

THESIS SUMMARY

Ágnes Tőrös

The role of exchange rate policy in the economic growth of China

Ph.D. thesis

Supervisor:

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Department of World Economy

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Table of contents

1	Previous research and reasoning of the subject	3
2	Methods used	6
3	Results of the thesis	10
3.1	Undervaluation of renminbi	10
3.2	Growth effect of undervaluation	11
3.3	The sustainability of exchange rate policy	13
4	Conclusion	15
5	Main References	19
6	Related publications of the author	23

1 Previous research and reasoning of the subject

The structure of today's global economy, i.e. the place of its individual elements and the characteristic connection among them show a totally different picture from what we have experienced in the second half of the 20th century. One of the essential moments of the change is the always stronger Asian expansion, within it the strengthening of China's global economic role. This country has had a unique way over the past 30 years, on the basis of the present prognosis she will probably become the first economy soon. As China has developed for today to such a global economic entity, the existence of which simply cannot be left out of consideration, this country calls an ever-growing interest. This trend is also characteristic of Hungarian scientific researches, a number of valuable studies are written both by experienced Hungarian sinologists and by younger researchers.

By carrying out this research, our aim was to be able to widen our economic knowledge about China and - within it - to be able to show relevant - in practice also useful - new results about a closer subject, the exchange rate policy of the country. We thought that no matter how much is dealt with the exchange rate policy of China, there still exist undetected partial fields which support the necessity of our research. In accordance with this, we have examined the various features of the exchange rate policy of the country from a special aspect, namely in connection with the long-term goals of China and the economic growth. We wanted to know whether special managing of the exchange rate influenced the countries' economic performance.

Before stating our hypothesis let's see what results have been achieved so far in this subject. Several researches have dealt with the misalignment of renminbi and they tried to give a suitable evidence that the official Chinese means of payment would have been undervalued against the USD. Researchers agreed that before answering this question firstly they have to determine in what extent the real exchange rate of the Chinese means of payment differed from its equilibrium value, however there was no consent about the method, on the basis of which the reference value was worth calculating. Many authors took exclusively the commodity market processes into consideration, i.e. they concentrated on the price balancing mechanism of international trade: using the theory of purchasing power parity e.g. Bosworth [2004] and Frankel [2006] have also supported the great undervaluation of renminbi. Those who have used a much more complicated method based on the macroeconomic balance for determining the equilibrium exchange rate, have published different results. While e.g. Wren-Lewis (2004), Coudert-Couharde [2005] – testing the FEER (Fundamental Equilibrium Exchange Rate) method - have stated that the currency was very much

undervalued, Wang (2004) doubted this opinion.¹ Seeing the differences, we have made a goal, that we will make a conclusion on the basis of our counting, which opinion we can share regarding the undervaluation of the renminbi.

Until now only very few empiric studies were published that tested how far China's exchange rate policy influenced its growth. The reason for that is, on the one hand, that the new branch of growth theory in which the influences of different economic policy interventions are examined on the basis of the pieces of experience, is still in its infancy. (for example Williamson [1990], Razin – Collins [1997], Johnson et al [2007]) And within, there are still many unsolved questions in connection with the researches focusing on the influence of the exchange rate undervaluation on growth as well. (Gala [2007], Bhalla [2008]) Instead, as far as the topic is concerned, regarding China, the researches are more popular in which the exchange rate, as a variable that influences growth, indirectly occurs, it means that the success of the country is explained by the export oriented growth model. (Yao [2011]) The positive influence on growth of the Chinese undervaluation is proved by Rodrik [2008] and Bhalla [2008], for the reason that both economists examined the wide range of the countries; the pieces of new information regarding China are pretty limited. Owing to the incompleteness of the specialized literature, we undertook to clear up the connection between the undervaluation of renminbi and China's economic growth.

The quasi fixed exchange rate between renminbi and the American dollar has been a neuralgic point in the economic connections between the two countries for years. (Csáki [2011]) Many people (political decision makers, leaders of representative bodies, entrepreneurs) still mean that China's exchange rate policy does harm to the United States, as it is worsening the status of the manufacturers and it causes serious position losses. The opinion after which it is reasonable that China changes its exchange rate policy has already been supported by famous economists' empirical proofs (for example Cline [2010]). Not each expert agrees with the criticism. They say that the viewpoints of China and those of the world economy have to be observed as well and one also has to calculate that the shift towards a more flexible exchange rate can also cause costs beside profit. The opposing parties also take into account that the time of change has to be chosen suitably, so that it does not cause any damage to China's development. (Frankel [2006]) Moreover, the Chinese say that they have the right to develop their own exchange rate policy the way as it is the most suitable for them and to execute the reforms in their own tempo. As, the problem is very important in terms of the development of the world economy processes, we think so that it is worth thoroughly investigating the different arguments and developing the own opinion in the light of the facts.

¹These studies concentrated on the period after 2000, by what time the value of renminbi has been fixed at a high level against USD for a long time.

On the basis of the facts, we summarized in our dissertation we have set up the following hypotheses as far as China is concerned:

1. *As a result of the exchange-rate steps made on the basis of the “reform and opening” politics – frequent devaluation and fixed exchange rate regime – the Chinese currency has become undervalued compared to the equilibrium exchange rate defined by us.*
2. *The Chinese exchange rate policy was consistent with the economic policy goals laid down in the beginning of the “reform and opening” politics.*
 - a. *The fixed exchange rate system has supported the financial stability of China.*
 - b. *The weakening of the exchange rate has contributed to the improvement of the external balance and to the economic growth of the country.*
 - c. *The undervaluation of the renminbi promoted economic growth.*
3. *The acceleration of the exchange rate political reform process – going over to a more flexible exchange-rate system – is a necessary but not sufficient condition for achieving the economic policy goals of China which were fixed in the beginning of the policy of “reform and opening”.*
 - a. *The disadvantages originating from the Chinese exchange rate fixing mechanism endanger the economic output of the country.*
 - b. *The deepening of the Chinese financial globalization enforces the accustoming to the exchange rate policy.*

2 Methods used

While determining our first hypothesis we have started from the conception of the “opening” which was characteristic from the end of the 1970ies. During this period - while China chose separation - the more dynamically developing countries in the wider neighborhood of China carried out mainly export-oriented economic development strategy. The excellent results of the East-Asian “Tigers” meant motivation for China, they showed how it was possible to take steps on the way of modernization through accepting foreign direct investments and accelerating foreign trade. (Naughton [2007]) In accordance with the above, China has started to carry out the good recipe, cancelling closing. The first step for the outward orientation was the formation of special economic zones and the opening of some cities at the seaside. Later on they gradually built down the administrative barriers of foreign trade.

Dollar (1992) means, the outstanding economic performance of the East-Asian countries could be explained - beside trade regime shift - by the special management of the exchange rate. One of the basis of the export-oriented method meant the nominal undervaluation of the currency to a great extent. This made it partly possible to accelerate the economic growth without accumulating considerable debt, however with the help of foreign capital. On the other hand, the intervention encouraged the sectors producing for export – in favor of greater profit realization – to increase their production. The success of the economies was directly supported by the FDI and the quick widening of the export volume besides it was indirectly supported by spillover effects. On the basis of the example, China has also often applied the devaluation of the currency as a means of strategy built on export markets. Our previous opinion was, that there was such a big intervention into the market processes, that as a result of this the value of the Chinese currency could have gone far from its equilibrium value.

We have divided our second hypothesis into several sub-points. Our sub-hypothesis No. 2.a. was in connection with the country's choice of the exchange rate regime. There is no unanimous answer for the question, which exchange rate system of the different types is more worth introducing, which will be better for the economy. (Magas 2007) A frequent argument for fixed exchange rate is, that a fixed exchange rate can stabilize the prices, as it practically works as a nominal anchor; it imports the monetary control of the country having low inflation. It ensures - with its useful feature - that harmful fluctuations of price level will not weaken the economic productivity of the country. It is also true that frequent devaluations in case of fixed exchange rates can have inflation effects. (Benczes 2009) Taking the above into consideration previously we thought it was possible that the fixed Chinese exchange rate for years was able to keep the prices stable, as there was such a big and stable economy behind it that carried out an internationally accepted, credible monetary policy.

In the two additional sub-hypotheses we concentrated on the supposed connection between the exchange rate policy of the country and the development of its macroeconomic indicators. As the basis of our first hypothesis, we have already used the theoretical connections of the external market oriented growth as a reason to some extent. When drafting our sub-hypothesis No 2.b., as the continuation of the preceding, we have already applied the theory for China. After the model, on the basis of the favorable relative price conditions that developed as a result of the devaluation, it came to the redeployment of the internal resources and therefore the production of the tradable products is increasing in the country. Moreover, the change of the prices also causes the inflow of the foreign capital that contributes to the improvement of the external sector too. To reach this, however, it is not enough to devalue the currency, to improve the competitiveness of the external sector, the real undervaluation of the exchange rate is also needed. (Benczes [2009])

In connection with the devaluation of the currency, many discrepancies can be detected in the literature; the different theoretical considerations do not support its positive influences coincidentally. On the one hand, the opinions, whether the balance of current account can be improved by the devaluation, are opposite; only the commercial conception acknowledges a positive connection, if certain conditions exist. (Szentes [2005]). On the other hand, the results of the specialized literature that is examining the connection between the devaluation and the output are also different, while, after the Keynesians conception the net export is increasing as a result of the steps that contributes to the expansion of the whole output too but after the theories that take into account not only the aggregated demand but also the aggregated supply, this proves effectual only in the short run. Thirdly, it is important to emphasize that after the theory, the real devaluation that happens after the nominal devaluation can only last for a short time because of the adjustment of the prices. (Eichengreen [2008]) As the synthesis of the theories, one can declare that the devaluation can only improve the external position and performance for a short time and even under the existence of different conditions. Keeping in view these criteria, we assumed that the nominal devaluation of renminbi several times encouraged the growth of China's export and it contributed to the growth of the inflow of foreign direct investments too. We assumed that the conscious formation of the Chinese exchange rate has led to the realization of the export oriented growth model in the case of China as well.

We determined our third, sub-hypothesis No 2.c., through going back to the theses of growth theory. The literature that is examining the economic growth and its components represents a significant, well elaborated segment of economics, the partial field that produces dozens of growth models cannot be called free from contradictions. The most popular and at present mostly accepted theories, the endogenous growth models (Romer [1990]) did not figure the exchange rate under the factors of growth in any capacity. However, in the near past new branches developed in the

specialized literature that are searching the factors of the economic growth, even more experts are specialized on the examination of the role of institutions and different economic policies. However, those researchers (for example Easterly [2005], Acemoglu et al [2003], Rodrik [2008]), who accepted that the exchange rate as a political variable can influence growth, did not agree with each other, whether the volatility of the exchange rate or its level counts and their character what kind of a change can induce as far as their direction is concerned.

From those who are recently examining the undervaluation of exchange rate, Rodrik [2008] stated that in case of developing countries the high real exchange rates stimulate growth to significant extent. The same results are presented by Bhalla [2008] as well, regarding the connection between undervaluation and growth. As, one can see that the role of undervaluation becomes even more accepted in the specialized literature as far as the economic growth is concerned, we assumed that it must have an explanation power in case of China as well. Taking this theory as starting point, we assumed that the undervaluation of renminbi must have given a strong impulse for the growth rate of China's economy. At this point we would like to point out that our hypothesis only considered the two variables, the existence of the stochastic connection between the undervaluation and growth and its direction. We did not aim to explore the mechanism of the positive connection to be proved, because a more detailed analysis of the causation relationship would need another research.

We formed our third hypothesis that already refers to the present with the reference of several theorems to China. Within that, in connection with the sub-hypothesis No 3.a. we focused on the selection of the exchange rate system again. After the literature that analysis the flexibility of the exchange rate, the using fixed exchange rates in the long run can demand significant sacrifice, it can induce economic activity suppression or increase inflation as well. (Magas [2007]) In order that a central bank can preserve the fixed exchange rate, it has to apply foreign exchange market intervention. In case of China - for the reason of the surplus of its current account – it means the slackening of the revaluation pressure, this way the absorption of the inward foreign currency and the pumping of the domestic money into the local economy. Logically, this results in the increase of the stock of foreign currency reserve of the Chinese central bank, on the other hand, the intervention results in the growth of the amount of the domestic money. Therefore, PBOC (People's Bank of China) is forced to offset the liquidity effect of the intervention that can be done through open market actions or other measures.

China has been insisting for many years on officially managing the exchange rate of renminbi. If we take it as a starting point that as a result of the speed up of the capital inflow in the 2000's, how far the frequent and substantial adjustment that was needed could affect the monetary base, we have to draw the conclusion that the boom of liquidity could significantly increase the danger of the

economy becoming overheated, therefore China's exchange rate policy mustn't be maintained because of its character of endangering the balance of the internal economy. If we lay the emphasis on the fact that China continuously wanted to solve the above problem with the central bank's sterilization we can assume – because of its potential costs – that China cannot run its exchange rate policy for a long time. At the beginning of our research, we thought so that China has already arrived at the point when it could make the possible best of the strategy, therefore, there is no worth using the fixed exchange rate system any longer because it is dangerous and expensive.

The basis of our sub-hypothesis No 3.b. was the correlation known as „Impossible Trinity” that declares that from three important targets of the economic policy one can only follow two at the same time, it means that the internal financial stability that arises from the fixed exchange rate, the increase of efficiency through the integration of the international capital markets and the sovereign monetary policy cannot work parallel with each other. (Magas [2011], Lőrincné [2004]) Among others it also means, if a country wants to remain autonomic as far as the national monetary policy is concerned and at the same time it increases its capital market integration, it is forced to give up the fixed exchange rate. However, in the spirit of the policy of „reform and opening” China has done numerous steps, one after the other, with which they join the circulation of the international capital, it means that the liberalization of the Chinese currency connections has increased. So, we thought so that this change has to entail a displacement constraint on the exchange rate flexibility too, it means that the disappearance of the capital market limits on even more fields has to support the fact that the close fixed exchange rate cannot be sustained any longer, if we assume that China is insisting on the autonomy of its monetary policy.

To test the hypotheses we mostly applied quantitative methods. We performed the exploration of the specific characters of the symptoms in connection with our topic through the analysis of descriptive statistics, while, to confirm our specific assumptions we also employed the tools of econometrics, it means that we specified regression models. As we wanted to reach reliable scientific results with our dissertation, we aimed to use primer resources first of all. Therefore, we used the statistics of numerous international databases. Before drawing our final conclusion, however, we compared the results of our different calculations with the pieces of experience of other similar researches every time. We examined the truth content of our assumptions on the processes of the past over thirty years; it means that our research included a fairly long period. The analysis was based on the announcement of the period of „reform and opening” in 1978, while, as closing date we have chosen 2008 because we did not want to deeply deal with the Chinese cyclical changes that is caused by the world crisis. Nevertheless, for practical reasons, we extended this time interval and it also occurred that by specific statistics we could not collect information for all years.

3 Results of the thesis

3.1 Undervaluation of renminbi

We have started our first analyzing chapter with the review of the important changes of Chinese exchange rate policy. We have stated that although – since the unified exchange rate system – China made the market powers always better influence the change of the exchange rate, de facto fix exchange rate has remained entirely until 2005. Beside this, Peking has systematically weakened the value of renminbi against USD: at the announcement of the “reform and opening” less than 2 CNY had to be paid for one USD, the official exchange rate has increased by 1994 to 8,7 CNY/USD. Between 1997 and 2005 the exchange rate was stably kept at 8,3 CNY/USD. On the basis of the gradual devaluation of the exchange rate we thought it was possible, that - as an effect of this - the exchange rate of renminbi could have gone far from its equilibrium value.

First, we have applied the theory of purchasing power parity for testing undervaluation. We have had the experience that the more simple, “alternative exchange rate” created from Big Mac hamburger prices – during the whole period of time – was much lower than the official renminbi exchange rate. Afterwards we have applied calculations including a wider range of products for making more exact conclusions. Purchasing power parity data – counted from the official GDP – originating from Penn World Table 7.0 database indicated, that the exchange rate of renminbi has become undervalued since 1981 and the level of undervaluation since the beginning of the 1990ies has always exceeded 60%. We have applied – beside the normal PPP conception – its corrected version with Penn-effect as well. As an explanation for the latter, the Balassa–Samuelson-effect used to be mentioned, because of which the purchasing power parity and the nominal exchange rate in the long run are rarely the same. In accordance with the usual practice in empiric literature we have as well calculated the undervaluation of the Chinese currency taking the production efficiency differences also into consideration. Using the statistics of the database of Penn World Table 7.0, firstly we have calculated the real exchange rate of the 186 countries involved in the examination, afterwards we have made a model estimation.

$$e_{Ri} = \alpha + \beta \ln y_i + u_i, \quad (1)$$

In the above linear regression equation, \ln stands for natural logarithm, y_i is the income of country i , α and β are regression coefficients, u_i is the sign of error terms. The estimated regression line has caught the equilibrium situation and u_i , the remainder term – the deviation of the actual real exchange rates from the estimated real exchange rate values – gave us the misalignment of the certain currencies. On the basis of our calculations - regarding the undervaluation of renminbi – for one year, for the year 2000, we have got a 15% value which was 20% percentage point lower in

comparison with the calculations of Frankel [2006]. After Johnson et al (2007), we have recorded for each year between 1952 and 2008 separate regression and we have stated that – also on the basis of this method – it is true: over the past wide 30 years renminbi has been undervalued.

As an alternative for determining the equilibrium exchange rate with the help of purchasing power parity, we have applied the method based on the macroeconomic balance. It has the advantage, that it is not only based on the market of products, but it takes the whole economy as a basis, on the contrary, the FEER approach does not give an exact methodological direction. Taking the example of Berg–Miao (2010) into consideration we have again made an econometric model

$$e_{Ri} = \alpha + \beta \ln y_i + \gamma X_i + u_i, \quad (2)$$

where X_i vector stands for investments, expenditures of general government sector, the openness, further terms of trade regarding the given country, and γ is a regression coefficient. We have applied all the other sings in the same way as the above. However, as most of the explanatory variables did not prove to be significant, we thought it was no use applying regression for the coming years, instead we have decided to summarize the empiric results regarding China which used the FEER method. We found that, however, the latter quantify different currency-deviations but just each of them confirms our assumption regarding the currency undervaluation.

3.2 Growth effect of undervaluation

We divided our analysis that is discussing the roles of China's exchange rate policy into several phases. To prove our assumption we had to make sure first, whether the nominal undervaluation of renminbi is associated with its real devaluation. When analyzing the statistics of FRED Economic Data, we found that the price competitiveness of China's economy improved significantly during the examined period. The fact that the real exchange rate can work as a variable of the economic policy is questioned by a lot of economists (for example Eichengreen [2008]). In agreement with Wyplosz [2010] we found that, however, one cannot reject the fact that in case of China, the willful management of the nominal exchange rate played a significant role in the development of the real exchange rate through years.

Before analysing the development of inflation we also touched upon the question how Peking approaches the issue of price stability. We stated that one cannot draw the conclusion from the fact that the monetary policy's main goal in China is not explicitly the price stability – but the maintenance of the value of the national currency and stability and hereby to encourage the economic growth – that it would not be important for the country. Taking the time series of the Chinese consumer price index as a starting point we found that through closely fixing the exchange rate of renminbi to the currency of a great power of which inflation was historically low, the

inflation could successfully become stable from the mid of 1990's. We did not think that only the fixing of the exchange rate played a role in it, nevertheless, we thought that the monetary anchor that serves the import of price stability operated excellently.

Hereinafter we examined the effects of the real devaluation of renminbi on the real economy. At first, we wanted to get to know the influence of the exchange rate that is brought on the foreign trade. The indicators that are measuring China's export made evidence of a spectacular development. To prove the assumed connection, because of the endogeneity problem, in case of the both variables, it means the real exchange rate and the export, we applied their change. The value of the linear correlation coefficient suggested that there is a weak, almost inessential but positive connection between the data, however, the representation of the two data series on a scatter chart rather referred to the lack of connection. However, applying further statistical techniques, we could not convincingly prove the casual relationship between the real devaluation of renminbi and China's export, nevertheless, taking our own calculations and the relating empiric researches as a starting point, we did not reject that there could be a moderate connection between the two variables. Furthermore, we stated that the boom of China's export could rather be explained by other factors; just like for example the fact of the China's association with WTO, the available plentiful labor force, etc.

We carried out impact assessments on foreign direct investments. On the basis of data of the World Bank, it turned out, that China has increased her import of capital over the years very much. As in the case of exports, so in the case of FDI we put the question, what has caused the significant gain? Describing the connection between the annual change of capital imports and the real exchange rate, we got a slightly small number for the correlation index. As the further statistical analysis haven't proved the fact of tight connection, we stated that there are several other factors that influenced the countries capacity of capital attraction more, like the size of the Chinese market, special allowances for foreign companies etc. Nevertheless we haven't rejected the relevant of relative cheap prices caused by the exchange rate policy. At last we checked how changed the country's external position in parallel with the real devaluation of the renminbi. We found that due to the significant revenue from abroad China's external balance improved a lot over the years.

Afterwards, we focused on the direct and indirect connection between the exchange rate policy and growth. Regarding the development of China's export-coefficient, we found that there is no doubt that the strong boom of export played a significant role in the economic performance of the country. To accept the Chinese export oriented model we also examined how far it influenced the the value of Chinese net export within its output and the change of its value. On the one hand, we have learnt that the net export's contribution to China's GDP was fairly hectic in the past three decades. On the

other hand, as we divided the yearly growth rate between the three components, it turned out that the proportion of the final consumption typically exceeded the 50% all the time and just in every year this component represented the biggest proportion. We explained the relatively low proportion of the net export by the demand for raw materials that emerges by the reason of the fast industrialization and the important feature of China's export, whereas, within this, the rate of the products that come from the assembling activity is very high. In spite of the relatively pure result of our statistical analysis, we did not question that China's economic development was positively influenced by the participation in the international trade and division of labor, but in agreement with the opinion of Inotai [2009] we declared that, in case of China, it would be a mistake to underestimate the effects of the further factors of the aggregated demand produced on growth.

At last, we were curious about the explanation power of a special factor of the economic growth, namely, that of the undervaluation of renminbi. Stating that there is only a very few research in which the effect of the undervaluation of the exchange rate is tested exclusively on one country, we have set the goal to stop this gap and we examined the effect of the undervaluation of China's currency on the GDP with a time-series analysis. In harmony with the researches that apply the growth theories in practice, we based in Barro's regression (Durlauf et al [2004]); consequently our model included beside Solow's factors a proxy variable that embodies the human capital, the index of openness and undervaluation too. After the suitable transformation of the variables, we have built a vector-autoregression model, hereby; we explained the time-series both by their own and the other variables' latency.

Finally, our VAR-model became statistically acceptable through the use of six latencies and the leaving off the proxy variable. The Johansen co-integration test proved that there is a long term connection between the variables. From the analysis of the relating impulse-response we could draw the conclusion that the 1% change of the undervaluation of renminbi was followed by the mild speed up of the growth rate after 4-6 years. However, the positive effect proved to be very small, just about 0.02% and in the first years, after the effect of the J curve, a very low growth damping effect could even be experienced too. After some years, the effect of the shock has passed totally.

3.3 The sustainability of exchange rate policy

In our third analytical chapter we were looking for the answer whether any circumstance gives reasons for the significant change of China's exchange rate policy at present. At first we took under magnifying glass the arguments that belong to the American main stream (Cline [2010], Bergstein [2010]) after which China's exchange rate policy is responsible for specific internal economy problems of the United States. We could not accept the opinion that declared the connection between the Chinese exchange rate policy and the foreign trade deficit of America through relying

only on the flexibility approach of the current account. Instead, we agreed with the arguments of Frankel [2006] and McKinnon – Schnabl [2008] that deduced the development of the current account from the difference between the savings and the investments. Making a small detour to the field of the international law, we stated that, even if the declaration was true that China „manipulated” the exchange rate of renminbi, the present regulation framework did not provide any solution that the problem could be solved on a multilateral way.

In connection with the topic we also examined the assumption what would happen, if Beijing let the exchange rate of renminbi reevaluate against the American dollar, as it is recommended by the USA. Using the relating economic principles we found that, thereafter, that as a result of this step the national economy demand of China would decrease anyway, it is doubtful how the bilateral foreign trade balance would develop. With our research we also pointed out that because of the special interdependency between the two countries, whereas, the big part of China’s assets is denominated in dollar, the revaluation would cause further cut on the welfare in the Asian country.

During examining the Chinese standpoints, it turned out that the development of the exchange rate of renminbi is complicated by the fact that essential circles did not fully agree in connection with the exchange rate policy. From the definitive institutions, only PBOC, who is worrying about the price stability, favored the support of the reform. China’s leaders, because of the even more often public disturbances in the provinces, refused the change for a long time. They were afraid that the still existing social tensions would get worse, if they let the exchange rate to be revaluated because it must have produced the worsening of the income possibilities of the local manufacturers and the increase of the unemployment. Surveying the analyses of Chinese researchers we found that, however, in the circles of Chinese scientists (such as He [2013]) it was not questioned that China ought to change its exchange rate policy in its own interest but they unanimously refused the fast revaluation of renminbi. In connection with the official Chinese interpretation, we could conclude that China – even, if with some doubts – but for some time, acknowledges the necessity of reforms more and more. After studying the different pros and cons regarding the change of the exchange rate policy, we wanted to form our standpoint through examining the topic from further aspects.

At first we tried to get to know the mechanism of the maintenance of fixing the exchange rate and its potential limits better. Analyzing the statistics of the Asian Development Bank, we found that in the 2000’s the interest of the foreign investors has significantly increased for the country. We also found that, in an unusual way, both the current account and the capital and financial account balances have shown a positive surplus for a long time. The gigantic cash inflow demanded the active presence of the central bank on the foreign exchange market because it put a appreciation pressure on the exchange rate of renminbi. Following the intervention, the foreign currency reserve

of the country increased with about 40% in the average per year in the period between 2000 and 2008. We stated that, however China did everything to stop the in parallel increasing interbank liquidity; the monetary sterilization could not fulfill its mission in full as the money supply increased very fast further on. We considered it as indicative that the danger of becoming overheated that arises from the development are confirmed by many price indexes, whereas, we thought that their typical increase of some years still do not give any reason for the necessity of changing the exchange rate policy radically. When forming our opinion we also kept our idea in mind that, if China gives up the pegging in an instant way it can very easily result in the collapse of the economy.

In the second part we examined how far the present features of the capital market liberalization of the country confirm the topicality of the increase of the exchange rate flexibility. Our research has shown that the most of the restrictions were cancelled in respect of the FDI; however, we cannot speak about the total freedom in connection with it either. By hindering the further obstacles in connection with the further capital transactions, China was very careful. After the short historical survey, we tried to quantify the Chinese financial globalization different ways too. The KAOPEN indicator concerning China suggested that the financial integration of the country is very poor and no significant improvements have happened since 1993. As we considered this statement as extreme, we also characterized the financial globalization level of China with de facto index-numbers too. Using the data of Lane – Milesi-Ferretti [2007] all developments of the foreign assets and liabilities in relation to the GDP show that China's financial integration significantly deepened from year to year. Finally, we also called the trilemma indices that quantify the three dimensions of the „Impossible Trinity” thesis. From their development in the past we draw the conclusion that in parallel with the cutting on the capital limits of China it has to move on the point of fixing the exchange rate more and more in the future too.

4 Conclusion

In our dissertation we laid emphasis on the more thorough knowledge of the different segments of China's exchange rate policy, furthermore, our goal was to be able to draw relevant and new conclusions about the connection between the exchange rate and the economic empowerment of the country. At first, we went around the questions of the undervaluation of renminbi. This subject matter is a less investigated partial field in the Hungarian special literature; the kind of a study that would quantify the misalignment of the Chinese currency cannot be found. To resolve the discrepancy, following the method of Frankel [2006] we tried to prove our hypothesis regarding the undervaluation with an econometric modeling. After the synthesis of the results of the international researches and those of our own calculations, we stated that even though the different approaches

do not show the same degree as far as the depart from the equilibrium exchange rate of renminbi is concerned, nevertheless, the fact of undervaluation regarding the examined period could not be questioned. It means that we found our first assumption to be true.

I. As a result of the exchange-rate steps made on the basis of the “reform and opening” politics – frequent devaluation and fixed exchange rate regime – the Chinese currency has become undervalued compared to the equilibrium exchange rate defined by us.

In our second analytical chapter we were running further retrospective analyses and we executed the exploration of the effects of the exchange rate policy in the past. We stated that the fixation of exchange rate between renminbi and dollar at a high level provided an adequate framework, so that China could get closer to its growth target during the period observed. We could not accept the myth of export-led growth; our research did not prove explicitly the close connection between the export performance and the growth. Nevertheless, we did not call in question either that the participation of China in the international trade induced a strong growth impulse. In addition, we were dealing with a relatively unexplored field in the international special literature too, namely, the impact of undervaluation on growth. As results regarding China in this topic are very poor (Rodrik [2008], Bhalla [2008]), we worked out an own solution, we executed the impact study with the method of time series analysis. The result we obtained with the econometric methods proved the fact of undervaluation, however, in contradiction to the former researches the influence on growth seemed to be fairly moderate. We could accept our second hypothesis and its sub- hypotheses only with partial modifications in accordance with the above mentioned.

II. The Chinese exchange rate policy was consistent with the economic policy goals laid down in the beginning of the “reform and opening” politics.

- a. The fixed exchange rate system has supported the financial stability of China.***
- b. The weakening of the exchange rate has partly contributed to the improvement of the external balance and to the economic growth of the country.***
- c. The undervaluation of the renminbi slightly promoted economic growth.***

In the last analytical unit we wanted to draft a situation that summarizes the present condition of China’s national economy and with the assistance of which we can formulate a relevant recommendation regarding the future development of the exchange rate policy that is useful in the practice as well. After the survey of sharp professional discussions in connection with the subject and the clash of different arguments (Bergsten [2010], Cline [2010], McKinnon – Schnabl [2008],

He [2013]), we stated that, however, the international accusations did not justify that China should radically change its exchange rate policy, but because of their own interests, the prosperity of the country it is effective to carry on the already launched reforms after all. Our examinations showed that the frequent sterilised foreign exchange market intervention that was carried out by the PBOC not even burdened the country very much; it could not stop the danger of overheating either. Moreover, the examination of the reform of China's exchange rate policy also confirmed that the reform of it will be necessary also in the future in order that the country can move ahead on the way to its goals. As we did not consider as established to speed up the processes, we accepted our third assumption and its sub-hypothesis in the following form.

III. The continuation of the exchange rate political reform process – going over to a more flexible exchange-rate system – is a necessary but not sufficient condition for achieving the economic policy goals of China which were fixed in the beginning of the policy of “reform and opening”.

- a. The disadvantages originating from the Chinese exchange rate fixing mechanism endanger the economic output of the country.***
- b. The deepening of the Chinese financial globalization enforces the accustoming to the exchange rate policy.***

When writing our dissertation, we laid emphasis on presenting a high quality work. In order to reach this, we tried to use even more results of Chinese researches; we obtained our statistics exclusively from primary sources. In addition, we wanted to meet the criteria of originality too, that is why we set the target for us to analyze China's exchange rate policy after a different aspect. The main point of the new mode of interpretation was that we do not only examine the happenings in themselves but we also assessed them in view of the long-term targets. Accordingly, we did not only examine the effect of the exchange rate policy on the basis of the past but the present too. However, owing to the length limits, we could not touch upon the detailed analyses of the future, in our opinion; it would be practical to carry forward the process approach we launched.

It could mean a new direction of research, if we combined the future reach of the goals of the economic policy that were drafted at the beginning of the „reform and opening” policy with the specific results of the exchange rate policy so far. The motivation for combining the two issues, namely, the long-term Chinese growth and the huge available currency reserve of the country is provided by the fact that it is not really discussed in the special literature what kind of advantages the use of the significant property could bring for China. Taking as starting-point the present ruling growth theory, after which the long-term growth is based on the technological development, we

think so that with the suitable management of China's surplus currency reserves, it means well-considered strategic investments, China could be able to maintain the high speed of its growth. China could obtain so useful information and developed technologies of which import, their establishment and improvement by their own companies would generate a strong growth impulse and hereby, the country could catch up with the level of the developed countries in the course of time.

5 Main References

- Acemoglu, Daron – Johnson, Simon – Robinson, James – Thaicharoen, Yunyong [2003]: Institutional causes, macroeconomic symptoms: volatility, crises and growth. *Journal of Monetary Economics*, 50 (1), pp. 49–123.
- Anderson, Jonathan [2005]: *The complete RMB handbook (Third Edition)*. Hong Kong, UBS Investment Research.
- Bahmani-Oskooee, Mohsen – Miteza, Ilir [2003]: Are devaluations expansionary or contractionary? A survey article. *Economic Issues Journal Articles*, 8 (2), pp. 1-28.
- Bell, Stephen – Feng, Hui [2013]: *The rise of the People's Bank of China: the politics of institutional change*. Cambridge, Harvard University Press.
- Benczes, István [2009]: *A nemzetközi fizetési mérleg*. In: Benczes, István – Csáki, György – Szentes, Tamás (ed.) *Nemzetközi Gazdaságtan*. Budapest, Akadémiai Kiadó.
- Berg, Andrew – Miao, Yanliang [2010]: The Real Exchange Rate and Growth Revisited: The Washington Consensus Strikes Back? *IMF Working Paper*, 10 (58).
- Bergsten, C Fred [2010]: *Correcting the Chinese exchange rate*. In: Evenett, Simon J. (ed.) *The US-Sino Currency Dispute: New Insights from Economics, Politics and Law*. London, Centre for Economic Policy Research.
- Bhalla, Surjit S. [2008]: Economic Development and The Role of Currency Undervaluation. *Cato Journal*, 28 (2), pp. 313–340.
- Blahó, András [1994]: *Russian transition, Chinese reforms: a comparative view*. Helsinki, UNU World Institute for Development Economics Research.
- Bosworth, Barry [2004]: Valuing the renminbi. *Conference paper*, Tokyo Club Research Meeting, Washington. Downloaded: 2013. 02. 03.
URL
http://www.brookings.edu/views/papers/Bosworth/20040209_bosworth.pdf
- Cappiello, Lorenzo – Ferrucci, Gianluigi [2008]: The sustainability of China's exchange rate policy and capital account liberalisation. *ECB Occasional Paper Series*, 82.
- Clark, Peter B. – MacDonald, Ronald [1998]: Exchange rates and economic fundamentals: A methodological comparison of BEERs and FEERs. *IMF Working Paper*, 67.
- Cline, William R. – Williamson, John [2008]: *Estimates of the Equilibrium Exchange Rate of the Renminbi: Is There a Consensus and, If Not, Why Not?* In: Goldstein, Morris – Lardy, Nicholas R. (ed.) *Debating China's exchange rate policy*. Washington, Peterson Institute for International Economics.
- Cline, William R. [2010]: Renminbi Undervaluation, China's Surplus, and the US Trade Deficit. *Peterson Institute for International Economics Policy Brief*, PB10-20.
- Coudert, Virginie – Couharde, Cécile [2005]: Real equilibrium exchange rate in China. *Centre d'Étude Prospectives et d'Informations Internationales Working Paper*, 2005-1.
- Csáki, György [2011]: *G-2: Az USA és Kína gazdasági kapcsolatai a világgazdasági erőviszonyok megváltozott erőterében*. In: Inotai, András – Juhász, Ottó (ed.) *Stratégiai Kutatások 2009-2010*. Budapest, MTA Világgazdasági Kutatóintézete.
- Dollar, David [1992]: Outward-oriented developing economies really do grow more rapidly: Evidence from 95 LDCs, 1976-1985. *Economic development and cultural change*, 40 (3), pp. 523–544.
- Driver, Rebecca L. – Westaway, Peter [2004]: Concepts of equilibrium exchange rates. *Bank of*

England Working Paper, 248.

- Dunaway, Steven Vincent – Leigh, Lamin – Li, Xiangming [2006]: *How Robust are Estimates of Equilibrium Real Exchange Rates: The Case of China*. Washington, International Monetary Fund.
- Durlauf, Steven N – Johnson, Paul – Temple, Jonathan R. W. [2004]: *Growth econometrics*. Poughkeepsie, Vassar College Department of Economics.
- He, Fan [2013]: China must push ahead with exchange rate reforms. *Comment*, Downloaded: 2013. 09. 05.
URL:
<http://www.eastasiaforum.org/2013/04/29/china-must-push-ahead-with-exchange-rate-reforms/>
- Easterly, William [2005]: National Policies and Economic Growth: A Reappraisal. *Center for Global Development Working Paper*, 27.
- Edwards, Sebastian [1989]: Exchange Rate Misalignment in Developing Countries. *World Bank Research Observer*, 4 (1), pp. 3–21.
- Égert, Balázs [2004]: Assessing equilibrium exchange rates in CEE acceding countries: Can we have DEER with BEER Without FEER? *BOFIT Discussion Papers*, 1.
- Eichengreen, Barry [2008]: The real exchange rate and economic growth. *World Bank Commission on Growth and Development Working Paper*, (4).
- Frankel, Jeffrey [2006]: On the yuan: The choice between adjustment under a fixed exchange rate and adjustment under a flexible rate. *CESifo Economic Studies*, 52 (2), pp. 246-275.
- Gala, Paulo [2007]: Real Exchange Rate Levels And Economic Development: Theoretical Analysis And Empirical Evidence. *Conference paper*, Proceedings of the 35th Brazilian Economics Meeting, Sao Paulo. Downloaded: 2012. 05. 18.
URL:
<http://www.anpec.org.br/encontro2007/artigos/A07A037.pdf>
- Goldstein, Morris [2004]: *Adjusting China's exchange rate policies*. Washington, Institute for International Economics.
- Goldstein, Morris – Lardy, Nicholas R. [2009]: *The future of China's exchange rate policy*. Washington, Peterson Institute for International Economics.
- Huang, Guobo – Wong, Clement Yuk-Pang [1996]: Unification of China's foreign exchange rates. *Contemporary Economic Policy*, 14 (4), pp. 42-57.
- Inotai, András [2009]: *Kína növekvő szerepe a világgazdasági folyamatokban*. In: Inotai, András – Juhász, Ottó (ed.) *A változó Kína*. Budapest, Akadémiai Kiadó.
- James, Jessica – Marsh, Ian – Sarno, Lucio [2012]: *Handbook of Exchange Rates*. Hoboken, John Wiley & Sons.
- Jeong, Se-Eun – Mazier, Jacques [2003]: Exchange rate regimes and equilibrium exchange rates in East Asia. *Revue économique*, 54 (5), pp. 1161-1182.
- Jin, Xiaowen [2012]: An empirical study of exchange rate pass-through in China. *Panoeconomicus*, 59 (2), pp. 135-156.
- Johnson, Simon – Ostry, Jonathan D. – Subramanian, Arvind [2007]: The Prospects for Sustained Growth in Africa: Benchmarking the Constraints. *IMF Working Paper*, 52.
- Jordán, Gyula [2009]: A kínai statisztika megbízhatóságáról. *Statisztikai Szemle*, 87 (1), pp. 63-82.
- Juhász, Ottó [2009]: *Kína: Folyamatosság és változások*. In: Inotai, András – Juhász, Ottó (ed.) *A változó Kína*. Budapest, Akadémiai Kiadó.

- Kose, M. Ayhan – Cardarelli, Roberto – Elekdag, Selim [2009]: *Capital inflows: macroeconomic implications and policy responses*. Washington, International Monetary Fund
- Kovács, Mihály András [1999]: Reálárfolyam-mutatók és a magyar gazdaság ár- és költségversenyképessége. *Közgazdasági Szemle*, 156 pp. 145-175.
- Lane, Philip R. – Milesi-Ferretti, Gian Maria [2007]: The external wealth of nations mark II: Revised and extended estimates of foreign assets and liabilities, 1970–2004, Updated and Extended External Wealth of Nations Dataset, August 2009. *Journal of International Economics*, 73, pp. 223-250. Downloaded: 2012. 03. 07.
URL:
<http://www.philiplane.org/EWN.html>
- Lőrincné, Istvánffy Hajna [2004]: *Nemzetközi pénzügyek*. Budapest, Aula Kiadó.
- Ma, Guonan – Yan, Xiandong – Xi, Liu [2011]: China's evolving reserve requirements. *BIS Working Papers*, 360.
- MacDonald, Ronald [2000]: Concepts to calculate equilibrium exchange rates: an overview. *Deutsche Bundesbank Discussion Paper Series*, 2000/03.
- Maddison, Angus [2007]: *Chinese economic performance in the long run*. Paris, Development Centre of the OECD.
- Magas, István [2007]: *Globalizáció és nemzeti piacok*. Budapest, Napvilág Kiadó.
- Magas, István [2011]: Pénzügyi liberalizáció – a nemzeti alkalmazkodás dilemmái. *Pénzügyi Szemle*, 56 (2), pp. 211–236.
- McKinnon, Ronald – Schnabl, Gunther [2009]: China's financial conundrum and global imbalances. *BIS Working Papers*, 277.
- Mishkin, Frederic S [2008]: Exchange rate pass-through and monetary policy. *National Bureau of Economic Research Working Papers*, 13889.
- Morrison, Wayne M. – Labonte, Marc [2008]: *China's Currency: Economic Issues and Options for U.S. Trade Policy*. Washington, Congressional Research Service.
- Naughton, Barry [2007]: *The Chinese economy: Transitions and growth*. Cambridge, MIT Press Books.
- Obstfeld, Maurice [2007]: The Renminbi's Dollar Peg at the Crossroads. *IMES Discussion Paper Series*, 2007-E-11.
- Qiao, Hong [2007]: Exchange rates and trade balances under the dollar standard. *Journal of Policy Modeling*, 29 (5), pp. 765-782.
- Razin, Ofair – Collins, Susan M. [1997]: Real Exchange Rate Misalignments and Growth. *National Bureau of Economic Research Working Paper Series*, 6174.
- Rodrik, Dani [2008]: The Real Exchange Rate and Economic Growth. *Brookings Papers on Economic Activity*, 39 (2), pp. 365–439.
- Rogoff, Kenneth [1996]: The Purchasing Power Parity Puzzle. *Journal of Economic Literature*, 34 (2), pp. 647–668.
- Romer, Paul M. [1990]: Endogenous Technological Change. *Journal of Political Economy*, 98 (5), pp. 71–102.
- Sachs, Jeffrey D. [1985]: External Debt and Macroeconomic Performance in Latin America and East Asia. *Brookings Papers on Economic Activity*, 16 (2), pp. 523–573.
- Szentes, Tamás [2005]: *Világ gazdaságtan I*. Budapest, AULA Kiadó.
- Tálas, Barna [1999]: *Kína gazdasága a XX. és a XXI. század fordulóján*. In: Tálas, Barna – Jordán,

Gyula (ed.) *Kína az új évezred küszöbén: Tanulmányok Kínáról*. Budapest, Stratégiai és Védelmi Kutatóintézet

- Wang, Tao [2004]: *Exchange Rate Dynamics*. In: Prasad, Eswar S (ed.) *China's growth and integration into the world economy: Prospects and challenges*. Washington, International Monetary Fund.
- Williamson, John (ed.) [1990]: *Latin American adjustment: How much has happened: Conference: Papers and discussions*, Washington, Institute for International Economics.
- Wren-Lewis, Simon [2004]: *The needed changes in bilateral exchange rates*. In: Bergsten, C. Fred – Williamson, John (ed.) *Dollar Adjustment: How Far? Against What*. Washington, Institute for International Economics.
- Wyplosz, Charles [2010]: *Is an undervalued renminbi the source of global imbalances?* In: Evenett, Simon J. (ed.) *The US-Sino Currency Dispute: New Insights from Economics, Politics and Law*. London, Centre for Economic Policy Research.
- Xu, Yingfeng [2000]: China's exchange rate policy. *China Economic Review*, 11 (3), pp. 262-277.
- Yao, Yang. [2010] The double transition and China's export-led growth *Conference paper*, Pacific Trade and Development Conference, Beijing. Downloaded: 2013. 05. 20.
URL:
http://paftad.org/files/34/01_YANG%20YAO_Growth.pdf
- Yu, Yongding [2008]: Managing capital flows: The case of China. *ADB Institute Discussion Paper*, 96.
- Yu, Yongding [2010]: *A trade war is entirely unnecessary*. In: Evenett, Simon J. (ed.) *The US-Sino Currency Dispute: New Insights from Economics, Politics and Law*. London, Centre for Economic Policy Research.
- Zhang, Zhaoyong [1999]: Foreign exchange rate reform, the balance of trade and economic growth: an empirical analysis for China. *Journal of Economic Development*, 24 (2), pp. 143-162.
- Zhang, Zhichao [2001]: Choosing an exchange rate regime during economic transition: The case of China. *China Economic Review*, 12 (2), pp. 203-226.

6 Related publications of the author

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Törös, Ágnes [2010]: *Az ASEAN integrációs fejlődése*. In: Palánkai, Tibor (ed.) *Tanulmányok az európai integráció témaköréből 2, Regionális integrációk - Összehasonlító tanulmányok*. Szombathely, Savaria University Press, pp. 93-107.

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Dani, Ákos – Törös, Ágnes [2011]: Kínai szuverén alapok: út a tartós fejlődéshez? *Pénzügyi Szemle*, 56 (2), pp. 237-251.

In foreign language

Peer-reviewed journal:

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Ákos, Dani – Ágnes, Törös [2011]: China's Sovereign Wealth Funds: A Path to Sustained development? *Public Finance Quarterly*, 56 (2), pp. 241-256.