

Research on the Influence Mechanism of RMB Exchange Rate Change on Commodity Prices

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Abstract. With the deepening of economic globalization and the gradual integration of domestic and foreign markets, the impact of a country's price level on the international market is becoming more and more obvious. When the external market factors change, it will easily affect the price level of a country, and then affect the economic development of a country. The rapid economic globalization and China's continuous reform and opening up have made the factors affecting China's price fluctuation more complicated. China is the largest consumer and importer in the world commodity market. The change of RMB exchange rate will not only affect the international competitiveness of China's commodities, but also greatly affect the actual interests of China's importers and exporters and their trading partners. The influence of external factors on domestic prices should not be underestimated. Only by clarifying the factors that affect this effect can we implement appropriate monetary policies accordingly to reduce the impact of exchange rate fluctuations on the domestic economy. This paper analyzes the influence mechanism of RMB exchange rate changes on commodity prices, and then provides countermeasures and suggestions for the monitoring and early warning mechanism of RMB internationalization and commodity price fluctuations.

Keywords: RMB Exchange Rate; Commodities; Price Fluctuation.

1. Introduction

With the increasing demand of China's economy for commodities, China has become the most important importer and consumer of most important commodities. At present, China is the largest importer and consumer of bulk commodities in the world. The global market competitiveness of domestic commodities is affected by the fluctuation of RMB exchange rate, and at the same time, with the increase of its fluctuation [1]. Most domestic importers and exporters, including their related trading partners, will also show considerable fluctuations in economic benefits, further causing instability in the global national economy, including China. In the case of declining imports, especially in the context of the continuous appreciation of the RMB against the US dollar, the import amount has shown a great increase, while the international supply has not changed much, showing the upward trend of the international prices of bulk agricultural products [2]. Compared with developed economies, China, as one of the representatives of emerging capital markets, is also the main demand and supply country of global commodities, and China's economic development is closely linked with the international commodity market [3]. China is the largest consumer and importer in the world commodity market. The change of RMB exchange rate will not only affect the international competitiveness of China's commodities, but also greatly affect the actual interests of China's importers and exporters and their trading partners, and then have an impact on China's international trade and even the entire national economy [4].

International commodities have the dual attributes of strategic resources and investment assets, and their price fluctuations are related to the stable development of the real economy and financial markets [5]. Exchange rate represents the external value of a country's currency and provides a green channel for international trade. Domestic price represents the internal value of a country's currency, and its role in a country's economic development cannot be underestimated [6]. With the increasingly prominent financial attributes of bulk agricultural products, analyzing the prices of bulk agricultural products through traditional supply and demand factors can no longer meet the needs of guiding the economy, and it is necessary to study the influence of monetary policy, interest rate policy and other

factors on the prices of bulk agricultural products under open conditions [7]. Therefore, it is of great strategic and practical significance to study the impact of RMB exchange rate fluctuation on China's bulk agricultural products trade [8]. Commodity pricing is increasingly dependent on the futures market, and the degree of financialization of the commodity market is deepening. Commodity prices are not only affected by actual supply and demand, but also by fluctuations in global financial markets. The investment decisions of investors and even speculators, including hedge funds and international investment banks, play an important role in the trend of commodity prices [9]. This paper analyzes the influence mechanism of RMB exchange rate changes on commodity prices, and then provides countermeasures and suggestions for the monitoring and early warning mechanism of RMB internationalization and commodity price fluctuations.

2. Transmission Theory of Exchange Rate

In the open economic environment, exchange rate is a very important variable, which has a far-reaching impact on a country's balance of payments, import and export, and resource allocation. The influence of exchange rate fluctuations on prices is a key link in these influences. When it is a fixed exchange rate system, the price of tradable goods is impacted by the change of nominal effective exchange rate, which leads to the change of domestic price level; Based on the difference of labor productivity, with the help of industrial transfer between tradable and non-tradable goods departments, the change of internal real exchange rate will impact the relative price between them, thus impacting the domestic price level. Commodity price is the fastest and most direct object of exchange rate fluctuation, especially the price of trade goods related to import and export; On the other hand, the influence of exchange rate changes depends to a great extent on the response degree and speed of the price of traded goods to exchange rate changes. The complete transmission of exchange rate is based on law of one price, but the existence of this premise is quite controversial [10]. In real life, the transmission of exchange rate fluctuations to prices is not complete, but we cannot deny its importance as a theoretical basis. The so-called transmission effect of exchange rate changes on prices refers to the proportion that exchange rate changes are reflected in the prices of traded goods. Exchange rate change is a component factor that affects a country's domestic price level. Exchange rate can affect the price level through different efficiencies and ways.

Because exporters can't easily sell the input of these resources as assets, this kind of investment is irreversible, but as long as the commodity price can make up for its variable cost, then the export of the commodity will continue, so the input of such irreversible resources is the precipitation cost. Generally speaking, the cost precipitation of exporters is negatively correlated with the range of adjusting commodity prices and the price transmission coefficient of exchange rate. Because futures have the function of price discovery, can form a more efficient way of resource allocation, and has the characteristics of continuity, authority and openness, futures pricing method occupies an absolutely dominant position in the current global trading system. In a short period of time, the exchange rate will fluctuate in a small range. Due to the irrevocability of sunk costs, enterprises will not choose to ignore these costs and easily adjust export prices. However, in a long period of time, when the exchange rate changes widely, enterprises will choose to adjust the export price appropriately to avoid taking related risks, thus reducing the influence of exchange rate on export price, resulting in incomplete transmission. The viscosity theory of commodity price, the main content of which is that the change of external conditions will not make the commodity price change rapidly in a short time. The stickiness of commodity prices is influenced by many factors. When the supply and demand in the asset market change, the exchange rate and the asset price expressed in money will change rapidly, but the price in the commodity market can't in the short term, that is to say, the price transmission of the exchange rate is incomplete in the short term.

Under the background of economic globalization, enterprises often have to invest all kinds of resources in order to expand their market share, such as increasing new production equipment, advertising and other investments to broaden sales channels. Once these resources are used, they will

form an irrevocable cost for the enterprise. The condition for the establishment of the exchange rate complete pass-through theory is a completely competitive market, but its existence requires harsh conditions. Therefore, the incomplete transmission of exchange rate came into being in an imperfect competitive market, and Dornbush and Krugman made an in-depth study on it. When the domestic exchange rate changes, due to the sunk cost, the number of domestic manufacturers will also change, the competitive situation of domestic manufacturers will change, and finally the price level will change. Therefore, manufacturers must take it into account in the process of pricing. When the exchange rate changes, the price adjustment of manufacturers is not only affected by the exchange rate, but also by the demand elasticity of the market and the change of its market share, so the change of exchange rate will not lead to the same proportion adjustment of commodity prices. In an imperfect competitive market, the greater the market share of manufacturers, the stronger their pricing power, the stronger their ability to maximize profits, and the lower the transmission effect of exchange rate on prices.

3. The Impact Mechanism of RMB Exchange Rate Fluctuations on Commodity Prices

Commodity trade channels are mainly realized through traded commodities, and the prices of traded commodities are therefore transmitted internationally. As a result, commodity prices in different countries are affected by exchange rate fluctuations, and the prices of imported commodities are most directly affected. In the market-based pricing theory, the marginal cost of exporters is assumed to be a constant, which makes the price elasticity of demand in the import market an important reason for the transmission effect of import prices on exchange rate changes. If the elasticity of demand in the import market is insensitive to the change of local price, when the exchange rate of the exporting country rises, the exporter will tend to keep the export price in local currency unchanged, so that the local price in the target market will rise in line with the exchange rate. If imported goods are final consumer goods, when they enter a country's consumer market, the prices of such imported goods will be directly affected by the fluctuation of the country's currency exchange rate, and the price changes of imported final consumer goods will directly affect the price level of the country. When the external value of a country's currency becomes smaller, that is, the exchange rate falls, for foreign consumers, they are more inclined to consume imported goods because they have relatively more money to buy other countries' exports, which leads to an increase in foreign demand, a decrease in export prices and an increase in import prices. According to the relationship between supply and demand, when the commodity prices fall, China's demand for commodities will increase. Ideally, when the supply remains unchanged, the increase in demand will lead to an increase in the equilibrium price level, which may offset the gains brought by appreciation.

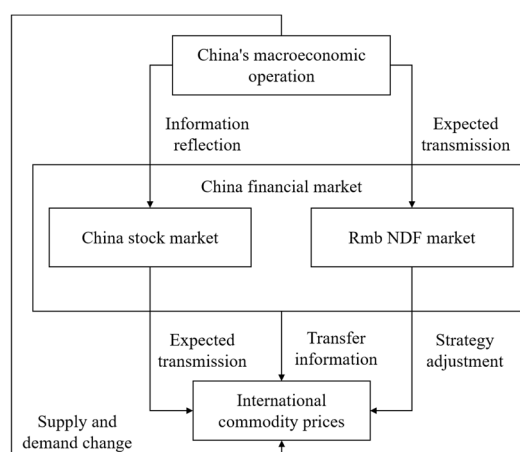


Figure 1. The influence path of China financial market fluctuation on international commodity prices

China's financial market, especially the stock market and foreign exchange market, as an important place to link China's macroeconomic operation with the international commodity market, not only plays the role of transmitting demand information in the commodity market, but also affects expectations and emotional changes in the international commodity market through its own market fluctuations, and plays the role of information spillover and diffusion. The influence path of financial market fluctuation in China on international commodity prices is shown in Figure 1.

If the market is in a state of complete competition, the transmission of exchange rate to imported consumer prices is complete; If the market is in a state of imperfect competition, the transmission of exchange rate to price is incomplete due to the monopoly degree of import and export commodities on consumer goods, the transportation cost at the time of import and the substitutability degree of domestic commodities on imported goods. When a country's commodity price changes, especially when the price of tradable commodities changes, due to the development of economic globalization, it will directly affect the international price of the commodity through the transmission effect of exchange rate. In this way, the regional differences in the process of trade exchanges have been narrowed. Take exchange rate appreciation as an example. When the exchange rate continues to rise for a period of time, people are rational when they engage in economic activities under the hypothesis of economic man, then people will expect the exchange rate to continue to rise in the future, and then rational people will think that the prices of imported goods will continue to fall in the future. Under normal circumstances, when the exchange rate changes, it is first transmitted to the price of raw materials, then to the price of intermediate products, and finally to the price of final goods consumed by consumers.

Changes in the price of imported goods will first affect the importer's production cost, which will be transmitted to the domestic price level. This is because non-final consumer goods are not directly sold, but enter the production and processing links as raw materials and semi-finished products of final products, so that such imported products affect the price of goods purchased by final buyers by affecting the production cost of final products, that is, they have an effect on the domestic price level. Since once a trade contract is signed, the import trade volume will be finalized. If the exchange rate of the country appreciates during the contract period, the currency denominated in the contract will depreciate accordingly, resulting in a decrease in the local currency that needs to be paid for importing the same amount of goods, then the rational person will think that the exchange rate of the country will continue to appreciate in the following period, thus stimulating people's demand for imported goods. When a country's exchange rate appreciates, the actual wages of domestic people rise. In order to get more profits and reduce various costs of enterprises, enterprise decision makers will take certain measures to reduce nominal wages, which will lead to a decline in the consumption level of domestic people, and then lead to a decline in domestic prices. The analysis of industrial innovation conduction path is shown in Figure 2.

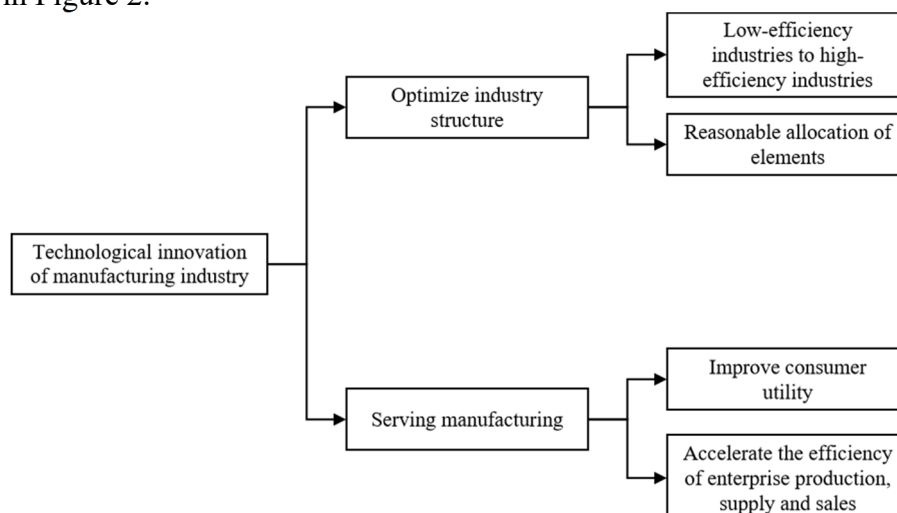


Figure 2. Analysis of industrial innovation conduction path

Capital is different from trade goods, and its flow scale and size can't be determined in international circulation, so its transparency is relatively low. It is very difficult to get an accurate answer, but the direction of influence is relatively clear. When the exchange rate changes, the domestic production cost will drop, and the overall domestic wage level will also drop, both of which can reduce the domestic money supply to some extent. When a country's exchange rate rises, the local currency's external purchasing power will increase, and domestic people will be more inclined to buy imported goods, and the export demand will decrease, thus making the export volume less than the import volume and forming a trade deficit.

4. Conclusion

International commodities have the dual attributes of strategic resources and investment assets, and their price fluctuations are related to the stable development of the real economy and financial markets. Compared with developed economies, China, as one of the representatives of emerging capital markets, is also the main demand and supply country of global commodities, and China's economic development is closely linked with the international commodity market. Based on the exchange rate transfer theory, this paper studies the influence of RMB exchange rate changes on export prices and commodity prices. For domestic general price levels such as consumer prices, the transmission process is much more complicated, and the transmission rate of exchange rate changes will decrease every time. In this way, when it is finally transmitted to the domestic general price level, its transmission rate is greatly reduced in the transmission process. Under normal circumstances, when the exchange rate changes, it is first transmitted to the price of raw materials, then to the price of intermediate products, and finally to the price of final goods consumed by consumers. Enterprises should be encouraged to disperse the gains and losses of commodity price shocks by market means, and innovate in financial instruments and financial systems, so as to continuously promote the healthy development of financial markets and effectively cope with the impact of commodity prices.

References

- [1] Ren S, Diao Q. Research on the impact of RMB exchange rate on commodity prices-analysis based on nonlinear STR model [J]. Journal of Northeast Agricultural University: Social Science Edition, 2017, 15(1):8.
- [2] Xu X, Yu C, Li L. How does China's financial market volatility affect international commodity prices [J]. Finance Quarterly, 2018, 12(4):29.
- [3] Pincheira P, Hardy N. Forecasting aluminum prices with commodity currencies[J]. Resources Policy, 2021, 73(4):102066.
- [4] Bangara B C, Dunne J P. Macroeconomic Effects of Commodity Price Shocks in a Low-income Economy: The Case of Tobacco in Malawi[J]. South African Journal of Economics, 2018, 86(1):53-75.
- [5] Lu C, Zhu J. The influence of exchange rate and money supply on the national commercial housing price [J]. Science Journal of Normal University, 2018, 038(007):1-6.
- [6] Civcir I, Varoglu D E. International transmission of monetary and global commodity price shocks to Turkey[J]. Journal of Policy Modeling, 2019, 41(4):647-665.
- [7] Aminrostamkolaei B, Scroggs J S, Borghei M S, et al. Valuation of a hypothetical mining project under commodity price and exchange rate uncertainties by using numerical methods[J]. Resources Policy, 2017, 52(3):296-307.
- [8] Jimenez-Rodriguez R, Morales-Zumaquero A. Impact of commodity prices on exchange rates in commodity-exporting countries[J]. The world economy, 2020(7):43.
- [9] Eberhardt M, Presbitero A F. Commodity prices and banking crises[J]. Journal of International Economics, 2021(2):103474.
- [10] Razafindrabe T. Nonlinearity and asymmetry in the exchange rate pass-through: What role for nominal price stickiness?[J]. Review of International Economics, 2017, 25(4):711-732.