University of Szeged
Faculty of Economics and Business Administration
Doctoral School in Economics

Tamás Gábor

Monetary policy of China in the light of the global financial imbalances

PhD Dissertation Theses

Tutor:
Dr. Katalin Botos DSc
professor emerita
University of Szeged, Faculty of Economics and Business Administration

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1. INTRODUCTION

My choice of subject was induced by Katalin Botos' intriguing and discussion evoking lecture entitled "East of Eden". The main message of the presentation and the subsequent discussion for me was that the hours of the earlier three-pole – USA, EU and Japan – system of world economy were numbered. I heard of the disequilibrium of the global financial system for the first time in this research workshop and then I became interested in the global capital flow structure called "perverse flow of capital" that contradicts the traditional neoclassical models learnt during gradual education according to which capital must flow from the rich countries to the poor ones. The question has arisen about who and what can be responsible for that capital does not flow from the developed world to the developing regions in need of support ("*Lucas paradox*") when there must be more sources available in the former countries than in the latter? How is it possible that the population of the emerging world is able to save more from "the little they have" than the western developed societies. Furthermore, I have found it also very interesting how the federal budget of the United States which has the largest economy – and debt – of the world could become dependent on a country (China) that was almost completely invisible for industrialized economies until the end of the 20th century.

Although initially I dealt with analyzing the causes of global financial disequilibriums, in the course of time I had to realize that I needed to narrow the area of research. This way I eventually arrived at examining the economic policy of the "Asian lion'. In the dissertation, I tried to analyze the historical phases and latitude of China's monetary policy and its reactions responded to world economic events in a way that I focused on China's role in the global financial disequilibriums all the while.

The last two decades of China's precisely timed and disciplined economic restructuring and convergence have been a real economic miracle. This provides a proper reason for many people – thus for me as well – to conduct a comprehensive analysis on the specific structure, reform attitude and economic transformation of the Chinese economy.

2. ANTECEDENTS OF THE RESEARCH

The most determining phenomenon of the world economy of the past decade and the development fundamentally influencing its future processes has been the sharp revaluation of China's world economic, world political and geopolitical role. Today, there are hardly any countries that are not directly or indirectly affected by China's economic rise in terms of international trade or capital flows.

The trade account sufficit of the Chinese economy that is primarily geared to export and the increasing net capital inflow in the past years have necessitated an extremely intensive reserve accumulation on the central bank's part in order to manage the exchange rate. However, considering that beside the American government bond market there is no other possibility to safely transfer such volume of foreign exchange assets and that the considerable part of this reserve is dollar asset-based, China invests a considerable part of the central bank reserve currently amounting to 3300 billion dollars in American government securities. By this, China has become the largest creditor of the American federal budget and indirectly of the American nation. The government bond accumulation in turn could indirectly contribute to the decrease of global market yields to a lower level than the reasonable in the developing world and mainly in the United States[1]. This unusual phenomenon was called a "special financial conundrum" by the former chairman of the FED, Alan Greenspan, while the current chairman, Bernanke (2005) explains it by the theory of the "global savings glut". At present, China does not have the opportunity to diversify the gigantic foreign exchange assets in the direction of other foreign exchange in a short period of time, since it would result in a forced adjustment process that would lead to the massive sale of dollar assets, the soaring of American interest rates, serious negative wealth effect and, finally, hard landing of the American economy, which would predict a further possible world economic crisis (Xafa, 2007; Philips, 2008). In this "state of equilibrium formed by financial terror", everyone is interested in avoiding the hard landing of world economy (Summers, 2004, Ferguson et al, 2009).

According to the literature, if China suspended the strict control of the yuan exchange rate, it

[1] The low market yield environment in turn indirectly resulted in the development of new financial instruments (CDO, MBS, CDS, etc.) which made it possible to hide the systematic risks residing in the system. Nevertheless, the American sub-prime crisis eventually surfaced the risks like a domino effect, as a consequence of which a financial crisis – had not been experienced since the 1929-33 global crisis – emerged in our world economy.

would reduce the necessity of reserve accumulation and indirectly mitigate the tensions deriving from global financial imbalances. The majority maintains that in both nominal and real terms undervalued yuan exchange rate means unjustified competitive advantage for China, which completely contradicts the principles of the WTO. They consider that in order to reduce the world economic disproportions, it would be necessary to revalue the nominal dollar exchange rate of the yuan by 30-40% (Bergsten, 2010; Cline–Williamson, 2009; Goldstein–Lardy, 2009; Ferguson, 2010).

There are the ones, however, such as the economists of the global monetarists, Ronald McKinnon and Gunther Schnabl (2003, 2008, 2011), who, in contrast with the previous views, do not regard the current dollar exchange rate of the yuan undervalued. They claim that the yuan begins to take over the role as a measure of value from Asia's former key currency, the yen, therefore its stability and predictability are extremely important for the region. They reject the assumed cause-effect relation between the disequilibrium of the trade account and the yuan exchange rate, and they believe that China's current account sufficit can be traced back only to the extremely high Chinese savings and the American overconsumption.

In the light of the current system and priorities of the Chinese monetary policy, it can be assumed that the dollar exchange rate of the yuan will not strengthen against the dollar in the short term, which may question the sustainability of the current monetary practice. The vast majority of the American literature considers that monetary sterilization will become increasingly unsustainable and expensive in the case of the *ceteris paribus* constancy of the situation (Prasad–Wei, 2005; Ouyang–Rajan–Willet, 2010; Glick–Hutchison, 2009). For that reason, the assessment of the efficiency and cost of monetary sterilization is of high importance. Especially because it may also mean that China's monetary policy will not be able to retain its independence and to ensure the stability of the Chinese currency in the long term (Aizenman–Glick, 2009).

Due to the uncertainties and arising questions emerging in connection with the topic, the analysis of China's monetary policy has today become quite relevant with the strengthening of China's world economic and world political role.

3. THE OBJECTIVES OF THE RESEARCH

The world economic convergence of the countries formerly belonging to the group of the third world – especially China – had fundamentally changed the whole world's geopolitical power relations by the turn of the millennium. Simultaneously with the global economic integration of China, the "Asian Tigers", Russia and the Arabian block, a cardinal change occurred not only in the a global trade networks but also in the processes of the capital flow. The asymmetric tendency of the investment and saving rates experienced in the developed and emerging countries resulted in a state of disequilibrium that undeniably played a great role in the breaking out of the 2008-2009 global financial crisis.

Given that the concentration of international balance of payment deficit and sufficit can be observed between two countries, the United States and China, to the greatest extent, the international political and economic tension that developed as the consequence of global financial disequilibriums can be mostly derived from the relation system of these two countries.

Although the detailed analysis of the financial disequilibrium is not included in the paper, by describing the relation system of the United States and China, as well as China's monetary policy I aim to provide a comprehensive picture that can help to better understand the roots and nature of international financial imbalances and points out the real causes of China's monetary impasse. In the course of research, I attempt to take account of the factors related to the Chinese economic transformation that have indirectly or directly contributed to the development of global financial disequilibriums. I explore the reasons behind the extremely unusual Chinese twin surplus of the balance of payment and the central bank's reserve accumulation dynamics. I try to find an answer to what extent the gigantic balance of payment surplus can be traced back to the past and present system of the exchange rate policy. I analyze the historic development of the yuan's nominal, price index based and unit labor cost based real exchange rates, in addition, I try to estimate the degree of undervaluation of the Chinese currency against the dollar. I point out that the Chinese currency showed devaluation during the period of the de facto pegging in real terms – which, as it can be observed, considerably contributed to the rearrangement of competitive advantages of the manufacturing industry in China and the United States – and I aim to identify the underlying reasons.

I also deal with the development of the liberalization process of capital controls, since phasing out the restrictions on capital outflow can apparently decrease the revaluation pressure on currency. In connection with this, I intend to provide a comprehensive picture of the present system of China's capital control by studying the controls and regulations of the foreign exchange administration, the central bank and the supervisors. In addition, I also examine the question of the efficiency of capital controls in details.

Following this, I identify the underlying reasons of China's monetary impasse. The strict management of the exchange rate necessitates an extremely intensive foreign exchange market intervention in the case of an economy with such a great growing potential as China – particularly when the automatism of the foreign exchange outflow is not ensured. For the neutralization of the yuan surplus supply emerging as the byproduct of foreign exchange purchase, the central bank in turn is forced to intervene on the bond market as well – holding down the inflationary expectations generating serious social tensions. All this in turn may presumably attenuate the latitude (independence) of the monetary authority. Moreover, the economic policy that obstructs the strengthening of the yuan exchange rate comes under pressure abroad as well. The main export markets, particularly the United States, criticize China increasingly sharply because of the "anti-competitive" undervaluation of the yuan exchange rate. In addition, this monetary impasse is indirectly responsible for the investment bubble that can be observed in the real economy and for the disproportionate allocation of capital. The managed exchange rate regime does not enable the automatic adjustment of the foreign and domestic prices realized through nominal revaluation, as a consequence of which the convergence of less developed, tertiary sectors increasingly falls behind the desirable level. Thus I assume that China's current economic policy (particularly its exchange rate policy and official factor price controls) blocks the occurrence of the processes known as the Balassa-Samuelson effect, which significantly distorts and makes the even development of the real economy and the convergence of the particular sectors disproportionate.

Given that the relationship of the sterilization processes hindering real adjustment and the international political tension developed against China is quite direct, the examination of the efficiency and cost of monetary sterilization is of high importance. Therefore, I place great emphasis on their analysis in the course of research.

In connection with the above mentioned points I seek the answer to the question whether the duet of the foreign exchange market intervention and the monetary sterilization policy, which is frequently considered as unsustainable in the literature, has indeed generated such processes in China's economy that are not sustainable in the long term.

Taking account of the processes of the Chinese capital liberalization until now and the volume of illegal and hot money flowing in due to the foreign revaluation pressure, in the light of the currency exchange rate managed in an extremely narrow band the question may justifiably arise: how effective is the monetary transmission of the central bank's measures? Therefore, in the course of the detailed analysis on China's monetary policy, I regard it essential to extend the scope of research in this direction. The losses in efficiency of the enforcement of monetary objectives may undermine the current system of economic policy, which can fundamentally jeopardize the dynamic growth of Chinese economy and indirectly the expansion of global economy. To examine this issue, I study the validity of the thesis of monetary trilemma in the case of China. I seek the answer to what extent the economic political constraints deriving from the trilemma take effect in the case of China. As a matter of fact, the main message of the "impossible trinity" lies in the narrowness of economic political latitude. If in the course of defining the objectives the monetary authorities intend to increase one of the variables of the trilemma, for example the depth of financial integration, then it entails the simultaneous – but not of the same proportion – weakening of the other two variables, i.e. monetary independence and fixed exchange rate. Given that China's financial markets have become significantly more open for the world economy in the past ten years, it may be questioned whether China's monetary independence has been damaged in the past years.

In summary, on the one hand, in the dissertation I aim to find answers to what negative consequences the current system of China's monetary policy entails with regard to both the global economy and the entire Chinese economy, furthermore, to what extent it can be held responsible for the development of global financial disequilibriums. On the other hand, I formulate proposals and possible solutions whose implementation I assume could contribute to reducing the tensions accumulated against China in the world economy.

4. THE STRUCTURE OF THE DISSERTATION AND THE APPLIED METHODOLOGY

The paper begins with the general description of global financial imbalances and the presentation of the Chinese-American economic interdependence, which serves as a good starting point for the further examination of China's monetary policy and the detailed description of the research.

China's role in the development of the financial disequilibrium of our age is certainly undeniable. The nature of international tensions can be partly traced back to the extremely dynamic and increasingly intensive foreign exchange inflow, observed in the past decade. In the case of China, contrary to classical economic doctrines, there is a significant surplus in the lines of both the current and the capital account, which is the primary source of the gigantic foreign exchange asset accumulation. After defining the positive and negative sides of the economic symbiosis between the two countries, I provide a brief and concise review of China's economic rise in the first descriptive chapter.

In connection with the statements and conclusions formulated in the course of the dissertation, I have to call the attention to the calculation and estimation risks deriving from the uncertainty of the Chinese statistical data. As it is known, the data series published by the Chinese authorities and the Chinese statistical office are often not complete, can be accessed with large delay and are occasionally compiled not according to the internationally widely applied standardized methodology. This in turn makes the international comparison of the data more difficult and quite often forces the researchers into approximate calculations and estimations. In the light of this, in the course of the dissertation the conclusions originating from operating with the Chinese statistical data must be interpreted with caution.

In the second chapter, the disproportionate economic relation system of China and the USA is described, in terms of both trade relationships and capital flows. The analyses concerned with global disequilibrium mostly examine the disproportions of current account emerging between China and the United States and its main factor, the trade balance. However, I maintain that analyzing the bilateral capital operations of the two countries is at least as important as examining trade relations, especially considering that today China owns more than one fourth of the American public debt hold by foreigners! In the chapter, I draw inferences regarding the economic disproportions and, at the same time, the main sources of the global financial imbalances by examining the simultaneous development of the current and the capital account items of China and the United States.

The third chapter provides a detailed analysis on the main instrument of the Chinese monetary policy, the exchange rate policy. The temporal tendency of the nominal dollar exchange rate of the yuan is divided into five phases, depending on the volatility of the Chinese currency against the dollar. It can be seen that while between 1994 and 2005 the yuan's dollar exchange rate did not change, the currency continuously weakened in real terms. This in turn ensured China's increasing competitive advantage against the American economy. As a result of this gradual rearrangement of competitive advantages – combined with the rising unemployment of the American manufacturing industry – China came in the focus of the American legislation after the turn of the millennium. The elimination of the mentioned competitive disproportions can be realized through simultaneous reform processes carried out by both parties in the long term. The yuan's strengthening can only be a short-term solution. Although China's monetary policy has enabled (again) the managed crawling-peg revaluation of the yuan exchange rate since the summer of 2010 – in a rather narrow, ±0,5% channel –, its extremely slow pace does not ensure the elimination of global financial imbalances. In the light if all this, I prepare an estimation by examining the Chinese and American unit labor costs regarding how the competitiveness of the manufacturing industry of the two rival economies has changed in the past decade. In other words, how large yuan revaluation would stop the disproportions of the two economies' manufacturing industries producing mainly for export. I prepare the estimation with the help of time series analysis, relying on the data of the US Bureau of Labor Statistics (BLS) and on Judith Banister's[2] studies.

Following this, I compare the rise of China's last two decades with the results of the economic convergence of Japan and Germany after the World War II within the framework of an economic historical review. It is necessary in order to find out what effect the – occasional – strengthening of the yuan exchange rate in a short time would have with regard to China's trade surplus, and to what extent it would influence the further expansion of the Chinese economy.

Finally, the last subchapter deals with the control of production factor prices. The omission of the

[2] Judith Banister, American researcher, analyzes the labor cost of China's manufacturing industry, the extent and composition of in-kind contributions and the tendency of the number of employees in her several articles published in the American Labor Review. Her work is pioneering in this field because the Chinese data sets that are necessary for comparing the unit labor costs are not registered by the US Bureau of Labor Statistics considered as the primary source. The reason for this is that China's wage and benefit system has several specificities and the data collection and publication practice of the Chinese statistical offices is significantly different from international standards. All this in turn makes the accurate international comparison of data considerably more difficult.

yuan's real revaluation as I assume can be traced back, on the one hand, to the administrative control of energy and commodity prices and, on the other hand, to monetary sterilization, which is analyzed in the subsequent chapters.

Realizing that the impediment of capital outflow affects international tensions fostered towards China as a significant catalyst, I attempt to provide a detailed description about the system of the Chinese capital controls and the liberalization of the capital regulation in the fourth chapter. By examining the current Chinese capital regulation framework, I point out the selective liberalization attitude that has made China's economic restructuring so successful through reviewing the foreign and national qualified investment programs. In addition, I aim to provide a comprehensive picture of the actual phase of the yuan convertibility and the present system of capital controls by mapping the current controls related to the short-, mid- and long-term items of the capital account.

Given that the rising volume of the foreign exchange inflow means increasing pressure of adjustment for the bank system, in addition to the examination of capital controls, it is similarly necessary to assess the present regulatory environment. If capital investments of arbitrage and speculative nature find the "channels" to flow in and out of the country by circumventing the rules, China's monetary impasse may further worsen. In the light of this, I deal with the efficiency of capital controls. Seeing that China's world economic openness has further grown in the past ten years, it may as well be presumed that the dynamics of the flow of the illegal capital and hot money getting round the restrictions has increased. Starting out from these assumptions, by the time series analysis of each line of the balance of payment I search anomalous capital flows that can be linked to illegal capital investments circumventing the rules with high probability.

Having outlined the motivations of surplus foreign exchange flowing into China, the causes of twin surplus of the balance of payment, the priorities of the exchange rate policy and the current system of capital controls in the previous chapters, it may be assumed that China's world economic integration has further worsen the impasse of monetary policy. In the light of this, I dedicate a larger section in the sixth chapter of the doctoral dissertation to a detailed description about the neutralization of the yuan excess liquidity developing as the byproduct of foreign exchange intervention. In addition to the sterilization tools and the temporal development of the sterilization practice, I deal with the question of the efficiency and the cost side of the sterilization policy. With the help of the data series of the monetary authority balance, in the analysis I start out from the regularity according to which the total of the net domestic and net foreign assets (NDA and NFA) equals the order of magnitude of the monetary base. Applying the method of two-stage least squares (2SLS), I aim to quantify the efficiency of the sterilization by estimating the linear regression analysis of two structural equations on the level of the monetary base and the broader monetary supply.

The equations run in the regression analysis are the following:

$$\Delta NFA=\alpha_0+\alpha_1\Delta NDA+\alpha_2\Delta mm_t+\alpha_3\Delta RR_t+\alpha_4\Delta CPI_t+\alpha_5\Delta NEX_t+\alpha_6\Delta G_t+\alpha_7\Delta REER_t+\alpha_8\Delta R_{\$t}+\alpha_9 y_{ct} +\alpha_{10} vol\_exch_{t-12,t}+\varepsilon_t \tag{1}$$

$$\Delta NDA=\beta_0+\beta_1\Delta NFA+\beta_2\Delta mm_t+\beta_3\Delta RR_t+\beta_4\Delta CPI_t+\beta_5\Delta NEX_t+\beta_6\Delta G_t+\beta_7\Delta REER_t+\beta_8\Delta R_{\$t}+\beta_9 y_{ct}+\beta_{10}\Delta SZSE_t+\eta_t \tag{2}$$

where *mm* is the M2 monetary multiplier, *RR* is the required reserve ratio, *CPI* is the consumer price index, *NEX* is the net export, *G* is the government expenditures, *REER* is the yuan real effective exchange rate, $R_{\$}$ is the three-month American monetary interest rate, and y_c is the cyclical issue. The instrumental variables are the *vol_exch*, the 12-month volatility of the yuan exchange rate, and the $\Delta SZSE$, which shows the change of the composite index of the Shenzhen Stock Exchange.

I examine the effects the above mentioned macro variables have on the net domestic and net foreign assets. The former is the function of the reaction of the monetary policy, while the latter is the function of the change of the central bank's foreign exchange assets. In the selection of the explanatory variables I aimed to incorporate such predictive variables in the model that, on the one hand, affect foreign capital flow, on the other hand, also have a decisive moment in the decisions of the monetary policy. The so-called *sterilization coefficient*, expected in the course of estimation, shows the extent and direction of the change that the unit increase of foreign exchange reserves brings about in the central bank's net domestic assets. In the course of analysis, I rely on the quarterly data of the 1995–2010 period, and I aim to quantify the efficiency of the monetary sterilization of the past fifteen years.

In addition to the efficiency of the neutralization of monetary oversupply, the costs of sterilization is the other area to be examined. For the sustainability of the process the effective neutralization of the currency surplus it is not sufficient in itself. If the sterilization entails increasing costs for the central bank, it makes the long-term protection of the exchange rate unsustainable. Therefore, in the second part of the sixth chapter I study how large explicit burden the dollar intervention-sterilization operations – which are frequently considered unprofitable in the literature – mean for monetary authorities, with the help of a cost-income analysis. In connection with the received results, the uncertainty deriving from estimation and approximation must be taken into account in this case as well. Given that we do not know either the distribution of the required and excess reserves of the central bank deposits of banks, or the composition of the central bank's foreign exchange reserves, simplification and the specification of a lower and upper bound of income and costs are necessary in the course of analysis.

In order to maintain the present economic political status quo, the central bank is "always ready". The regular dollar intervention and sterilization operations keeps the monetary authority under a constant pressure to perform, which may narrow the latitude of the monetary policy and the effect of the mechanism of monetary transmission due to the control of the increasing foreign exchange inflow and the outflow of short-term capital. Since it is known that central banks can deploy several non-market-based (e.g. aggressive reserve ratio policy, windows guidance, credit contingents, deposit and credit interest rate control) tools in order to control monetary supply, the question may arise whether the compulsion of monetary sterilization indeed entails the loss (weakening) of monetary independence. I deal with this issue in the last, seventh chapter in details. In the research, I quantify the value of each variable of the trilemma in the case of China, from which I try to draw conclusions in connection with the economic political constraints deriving from the trilemma. I provide a detailed literature review about the so far known methodological background of the quantification of the indicator measuring monetary independence, exchange rate fixing and the financial openness, and then I introduce the measuring technique I have chosen. While I study the annual standardized difference of the USD/CNY average monthly exchange rates for measuring the exchange rate stability, I examine the correlation of the three-month interest rate of the American money market and the Chinese market (*Chibor*) in annual breakdown in the case of monetary independence. However, the formation of the index of financial openness may be more problematic, since the index showing the rate of foreign exchange flow compared to its GDP does not show increase because of the extremely fast Chinese economic expansion. Therefore, it is expedient to indicate the de facto and de jure regulatory intention of the authorities in this indicator.

On the whole, I undertake to present the direct and indirect effects of foreign capital inflow on

China, as well as the particular sub-processes of the measures it triggers. We get from the motivation of capital inflow through the accumulation of the foreign exchange reserves to monetary sterilization and the question of independence. The aim of the research is, on the one hand, to highlight the monetary processes due to which China's responsibility justifiably arises in connection with global financial disequilibriums, on the other hand, to formulate proposals that I assume may decrease the global financial imbalances of our age.

5. THE SUMMERY OF THE RESULTS

The precise and careful planning process and economic political practice thanks to which China has taken steps from planned economy towards market economy, from the extensive development path towards the intensive is utterly unique and novel in the history of world economy. Nevertheless, the remarkable results and the extremely dynamic state-coordinated economic restructuring entail serious costs and social impacts on the other side. The yuan exchange rate managed for export-oriented economic growth and the monetary sterilization and official price regulation practiced for keeping the society calm form an artificial barrier for the market automatisms that could start the real revaluation processes known as the Balassa-Samuelson effect. Although China is able to retain its world economic competitive advantage by attenuating the processes inducing real adjustment, furthermore, to maintain the annual on average nearly double-digit growth, it is still doubtful whether China will be able to manage the income disproportions emerging in real economy in the long term. As a result, the dynamic investment wave observed in the export sector involves the possibility of the future bursting of an emerging asset price balloon, while the underdevelopment of the sectors based on domestic consumption, particularly the tertiary sector, forms a natural barrier for replacing the current export-oriented engine of the Chinese economy with domestic consumption. However, at this point it is important to emphasize that China's responsibility regarding international tensions is only one side of the coin. The consumption patterns of developed states, the ultra-liberal and deregulated monetary regulation and today's low yield environment have all contributed to the intensification of problems.

In the dissertation, I devoted a major part to examine the central bank, foreign exchange authority and securities supervision controls and regulations, in the course of which I pointed out that China has today implemented the yuan's conditioned convertibility. According to this, the majority of barriers have been eliminated in terms of current account payment and the long- and mid-term capital flows, however, the short-term capital – mainly of speculative and arbitrage nature – continues to be linked to strict compliance rules. Starting the qualified foreign and domestic institutionalized investment programs after the turn of the millennium was a turning point in the liberalization process of international capital flows, since these pioneering programs first created the opportunity to complete portfolio investments for saving purposes between the domestic and foreign private sector. Nonetheless, I also highlight that in addition to the continuous supervision of capital flows, it would be necessary to have a much more transparent and predictable regulatory environment. The risks originating from the investment and institutional uncertainties rather than decreased, they continued to increase during the global financial crisis.

In the light of capital liberalization and the Chinese economy that becomes financially increasingly open, I examined the efficiency of the system of capital controls. The anomalous tendency of particular lines of the current account, such as the lines of current transfers and current income transfers, reinforces the assumption that the illegal capital investors use the less controlled current account channels to circumvent the rules. On the whole, however, the volume of illegal capital inflow can be claimed to be extremely low, since it does not even reach 1% of the annual output of the economy! The efficiency of capital controls is also supported by my examination founded on the analysis of offshore NDF and domestic spot yields, based on which it can be stated that China's monetary authority has successfully attenuated the effect of the market forces for arbitrage and speculative purposes in the past ten years.

The theses of the dissertation are as follows:

Thesis 1:

The long-term dynamic development and restructuring of the Chinese economy devoid of international tensions is ensured by the collective and simultaneous implementation of the yuan's managed crawling revaluation and the gradual liberalization of the production factor prices. The simultaneous completion of these two reforms is necessary because the deflationary effect of the gradually strengthening yuan exchange rate creates favorable conditions to attenuate the inflationary effects of factor price liberalization.

In the summer of 2005, China's economic political decision makers decided on suspending the fixation of the yuan exchange rate *de facto* to dollar, which then had been lasting for 11 years, and on the managed float of the Chinese currency against a non-published currency basket. The background of the decision may have been on the one hand – presumably – the increasing international revaluation pressure, and on the other hand the reform process aimed at economic restructuring. The managed float, which initially allowed the gradual crawling strengthening of the currency in a margin of ±0,3%, then has been allowing it in a margin of ±0,5% since June

2007[3], has been able to mitigate the international diplomatic pressure to a certain extent. In addition, the deflationary effect of the gradually strengthening yuan exchange rate can become on of the most efficient market-based instrument of the fight against inflation.

A further essential condition of the convergence and modernization of the Chinese economy is phasing out and liberalizing the official regulation of the currently widely and strictly regulated commodity and production factor prices. Given that the attenuation of the price level increasing effect of the price reform by non-market-based tools used in monetary sterilization would result in further real market distortions, the liberalization of prices can be neutralized on a market basis, i.e. with deflationary forces generated through the appreciation of the yuan exchange rate. Since the exchange rate and price reform in certain cases replace, in other cases complement each other, their collective, simultaneous implementation ensures the restructuring that entails the less economic tension for China.

Thesis 2:

The primary source of China's international competitiveness resides in the extremely dynamic productivity growth of the manufacturing industry. In the light of the relative unit labor cost changes, the Chinese currency, despite the nominal revaluation, has become weaker by approximately 30% compared to the dollar in the past one and a half decade, which has further increased the disproportions of competitive advantage between the Chinese and the American economy.

Considering that the competitive analyses founded on the examination of consumer price index-based real exchange rates do not study specifically the connections between export sectors, in the analysis I used an indicator that simultaneously takes account of the changes occurring in the labor costs and the output. Comparing the temporal changes of the unit labor costs (*ULC*) served as a good starting basis for quantifying the assumed rearrangement of competitive advantages of China and America. According to the analysis, between 1995 and 2010 the Chinese currency became weaker by approximately 30% against the dollar in terms of unit labor cost changes, despite the 22% nominal strengthening of currency in this period. The weakening occurred despite the fact that both the number of employees in the manufacturing industry and the hourly rates displayed a dynamic increase during the studied period in China. In the knowledge of all

[3] I remark that the managed float was suspended between 2008 and the summer of 2010 in order to isolate the harmful effects of the financial crisis.

this, it can be claimed with high certainty that the productivity growth of the Chinese manufacturing industry that applies an increasingly advanced technology lies in the background of the rearrangement of competitive advantages of the two countries.

Thesis 3:

I claim that the efficiency of China's monetary sterilization has not decreased in time. China's monetary authority has neutralized nearly the 94% of the liquidity increasing effect of foreign capital inflow in the case of the monetary base in the past 15 years.

The delusion according to which the efficiency of the Chinese sterilization erodes in time is based on the assumption that the neutralization of the increasing foreign exchange inflow by the central bank poses an increasingly great challenge to monetary authorities in terms of the growth of market distorting effects and increasing costs. I tested it with a regression technique applied on the particular data sets of the monetary balance sheet and of the macro variables assumed to be external exogenous.

The method of two-stage least squares – in addition to eliminating the problem of endogeneity – enabled to estimate the coefficients of the variables involved in the model. I examined what kind of effects the changes of the involved independent variables had on the changes of the net domestic and net foreign assets in the case of the simultaneous modeling. According to the so-called sterilization coefficient, received in the estimation – which showed the extent and direction of the change that the unit increase of the foreign exchange reserve caused in the central bank's net domestic assets – the central bank has neutralized nearly 94% of the yuan oversupply increasing effect of dollar intervention on the level of the monetary base in the past 15 years. The reliability of the estimation was reinforced by that the explanatory force received during the running of the regression model reached an extremely high level of 96%!

I also analyzed the efficiency of sterilization in the case of the M2 monetary supply. The received low explanatory force (R^2=0.42) and the lower number of the significant variables can be presumably traced back to the fact that the relationship between the M2 and the monetary base is not stable! This may be partly explained by that the Chinese central bank does not connect its intermediate objectives to the development of monetary aggregates. According to the model, the sterilization was successful only in 42% in the case of the broader monetary supply (M2), i.e. only less than the half of the liquidity increasing effect of foreign capital inflow was managed to be neutralized.

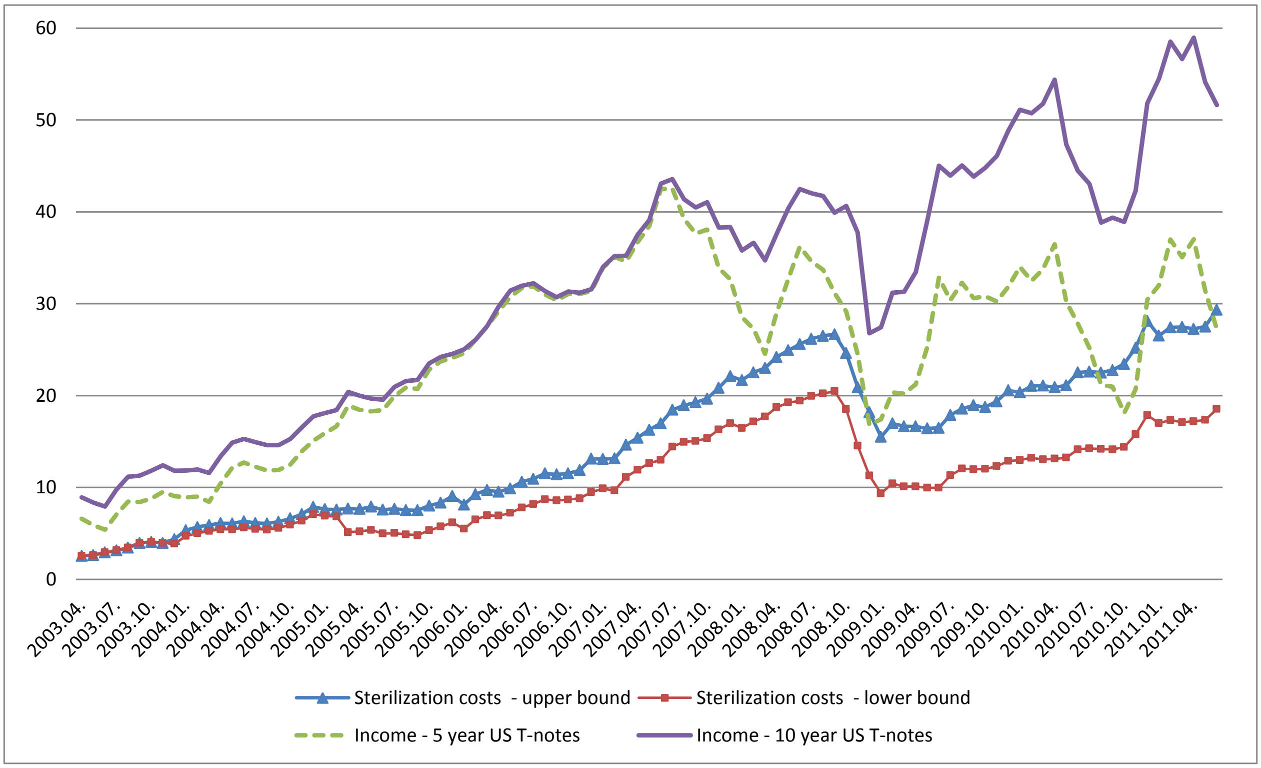
Thesis 4:

The costs of monetary sterilization, more exactly the reserve rate policy and the open market operations, have not exceeded the yield earned on the foreign exchange assets in the past decade, in the light of which the sterilization does not mean explicit costs for the central bank.

Considering that the composition and the maturity structure of the central bank's foreign exchange assets are not known, it is impossible to prepare an exact estimation about the extent of the yield earned on reserve assets, therefore only extremely few studies deal with the quantification of the explicit costs of monetary sterilization. In the course of research, I aimed to prepare estimation about the capital income of the central bank's foreign exchange investments with approximate calculation, which enabled to illustrate the explicit costs of monetary sterilization (Figure 1). I determined a lower and an upper threshold value for the estimated capital income of foreign exchange assets, in the cases of which I assumed that the entire reserves was put in dollar-based and five- or ten-year American government bonds. I introduced an upper and a lower bound for the sterilization costs as well. It was necessary because the central bank does not publicize the exact volume and proportion of excess and required reserves. Taking this into account, I assumed that the entire central bank deposits are one time excess reserves (lower bound), and the next time required reserves as a whole (upper bound). I found that the lower bound of the capital income of foreign exchange investments, with one exception – in the last quarter of 2010 – exceeded the upper limit of sterilization costs during the entire period, as it can be seen in Figure 1. However, it can already be observed from the prognosis prepared until the end of 2014 that the profitability of the foreign exchange accumulation may further moderate in the future as a consequence of globally low yield environment, which manifests itself in that the incomes estimated for the five-year yields will not cover the upper limit of the estimated costs of sterilization in its entirety (the upper yield level, however, will provide sufficient cover as time passes!). The increase of the Chinese consumer price index in 2010-2011 adds further shades to the picture, in the light of which the further rise of the required reserves ratio cannot be ruled out either. Apart from the indirect costs, I claim that the delusions according to which monetary sterilization has produced unsustainable processes in the Chinese economy do not hold. They certainly do hold in terms of the cost-benefit principle in the strict sense at least, since the capital income of the increasing foreign exchange assets provided abundantly sufficient cover for financing the explicit costs of monetary sterilization. Assuming the exchange rate at the end of

2010 and the yield of the American government securities market of that time to be constant in the future, the 41% decrease of foreign exchange reserves would be needed for the lower bound of incomes to touch the lower bracket of sterilization costs. However, such a scenario can be hardly imagined in the near future beside the current priorities of the exchange rate and trade policy.

1. Figure: The tendency of sterilization costs and yield earned on foreign exchange reserves, 2003-2011, billion yuan



Source: own construction based on the data series of CEIC, US. Treasury, Bloomberg LP

Considering the discussion in Thesis 3 and 4, as well as the results received in the quantification of the variables of the monetary trilemma, it can be stated that the duet of the foreign exchange accumulation and the monetary sterilization economic policy which has partly generated the global financial disequilibriums is not an unsustainable process for the central bank. The economic political system maintained for the protection of the exchange rate – which is not market-based from several aspects – has neutralized both the foreign exchange flows as a result of the continuous twin surplus of the balance of payment and the oversupply of the yuan efficiently and without particularly exhausting explicit costs.

An essential condition of the further restructuring, world economic integration and developing the occasional future – whether regional or global – key currency position of the Chinese economy is the timed implementation of the exchange rate and price reform. Its precise timing and planning, however, entails large risks in an economy where the growth of the past years has been mainly founded on the large-scale building and investment expansion motivated by high real estate prices, and which therefore bears all the classical marks of bubble economy. Nevertheless, this monetary impasse cannot be soon moderated by the processes experienced in the world economy. Considering the liquidity trap holding the developed economies in check and the monetary expansion entailing regular American and European quantitative easing, the motivation of the hot money with the purpose of searching for higher yield and speculation cannot be expected to decrease in the short term. Taking this into account, China has no other choice but the regular foreign exchange market intervention and the sterilization of the surplus liquidity.

There are hardly any possibilities to solve the problems originating from the global financial disequilibrium in bilateral way due to the rather tense diplomatic relationship between the two countries (the USA and China). The resolution of the tension in my opinion can only be imagined in a multilateral way, in which the involvement of international organizations (IMF, WTO) will be essential. The decrease of market disproportions can be realized by structural reforms simultaneously implemented by both parties.

ChinAmerica's economic symbiosis has been fundamentally questioned as a consequence of the 2008-2009 global financial crisis. The mutual trade and financial relation system providing a stable growth path for the economic rivals and undoubtedly intensifying the international imbalances has resulted in the development of structural distortions of such extent that has made the global system of savings and investments extremely unbalanced. The crisis, which highlighted the roots of the system-level problems, has brought a paradigm shift in economic thinking according to many people. For this reason, the reforms targeted merely at mitigating the problems deriving from economic cyclicality are no longer sufficient. Comprehensive and radical structural changes are needed on the part of the developed and emerging world – and particularly the USA and China – which fundamentally reconsider the neoliberal views developed in connection with capital flows in the last two decades of the 20th century and the first decade of the 21st century.

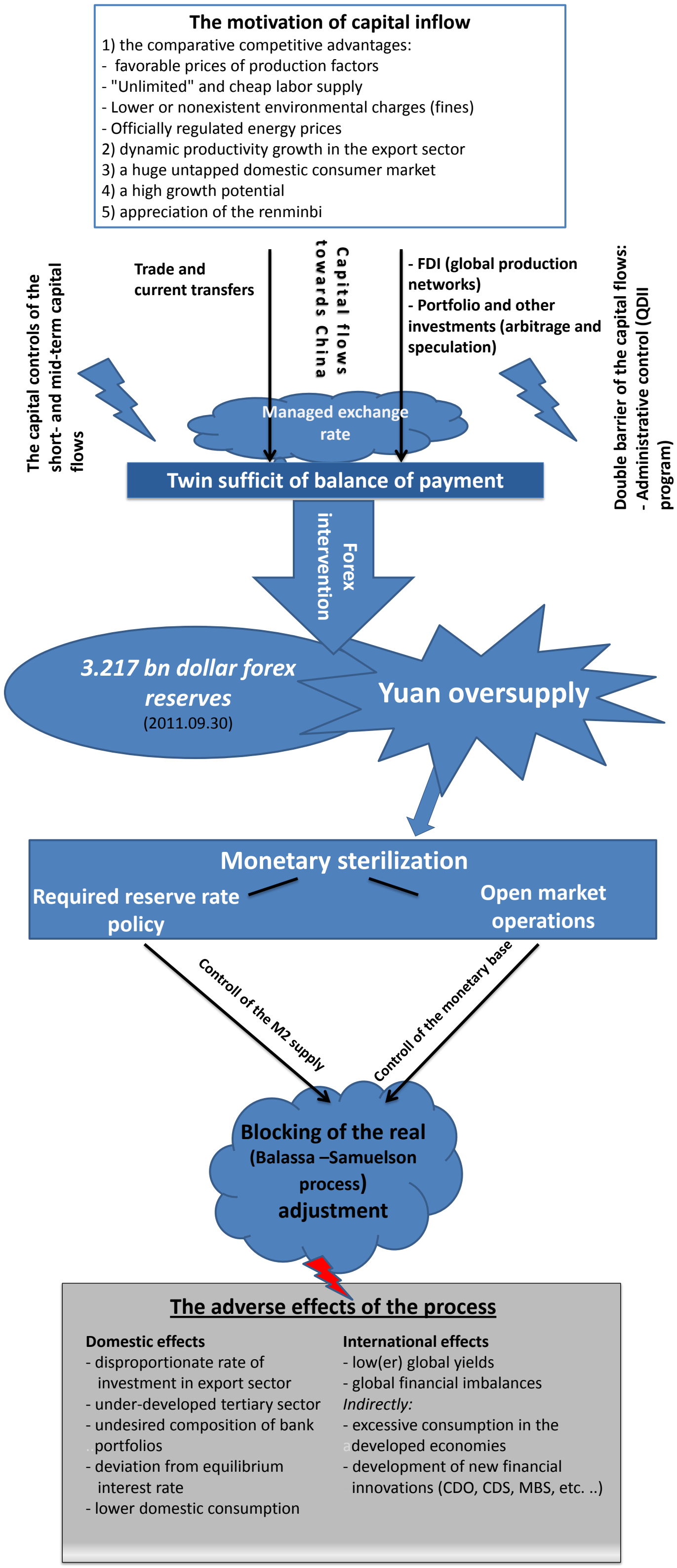
The claim pressed by the developed economies according to which the revaluation of the yuan exchange rate is an essential, necessary step for redressing global tensions but not sufficient for mitigating the financial disequilibrium of the world economy – it would only attenuate the short-term problems of the United States and partly the European economies.

Beijing seems to covertly aim at living up to the expectations of the “West” and partly to its plan regarding its own economic restructuring, as it has again restarted the managed crawling exchange rate regime since the summer of 2010. Moreover, the growth of the Chinese-American inflationary gap experienced in the last two years, and thereby the Chinese currency revaluating on real value in an even more intensive pace presumably further reduce the tensions between the two countries. Despite all this, the American policy still does not remove the “yuan case” from the agenda – at present they express their concerns regarding the pace of strengthening considered as excessively slow. I maintain, however, that the current pace of revaluation is an optimal choice for China. The moderately strengthening yuan exchange rate gradually transforms China internal resource allocation (in the direction of consumption), and decreases the chance of developing an occasional American penal duty system introduced against China. The more flexible, although not floating, exchange rate system enables both the bank system and the private sector to get familiar with the threats and opportunities residing in the exchange rate risk. The wider knowledge and application of the instruments covering the risks in turn can create the basis for the possibility of the future widening of the exchange rate band. For this reason, I expect a further widening of the current intervention band of only daily ±0,5% by further 0,5–1%- in the near future.

The potential (and necessary) steps of China’s further economic convergence which were formulated in the dissertation – namely the implementation of the price reform of factor price and the further widening of the exchange rate band, the careful and timed continuation of capital liberalization, the extension of the social net, the suppression of government-backed credits and finally the further development and support of financial culture and institution system – can all separately and collectively result in starting such positive and balance improving processes in China’s economy that can reduce the disproportions of today’s world economy through the strengthening of internal demand orientation.

The effect of the foreign capital inflow which is market distorting, increases the central bank reserves and intensifies global financial imbalance, i.e. the impasse of monetary policy is illustrated by Figure 2.

2. Figure: The unwanted effects of the Chinese capital inflow in the light of the current economic policy: the monetary impasse



Source: own construction

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