monthly trend of China's total export volume of manufacturing industry since January 1999. As can be seen from the figure, in addition to the short-term impact on the manufacturing industry caused by the financial crisis in 2008, the total export volume of China's manufacturing industry has obvious seasonal characteristics. The total export volume of manufacturing industry shows a rapid upward trend. From January 1999 to December 2017, China's manufacturing exports increased 22 times, symbolizing that China has gradually become one of the “biggest manufacturing powers” in recent years.

With the sharp increase of export volume, along with the rapid development of science and technology, and the optimization of industrial structure and the change of export structure, the export quality of China's manufacturing industry has an obvious rising trend, and the export competitiveness has been significantly enhanced. The index of trade competitiveness (TC index) reflects the degree of competitive advantage of the same type of goods produced by one sector in the country relative to the rest of the world. The value of the TC index, ranges from (-1, 1), positive or negative of the value, indicates that it has or does not have a competitive advantage, and the magnitude of the absolute value of the value reflects the intensity of whether or not having the competitive advantage.

Figure 1.2.2 China's Annual Manufacturing TC index

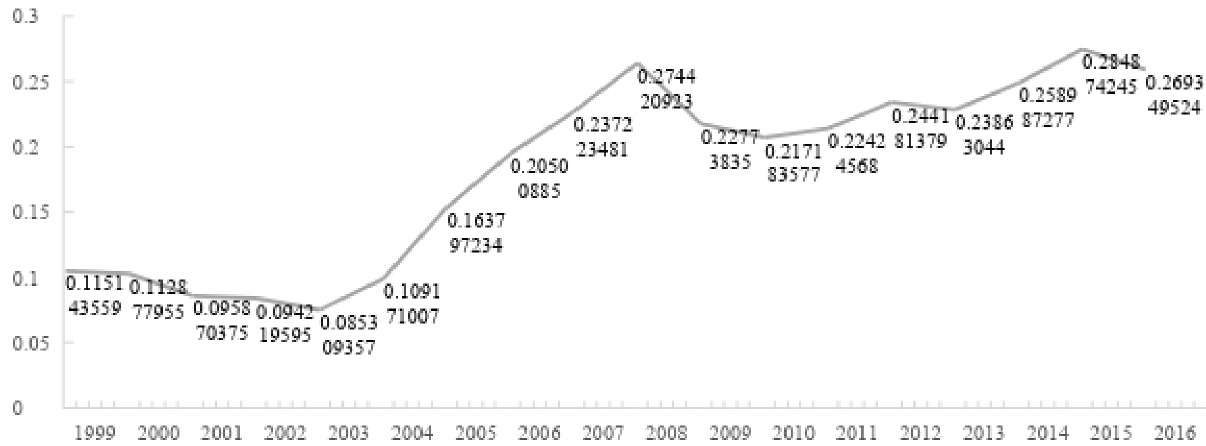

Figure 1.2.2 reflects the trend of China's manufacturing TC index from 1999 to 2016. Since the reforming and opening up to the outside world from the mid 90s of last century, China's industrial exports have experienced a long period of relatively low competitiveness. The lowest TC index appeared in 2003, reaching nearly 0.1. The main reason for this is that the domestic economy is still in the very beginning stage. The domestic manufacturing industry is sluggish and the domestic technological level is lagging behind. There was a high demand for the relatively advanced manufactured industrial products overseas at that time. Along with the constant development of economy and the improvement of science and technology, China gradually embraced manufacturing trade surplus since 1990. The TC value also reached 0.27 in 2016, indicating that China is gradually moving from the “big manufacturing country” to the “powerful manufacturing country”.

2 Literature Review

The Marshall Lerner condition states that when the sum of the price elasticity of imports and exports of a country is greater than one, the country can improve its trade balance by depreciating its currency. And even under the premise of the conditions, the "J curve effect" further shows that a country's devaluation of the exchange rate will lead to the deterioration of the revenue and expenditure in a short period of time, which cause a “time lag phenomenon”. A large number of scholars verified that the devaluation of the exchange rate will have a positive impact on the import and export of the country under the premise of Marshall-Lerner condition and the conditions established.

2.1 Perspectives of international scholars

International scholars have confirmed through research that the Marshall-Lerner conditions are universally applicable. Marquez (1990) analyzed the quarterly data of developing countries from 1973 to 1985, and concluded that the price flexibility of import and export meets the condition of Marshall Lerner. Devaluation of the exchange rate can improve trade balance to a certain extent. By comparing the devaluation of the real exchange rate in the Middle East with the balance of international trade, Mohsen(2001) found that all seven countries' result satisfied the devaluation of the exchange rate and improved the balance of payments. Olugbenga (2003) studied the trade between the four East Asian countries and the United States and Japan from 1980 to 2001, and found that the trade met the Marshall-Lerner conditions. Mundell (2004) found that maintaining the stability of the RMB exchange rate was more favorable for China's exports. On the other hand, the appreciation of the RMB has a negative impact on China's exports. By analyzing the trade with Japan of the five ASEAN countries from 1986 to 1999, Liew K S et al (2003) believed that the real exchange rate, rather than the nominal exchange rate, makes a real contribution to the trade balance.

2.2 Perspectives of Chinese scholars regards to the international scholars

Based on a detailed analysis of Chinese politics and economy, Chinese scholars agreed with the perspectives of Mohsen that studying of Chinese import and export is essential and practical. Zhong (2001) used the seasonal data of 1993 to 1998 to approve the existence of J Curve Effect of RMB exchange rate fluctuation. Jin (2001) used the calculation of real RMB exchange rate from 1981 to 1996 and concluded that there was a negative correlation between RMB exchange rate fluctuation and the exports growth rate at that time. Wu (2008) used the monthly data from

1990 to 2007 and found that as the RMB exchange rate increased, Chinese exports to US dropped.

2.3 Perspectives of interrelationship between exports structure and industrial structure from Chinese scholars

Chinese scholar distinguished the different effects that exchange rate changes may have on different industries based on the changes in export structure and the interaction between export structure and industrial structure. Zheng (2006) analyzed monthly data from 1994 to 2005, and found that exchange rate fluctuations had a large difference in the trade between China and the United States among different types of products in the manufacturing industry. Zeng and Zhang (2007) analyzed the data of 1981-2004 and found that the appreciation of the RMB had a greater impact on labor-intensive products, thus indirectly promoting the structural optimization and adjustment of China's exports. Zhang (2010) analyzed the monthly data from 1997 to 2006 and found that the real exchange rate of RMB had different impacts on the three types of export commodities, which were raw material-intensive, labor-intensive and capital-intensive. They will significantly affect the structure of China's export commodities.

To sum up, Chinese and international scholars found that: Marshall - Lerner conditions had a certain degree of worldwide agreement. Maintaining a stable exchange rate or devaluing the exchange rate of a country has a catalytic effect on the trade balance. The real factor that affects the balance of payments changes is the real exchange rate rather than the nominal exchange rate. The impact of changes in the RMB exchange rate on different sectors of the manufacturing industries are different, and there is an indirect adjustment effect on the export structure.

3. Empirical Analysis

This research measures the relationship between RMB exchange rate fluctuations on manufacturing industries. In the following sector, there are two empirical analysis conducted. The first one is mainly about the effect of REER on 36 specific manufacturing industries. The second one is mainly about the effect of REER on manufacturing export structure.

3.1 Economic Data

Export data comes from CEInet Statistics Database, which contains precise export data for most manufacturing industries in China. The reason to choose data from CEInet Statistics Database is that these data involve more industries, and it has a longer time span and a short reporting period. A longer time span and a short reporting period can provide more accurate and comprehensive statistic results. REER is considered as the main variable, which were gathered from IWEP-HEER Database that authorized by the Institute of World Economics and Politics Chinese Academy of Social Science. This database provides the real exchange rate for different industries. Data is accurate and updated in time. GDP_d, GDP_f and FDI are macro factors that can influence the statistical results. Those data represent fixed effects that are controlled in statistical analysis. GDP_d and GDP_f are collected from National database, a database that is authorized by National Bureau of Statistics of China. It is also the database that has the minimum statistical interval for GDP in the world. FDI data comes from CEInet Statistics Database as well, which contains a short reporting period that can well fit the reporting period for the export data.

3.2 The Effect of REER on 36 Specific Manufacturing Industries

Based on the impacts of growth of economy and exchange rate fluctuation on overall manufacturing industry exports, a model was designed below:

$$V = \alpha_0 + \beta_1 GDP_d + \beta_2 GDP_f + \beta_3 REER_m + \beta_4 FDI + \varepsilon$$

Where V refers to the total China's manufacturing exports amount from 1999 to 2017. GDP_d refers to the gross domestic production amount from 1999 to 2017. GDP_f refers to the gross domestic production amount of China's main trading partners(US, Japan and German) from 1999 to 2017. $REER$ refers to the real RMB exchange rate from Chinese Society Scientific Academy of World Economy and Politics Research Center. FDI is foreign direct investment, from 1999 to 2017.

Table 3.2.1: General Manufacture Industry

Var.	Explanation	Coefficient	Std. Error	t-Statistic	P-value
C	Export Volume	11.78425	3.513016	3.354453	0.0009
X1	REER	-1.802615	0.123101	-14.64334	0.0000
X2	Domestic GDP	1.279255	0.083661	15.29088	0.0000
X3	Foreign GDP	0.091650	0.317414	0.288741	0.7730
X4	FDI	0.163727	0.032230	5.079995	0.0000
R-squared		0.972598			
Adjusted R-squared		0.972107			

Note: the dependent variable is total manufacture industry monthly export volume. The number of observations is 228. The model is estimated using OLS.

Table 3.2.2: 36 Specific Manufacture Industries

Var.	Coefficient	Std. Error	t-Statistic	P-value
SITC51	-1.606167	0.166108	-9.669423	0.0000
SITC52	-2.152126	0.168684	-12.75836	0.0000
SITC53	0.810066	0.137024	5.911853	0.0000
SITC54	0.648437	0.126651	5.119890	0.0000
SITC55	-1.150092	0.146007	-7.876969	0.0000
SITC56	-2.218859	0.494024	-4.491403	0.0000
SITC57	-2.685936	0.211310	-12.71089	0.0000
SITC58	-1.918117	0.167570	-11.44664	0.0000
SITC59	1.337083	0.145913	9.163546	0.0000
SITC61	-0.559946	0.274906	-2.036866	0.0428
SITC62	-2.211220	0.181882	-12.15742	0.0000
SITC63	-1.834799	0.171624	-10.69077	0.0000
SITC64	-0.997020	0.149112	-6.686389	0.0000
SITC65	-0.960935	0.128580	-7.473438	0.0000
SITC66	-1.011105	0.150207	-6.731421	0.0000
SITC67	-4.124465	0.316339	-13.03810	0.0000
SITC68	2.952819	0.195426	15.10964	0.0000
SITC69	-1.472317	0.151397	-9.724875	0.0000
SITC71	1.232941	0.146648	8.407482	0.0000
SITC72	1.992540	0.176133	11.31269	0.0000
SITC73	1.968729	0.190460	10.33671	0.0000
SITC74	-1.796334	0.204655	-8.777360	0.0000
SITC75	-3.567342	0.200859	-17.76045	0.0000
SITC76	-3.244142	0.227692	-14.24792	0.0000
SITC77	-1.859307	0.169553	-10.96592	0.0000
SITC78	-2.136689	0.184383	-11.58833	0.0000
SITC79	-2.354775	0.369196	-6.378119	0.0000
SITC81	0.190106	0.198251	0.958913	0.3386
SITC82	-1.811777	0.189504	-9.560619	0.0000
SITC83	0.397367	0.155745	2.551394	0.0114
SITC84	-1.509264	0.180205	-8.375257	0.0000
SITC85	-0.528342	0.155593	-3.395677	0.0008
SITC87	-4.299801	0.255653	-16.81887	0.0000
SITC88	0.024183	0.136014	0.177798	0.8590
SITC89	-0.805363	0.168044	-4.792573	0.0000
SITC90	-4.066527	0.767426	-5.298914	0.0000

Note: the dependent variable are 36 specific manufacture industries monthly export volume. The number of observations for each industry is 228. The model is estimated using OLS.

The result shows that for most industries, the export volumes tend to change negatively related to REER change, which means that a rise in exchange rate will harm the export in most of manufacturing industries. However, based on the result, we can also see that some of the industries are positively related to REER, suggesting that a rise in exchange rate would actually increase the export volume in those industries. In order to explore why different industries face different correlations in exchange rate fluctuations, further studies are conducted.

3.3 The Effect of REER on Manufacturing Export Structure

3.3.1 The export structure of manufacturing industries

For a country or region as a whole, export structure refers to the proportion of different types of goods in export trade. Since the reforming and opening up of China, with the continuous development of China's foreign trade, the export structure is obviously in the process of continuous optimization. The proportion of capital-intensive and technology-intensive products in China's total exports rose from 10.8 percent in 1980 to 54.3 percent in 2009. The composition of China's export products is being transformed from labor-intensive products to capital-intensive and technology-intensive products.

China's manufacturing products have a high proportion in export trade, and the overall export structure of China's foreign trade largely depends on the export structure of manufacturing industry. In order to better distinguish between different kinds of goods, Yilmaz (2003) provided clear classification of export structure by grouping different kinds of goods into five categories. In this classification, manufacturing products can be divided into: Raw material- intensive goods, Labor-intensive goods, Capital- intensive goods, Easily imitable- research oriented goods and Difficultly imitable research-oriented goods, to depict the structure of the manufacturing for export. Table 3.3.1 shows the status of specific product types according to SITC product classification.

Table 3.3.1: SITC Classifications

Categories	SITC (Standard International Trade Classification, Rev.3)
Raw material- intensive goods	56 - Fertilizers (other than those of group 272)
Labor-intensive goods	61 - Leather, leather manufactures, n.e.s., and dressed furskins 63 - Cork and wood manufactures (excluding furniture) 64 - Paper, paperboard and articles of paper pulp, of paper or of paperboard 65 - Textile yarn, fabrics, made-up articles, n.e.s., and related product 66 - Non-metallic mineral manufactures, n.e.s 69 - Manufactures of metals, n.e.s. 81 - Prefabricated buildings; sanitary, plumbing, heating and lighting fixtures and fittings, n.e.s. 82 - Furniture, and parts thereof; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings 83 - Travel goods, handbags and similar containers 84 - Articles of apparel and clothing accessories 85 - Footwear 89 - Miscellaneous manufactured articles, n.e.s.
Capital- intensive goods	53 - Dyeing, tanning and colouring materials 55 - Essential oils and resinoids and perfume materials; toilet, polishing and cleansing preparations 62 - Rubber manufactures, n.e.s. 67 - Iron and steel 68 - Non-ferrous metals 78 - Road vehicles (including air-cushion vehicles)
Easily imitable- research oriented goods	51 - Organic chemicals 52 - Inorganic chemicals 54 - Medicinal and pharmaceutical products 58 - Plastics in non-primary forms 59 - Chemical materials and products, n.e.s. 75 - Office machines and automatic data-processing machines 76 - Telecommunications and sound-recording and reproducing apparatus and equipment
Difficultly imitable research-oriented goods	57 - Plastics in primary forms 71 - Power-generating machinery and equipment 72 - Machinery specialized for particular industries 73 - Metalworking machinery 74 - General industrial machinery and equipment, n.e.s., and machine parts, n.e.s. 77 - Electrical machinery, apparatus and appliances, n.e.s., and electrical parts thereof (including non-electrical counterparts, n.e.s., of electrical household-type equipment) 79 - Other transport equipment 87 - Professional, scientific and controlling instruments and apparatus, n.e.s.

88 - Photographic apparatus, equipment and supplies and optical goods, n.e.s.; watches and clocks

3.3.2 The export structure of manufacturing industries

By considering economic growth, exchange rate fluctuations and the impact of investment on the structure of manufacturing export, this paper constructs specific models as follows:

$$\gamma = \alpha_0 + \beta_1 GDP_d + \beta_2 GDP_f + \beta_3 REER_m + \beta_4 FDI + \varepsilon$$

Where γ refers to the total proportion of Capital-intensive goods export volume and Difficultly imitable GDP_d among the gross domestic production amount from 1999 to 2017. GDP_f refers to the gross domestic production amount of China's main trading partners(US, Japan and German) from 1999 to 2017. $REER_m$ refers to the real RMB exchange rate from Chinese Society Scientific Academy of World Economy and Politics Research Center. FDI is foreign direct investment, from 1999 to 2017.

Figure 3.3.2: Export Structure

Var.	Coefficient	Std. Error	t-Statistic	P-value
Raw material- intensive goods	-2.396634	0.435449	-5.503823	0.0000
Labor-intensive goods	-0.986372	0.136750	-7.212944	0.0000
Capital- intensive goods	-2.691720	0.193821	-13.88766	0.0000
Easily imitable- research oriented goods	-2.766500	0.163459	-16.92473	0.0000
Difficultly imitable research-oriented goods	1.721393	0.132829	12.95946	0.0000
Total of Capital-intensive goods export volume and Difficultly imitable research-oriented goods export volume as the percentage of total export volume in all industries	0.050102	0.017421	2.876026	0.0044

Note: the dependent variable are SITC manufacture categories monthly export volume. The number of observations for each category is 228. The model is estimated using OLS.

Table 3.3.2 is the coefficient result of this regression analysis model. Can be seen from table 3.3.2, difficultly imitable research-oriented goods have obvious positive correlation to REER. In addition, although capital- intensive goods are negatively related to REER, the total proportion of Capital-intensive goods export volume and Difficultly imitable GDP_d among the gross domestic production amount in all industries is positively related to REER. The correlation coefficient is 0.050, and significant at the 5% significance level, indicating that the increase of the RMB real exchange rate will tend to increase the proportion of capital- intensive goods and difficultly imitable research-oriented goods in all exports.

4 Expected Result

Based on the result from last section, there are three possible conclusions. The real exchange rate of RMB has a significant impact on the overall export trade of China's manufacturing industry. The amount of China's manufacturing exports increased significantly, but there is a big difference among the 36 subdivisions within the industry. China’s REER has an adjusting function on the export structure of China's manufacturing industry.

Also, beyond conclusions, considering the world economic situation and China’s macroeconomic development, there are three possible policy suggestions. The first on is to further improve the marketization of RMB exchange rate. The second on is to increase technology and capital investment in order to accelerate the upgrading of the manufacturing industry.

4.1 Conclusion

4.1.1 The real exchange rate of RMB has a significant impact on the overall export trade of China's manufacturing industry.

The change in the real exchange rate of the RMB has a negative correlation with the overall export volume of the manufacturing industry in China. The appreciation of the RMB is not conducive to the overall export situation of the manufacturing industry in China. This article takes the data from the first quarter of 1999 to the fourth quarter of 2017 as a sample, and conducts a regression analysis on the total export value of China's manufacturing industry and the real exchange rate of the manufacturing industry. Based on the data result, the conclusion is that RMB appreciation will restrain the overall export of the manufacturing industry. Otherwise, the depreciation will promote the overall export of the manufacturing industry.

4.1.2 The amount of China's manufacturing exports increased significantly, but there is a big difference among the 36 subdivisions within the industry.

The change in the real exchange rate of the RMB has a differential effect on the exports of 36 subdivisions under the SITC classification in China's manufacturing industry. Only 10 subdivisions get positive correlation effects, and the remaining 26 subdivisions get negative correlation effects. Based on the further data analysis, the manufacturing industry in China, as a whole, is negatively correlated with fluctuations in the exchange rate of the RMB.

4.1.3 China’s REER has an adjusting function on the export structure of China's manufacturing industry.

According to empirical analysis, it is concluded that the impact of the real exchange rate of RMB on different manufacturing industries is clearly related to the technical level and capital intensity. The research oriented manufacturing industries, which represent high-tech industries and capital-intensive industries are less affected by the appreciation of the RMB. However, the lower level of technology low-tech and less capital-intensive industries are adversely affected by the appreciation of the RMB. The real exchange rate of the RMB has a certain adjusting function on the overall export structure of the manufacturing industry, which make the manufacturing exports tilt to high technical level high-tech and capital insensitive industries.

According to the study of 36 subdivisions, the raw material intensive goods industries which represent low-tech industries is heavily affected by exchange rate fluctuations. The main reason is that the labor costs in China have risen rapidly in recent years, and some traditional industries gradually lose their competitive advantages and attractiveness. The profit space is greatly compressed, and the products have higher substitutability as well. At the same time, foreign competitors have relative competitive advantages, which further increased competitive pressures. With the continuous appreciation of the RMB exchange rate, the profit space, which had already been reduced, would get further compressed. Thus, the enterprises’ output and export volume would be negatively affected. In contrast, high-tech manufacturing companies are less vulnerable to the appreciation of RMB due to their strong irreplaceability. In addition, high-tech manufacturing companies have enough profit to face potential exchange rate crises and have a strong stability in the international market. Therefore, the appreciation of the RMB exchange rate has a relatively small impact on the export volume of enterprises, and, to a certain extent, increase the overall export profits. Although the appreciation of the RMB has an inhibitory effect on the overall exports of the manufacturing industry, it can also improve the export structure and promote the entire China's manufacturing industry upgrade.

4.2 Policy suggestion

4.2.1 Further Improving the Marketization of RMB Exchange Rate

The current RMB exchange rate system in China is a managed floating exchange rate system. As RMB joined the SDR and foreign exchange markets continue to loosen, the fluctuation of the RMB exchange rate continue to increase. China is in an important period of economic transition, and its economy needs to find new ways to grow constantly, so the economic structure needs urgent adjustment. Under this background, if the RMB exchange rate appreciates too quickly, the export situation will deteriorate rapidly and the economy will become too recessive, which is not conducive to maintain social and economic stability. If the government suppresses the potential appreciation of RMB, the result is to worsen China's export structure, which makes China over-rely on foreign markets and deform its economic development. Therefore, maintaining the relative stability of the RMB exchange rate is beneficial to the current economic development in China.

4.2.2 Increasing technology and capital investment to accelerate the upgrading of the manufacturing industry

China's export structure is highly correlated with the industrial structure. On the one hand, domestic industrial upgrading will tilt the export structure toward the industries with a high level of technology and capital intensive, thus promoting the development of international trade.

Under the turbulent international market, the change in the exchange rate of the RMB will become more stable. On the other hand, the continuous development of overseas trade is also conducive to produce the economic scale of the relevant industries in the country, which promotes the upgrading of related industries and optimizes the domestic industrial structure. Therefore, it is extremely necessary to accelerate the upgrading of traditional manufacturing industries in China.

Since the reforming and opening up, China has developed a traditional manufacturing industry dominated by low technology intensive industries. This rapid growth in the manufacturing sector has relied on the demographic dividend and low labor costs. However, with the shrinking of China’s demographic dividend, the rise of competitors in Southeast Asia and other regions, the appreciation of the RMB exchange rate, and the impact of the financial crisis on international economic and trade activities, the competitiveness of China’s traditional manufacturing industry has been significantly reduced. Because the main products of the traditional manufacturing industries have low technological content and high raw-material and labor costs, the profit margin has been continuously eroding. Therefore, increased investment in technology can help the transition of China's manufacturing industry from "Made in China" to "Created in China". This will fundamentally enhance the competitiveness of China's manufacturing exports and continuously drive the future development of China's economy in the long run.

REFERENCES

CHINESE LITERATURE

[1] ZHONG Wei, HU Song-ming, DAI Hui-jun. Empirical Analysis of RMB J Curve Effect [J]. World Economy, 2001 (1): 34-41.

[2] Jin Junfeng. An empirical analysis of the relationship between RMB real exchange rate changes and China's export trade [J]. Economist, 2001 (2): 19-21.

[3] Wu Wuqing, Chen Min, Mao Zhijie.Economic Impact of RMB Exchange Rate and Exchange Rate Risks on China's Exports to the United States [J]. , 2008 (7): 4-17.

[4] Zheng Kai. The Impact of Real Exchange Rate Fluctuation on China's Exports - Based on SITC Comparison [J]. Finance and Trade Economics, 2006 (9): 37-42.

[5] Zeng Zheng, Zhang Yabin. Appreciation of RMB real exchange rate and China's export structure adjustment [J]. World Economy, 2007,30 (5): 16-24.

[6] Zhang Qingjun. Whether RMB appreciation can promote the improvement of China's export commodity structure [J] International Trade Issues, 2010 (6): 112-120.

[7] Sun Yongqiang, Wu and Mao. Export structure, urbanization and urban-rural income gap [J]. World Economy, 2012 (9): 105-120.

[8] Li Ronglin, Jiang Qian. Analysis of the Impact of Import and Export Trade Structure on Industrial Structure - Based on the Study of Added Value of Product Technology [J] .Journal of Economics and Management, 2010 (4): 83-91.

[9] Li Xiaoping, Zhou Jishun, Wang Shubo. China's manufacturing exports to enhance the complexity and manufacturing growth [J]. World Economy, 2015 (2): 31-57.

[10] Wen Dongwei, Xian Guoming. China's manufacturing export competitiveness and its international comparison [J]. International Economic Cooperation, 2011 (2): 4-10. [11] Pei Changhong. China's trade policy adjustments and changes in export structure analysis: 2006-2008 [J]. Economic Research, 2009 (4): 4-16.

ENGLISH LITERATURE

[1] Yilmaz B. Turkey's competitiveness in the European Union: A comparison with five candidate countries - Bulgaria, The Czech Republic, Hungary, Poland, Romania - and the EU15[J]. Eastward Enlargement of the Euro-zone Working Papers, 2003

[2] Marquez J. Bilateral Trade Elasticities[J]. Review of Economics & Statistics, 1990, 72(1):70-77.

[3] Mohsen BahmaniOskooee. Nominal and real exchange rates of middle eastern countries and their trade performance[J]. Applied Economics, 2001, 33(1):103-111.

[4] Onafowora O A. Exchange rate and trade balance in east asia: is there a J-curve?[J]. Economics Bulletin, 2003, 5(18):1-13.

[5] Obstfeld M, Rogoff K. Exchange Rate Dynamics Redux[J]. Journal of Political Economy, 1995, 103(Volume 103, Number 3):624-660.

[6] Obstfeld M. Exchange Rates and Adjustment: Perspectives from the New Open Economy Macroeconomics[J]. Social Science Electronic Publishing, 2002, 20(S1):23-46.

[7] Baharumshah A Z. The Effect of Exchange Rate on Bilateral Trade Balance: New Evidence from Malaysia and Thailand[J]. Asian Economic Journal, 2001, 15(3):291-312.