



Management of short-term capital flows in China

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Abstract

Our essay focuses on short-term capital inflows and their effects on China's economy. The reason for this work was the increasing vulnerability of China's economy and the risk of new upcoming world financial crisis, all because of uncontrollable amounts of speculative capital flows. Because of this problem, we raised a main question that we try to answer in this essay-how to reduce the possibility and the severity of the future financial crisis in China? In order to solve this problem, first we searched for the existing theory of capital flows, mainly short-term capital inflows. We analysed why investors choose capital flows and some specific countries, why it is profitable, but also risky and what could be done by countries, to stop these inflows or at least to diminish their effect on domestic markets. After that, we looked for past experiences of countries faced with surges of capital flows and their measures for controlling them, we analysed, if the theoretical tools were actually effective in reality. To finish the model, we applied these measures to China's economy and gave our viewpoint on what could be changed in order to avoid the dangers of short-term capital inflows. Last, we sum up the whole essay and suggest the best mix of measures that China could use to control capital inflows as well as their effects on the economy.

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1. INTRODUCTION

In 2008 financial crisis swiped through the whole world crumbling even the strongest economies. Now Europe is experiencing tough times, while the future of the Euro is still unclear. However, it is important to look to the future and foresee what is still lying ahead. One of the major concerns is China's struggles to cope with incoming capital surge from foreign investors. The ever growing economy is now the biggest exporter in the world, it is second in the world by gross domestic product (GDP). If China would experience a crisis it would bring an economic downturn to the whole world and the global financial crisis might be even bigger than one in 2008.

Our research question is- how to reduce the possibility and severity of future crisis due to short-term capital flows in China? We answer this question by suggesting number of measures that could control capital flows or at least cope with the effects of capital inflows in China's economy.

To find the most suitable mix of tools that should help China to cope with incoming capital flows, we analyse experiences from other countries (Latin America and East Asia in 1990s) or past China. We search the theoretical measures that should help the country to control capital inflows or at least to decrease the effects created by them and then we look through the world history and find, which countries actually used these measures. After analysing how these tools in practice worked to control capital flows, we compare the same situations to China's economy and try to find the best mix of measures that would help to decrease the possibility and severity of financial crisis.

In the first section we review the existing literature about capital flows in general and thoroughly analyse why capital flows are attracted to one specific country, why short-term capital inflows are less preferable than long-term capital inflows and most importantly what in theory could be done to discourage them or at least diminish their effects on domestic economy. Second section frames our theoretical basis of the thesis, which will be seen in the whole work. In the third section we search where the theoretical measures were used in practice and analyse what effects they had on these economies. Fourth section contains the situation in China. We propose how the government or the People's Bank of China should

change their actions in order for the measures to have positive effect on domestic economy. At the end of the thesis we conclude the work and propose the best mix of measures that should help to reduce the possibility and severity of the financial crisis in China.

2. LITERATURE REVIEW

2.1 Capital flows and their movement

Capital flows are movements of capital from one country to another. Developing countries such as China, Latin American countries, and etc. usually receive the biggest amount of capital flows as investments from developed countries such as USA and EU. Developing countries are very attractive to investors because they hold high-yielding investments and their interest rate is usually high. Capital flows can occur in a couple of different ways: they can enter country as foreign direct investment (further in the text- FDI), deposits into domestic banks or just as a transaction of securities. Since the world economy has become more and more globalized, foreign investments have become a very attractive opportunity to diversify investor's portfolio. It seems to not only satisfy the investor, but also the developing countries have been fighting for capital inflows since it increases the country's gross domestic product (GDP), reduces unemployment and therefore improves country's welfare in general.

Seeing that international capital flows have become very important, we first need to consider why one or another country attracts capital inflows and another is faced with capital outflows. Montiel and Reinhart (1997) argued that capital flows are determined by distortions in country's financial system. More specifically- these distortions are created by under intermediation and over intermediation. Under intermediation is a situation, when it is not profitable to invest in a domestic market. It occurs every time, when a policy change or other event makes financial sector to contract. For example, taxes on deposits, overvalued currency, monopoly in banking sector, etc. In other words, financial sector contracts, when it is not profitable to lend in that country and the result is capital outflows. Over intermediation happens, when it is extremely profitable to invest in a country, what results in a boom in financial sector. Usually over intermediation occurs when economy is growing, banks are offering great returns in order to attract more lenders and they use this money for high-yield risky investments. Over intermediation usually results in capital inflows to a country.

This essay is mainly concerned about capital inflows and it is necessary to point out the main factors, which lead to over intermediation in one specific country. Montiel and Reinhart

(1997) specified three groups of such factors: “pull” and “push” factors, and financial integration. “Pull” factors are all changes, that either increase lender’s returns, decreases his risk in investing or both. Country’s financial attractiveness can improve when the social welfare is increased, otherwise some market distortions can give possibility of bigger returns on investment. In any of these situations, the factors that “pull in” the investments are created. The opposite -“Push” factors- are all changes and events that make other countries in the world look less attractive to invest in. For example, in March 2001 Japan’s interest rate was set around 1% making Japan unattractive for lenders, since returns would be very low and therefore making other countries look more eye-catching for investors. The third factor increasing over intermediation is the level of financial integration. It can be increased by removing capital flow barriers, such as taxes or controls on short-term capital inflows. As a consequence it would be easier and less costly for investors to lend to a capital-account liberalized country.

In this paper we mainly concentrate on importance of short-term capital flows to an economy. Short-term capital flows are investments which maturity is not longer than one year. Countries with surges of capital inflows usually aim for long-term investors as this way of funding is more reliable. Countries usually do not want large amounts of short-term investments because short-term capital inflows are more reversible. They raise uncertainty and risk because if economy is faced with an economic downturn or financial market panic, short-term investors can take their capital out very quickly. If large amounts of capital are withdrawn in a short period of time, the situation in a country can result in the collapse of the financial sector. However, because of the high profits, easy reversibility of capital and frictionless financial markets, short-term capital investments are one of the best instruments for speculation.

One of the oldest and most popular way of using short-term capital flows for speculation is carry trade (Burnside, Eichenbaum and Rebelo, 2011). It is one of the most profitable and also riskiest ways of investment used by speculators. Galati, Heath and McGuire (2007) explain carry trade as borrowing funds at a low interest rate in one currency (called funding currency) and buying a higher-yielding asset in other currency (called target currency). The speculator’s profit is the difference in interest rates between countries. However, this difference can be

overwhelmed by currencies' exchange rate fluctuations and if target currency depreciates or funding currency appreciates speculator would not only lose profits but could also endure big losses. According to a theory called uncovered interest rate parity (UIP) - target currency always has to depreciate in order to offset the profits by different interest rates making carry trade unprofitable. However, Brunnermeier, Nagel and Pedersen (2008) proved that in practice UIP does not work and actually target currency tends to appreciate a little on average. This violation of UIP theory is a key imperfection of financial markets, why short-term capital investments are practiced by speculators.

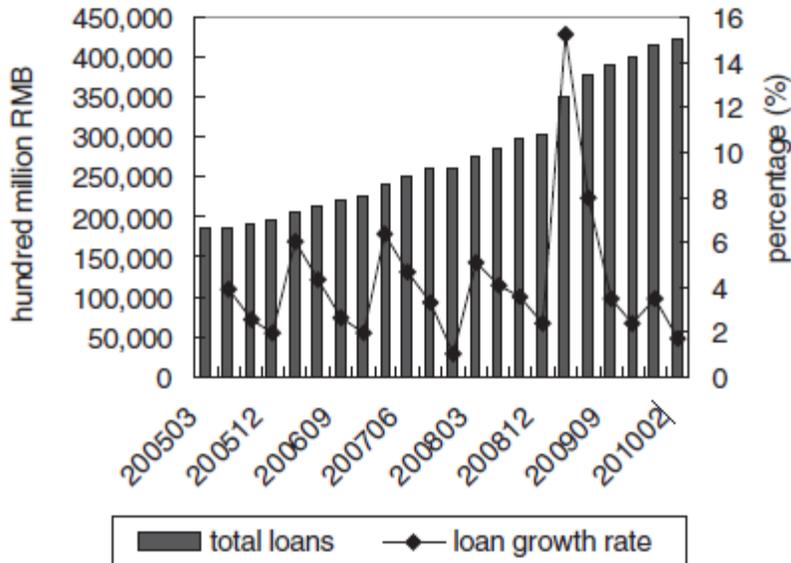
2.2 Relationship between short-term capital inflows and economic vulnerability

There are many factors that attract short-term capital flows, though it is important to see how they affect economy. According to Petroulas, "if savings are low and investment misallocation is not marginal than the additional short-term capital flows play an important role in economy's future" (2004, pp.17). However, in China savings rate exclusively high reaching more than 50% (Ma and Yi, 2010). There is also some evidence of investment misallocation. In China, ghost cities for millions of people have been built though as their prices went through the roof they mainly become interesting for speculators, and people who needed the apartment for personal use could not afford them anymore (journeymanpictures, 2011). This proves that market forces are distorted and investments keep flowing where the supply already outgrew the consumers' demand significantly. We can say that none of the conditions from the Petroulas's statement above are true. He argues that in such economic situation the main effect of additional short-term capital flows is to increase the vulnerability of the economy that faces these large inflows (Petroulas, 2004).

According to another research (Gavin and Hausman, 1995), financial crises are typically preceded by lending booms. When banks are faced to the increased supply of deposits, they have more funds and can increase the supply of loans as well. However, supply might become larger than demand and it may result in decreased quality and increased risk of loans. In 2009 the lending by Chinese banks exploded and every next year the number of loans kept increasing constantly (see figure 1). In addition to bank lending, a significant part of domestic lending in China

is administrated by private lenders which are not regulated by the government (Li, 2011). As borrowing from banks became more difficult and time-consuming, private credit businesses are booming as the demand, especially from small and medium business sector, is vast.

Figure 1. Total amount and growth of loans issued by Chinese banks.



Source: CCER database cited in Liu and Wray, 2010, pp.47

The excessive lending creates price booms and in China's case country faces a huge real estate market "bubble". Increasing supply of real estate and speculators have driven the prices to the edge of overheating where actual consumers could not afford them anymore and it became just "a game" between the speculators. At the end of 2011 real estate prices stopped growing and even declined slightly as China's government impied stricter regulations fearing for even bigger expansion of the "bubble" (Bradsher, 2011). At this point we could compare this situation with the world pre-financial crisis of 2008 period when the real estate price "bubble" emerged. When thye prices started to decline, western financial sector collapsed dragging the global economic welfare with it (Grigor'ev and Shalikov, 2009). Price decline in chinese real estate market could also mark the beginning of economic downturn. Because China's government owns and has strong control over the biggest country's banks (Hu, 2003), they can manage holding the prices of real estate from drastic diminishing. Anyways, "one of the world's few remaining real estate bubbles finally seems to be losing air" (Bradsher, 2011). As we

mentioned before, China has reserves exceeding 50% of GDP (Ma and Yi, 2010) which they could use to buffer the losses if crisis occurs. However, this might be just postponing of the more significant recession. It seems that China's situation might also prove Gavin and Hausman's (1995) statement that there is a strong relationship between an excessive lending and crises.

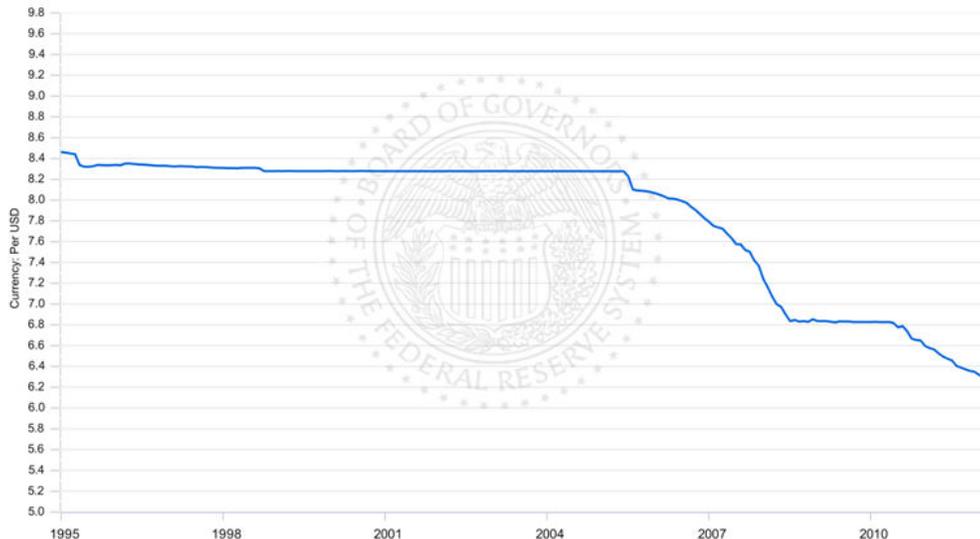
Directly, or indirectly, as we can see from the theories above, excessive short-term capital inflows increase the economic vulnerability to crises. China is faces with the excess liquidity and theoretically it decreases country's financial stability.

2.3 China's governmental policies that affect short-term capital flows

To understand the current economic situation in China, we need to analyse country's monetary and fiscal policies. We focus on the governmental policies that have the biggest effect on attracting the large inflows if short-term capital.

In 1994 Yuan depreciated to 8.7 RMB/USD and officially PBC stated that they would have floating exchange rate regime. In reality the PBoC managed the exchange rate and pegged it to US dollar which can obviously be seen in the statistical data (see Figure2).

Figure 2. Exchange rate RMB/USD from 1995 to 2012.



Source: Federal Reserve Board 2012

Witnessing rapid growth of the Chinese economy developed countries blamed China for "currency manipulation" by undervaluing the Yuan and insisted on letting it appreciate

according to the real market situation (Soofi, 2009). In 2005 China switched to a more flexible exchange rate and the value of renminbi jumped up- during 2008 it had grown by almost 18% (see Figure2). From 2008 to 2010 PBoC tried again to slow down the appreciation of renminbi as the exchange rate had fallen to, by that time record low, around 6.8 RMB/USD (see Figure 2). However, the pressure was too high and PBoC gave the exchange rate a bit more flexibility in 2010.

The main reason for the appreciation of the Renminbi is large capital inflows from foreign investors to China. The bulk amount of such investments increases the demand of its currency Yuan drastically and gives pressure for the exchange rate to appreciate (Flatt, 2011). Even though the exchange rate is now given more flexibility, PBC still carefully manages it in order to keep the prices of export as low as possible and therefore to keep high global competitiveness (McKinnon, 2009). Also, the fixed exchange rate regime is used as an effective monetary tool for stabilizing China's internal price level (ibid). The main measure for resisting the appreciation of Renminbi is usually buying US dollars and sterilizing them by purchasing US treasury bills and therefore increasing its reserves held in foreign currencies (Flatt, 2011). Efforts to manage the exchange rate give even stronger pressure on it to go down. A research by Fu and Lin (2012) reveals that unemployment rate and real exchange rate are negatively correlated. China's communist government must keep the unemployment level to minimum which makes it another influential factor for the exchange rate of renminbi to go down and increase its value. The result of strong pressure on appreciating value and moderate governmental intervention to slow it down is, according to McKinnon, a "one-way bet that the renminbi always rises" (2009, pp. 81).

Makin (1974), as cited by Goldstein, Mathieson and Lane (1991), "was concerned with the distortions created by a system of fixed exchange rates". However Goldstein, Mathieson and Lane (1991) argue that potential currency misalignments can also be a reason for a long-term distortion to the capital flows under a flexible exchange rate system. As a result of speculative "bubbles" and exchange rate value being driven even further from its theoretical equilibrium authors see that the outcome has to be increased exchange rate risk and rapidly changing asset prices (ibid). Because of guaranteed (at least for now) increase in the value of

renminbi, there are strong intentions for the speculative “bubbles” to gain more air, if not in one sector than in other.

The goal of China’s exchange rate regime is to keep the domestic companies competitive in the global market and it serves its purpose. However, the Renminbi is obviously undervalued and this brings distortions to the markets as well as reduces the financial stability of the country.

As China’s government’s one of the main objectives is to promote economic growth (People’s Bank of China, 2012), country’s fiscal policies are generally welcoming the bulk amounts of FDI. During past several years China liberalized the FDI policies allowing more and more foreign capital companies to be established in the country (Chen, 2011). This attracted a lot of capital and, as there are some tax concessions for FDI, a lot of fictional investments came along with it (Flatt, 2011). Due to the favourable status of FDI, companies took their profits out of China and reinvested them as new FDI to gain the benefits. This process is described as capital “round tripping” (Chen, 2011). Even though now foreign companies are treated more like domestic ones, there is still a lot of unregulated short-term capital flowing through them. Because of the bulk amount of international trade and investment, Chinese government is unable to track intentional misinvoicing or how the funds that come to foreign capital companies is used.

China’s governmental policies are growth-oriented which guarantees the growth of GDP (i. e. Gross Domestic Product). However keeping the currency undervalued and attracting foreign capital leads to market distortion which is then used by speculators for short-term investment and quick profits. Thus attracting short-term capital flows and thinking only about growth increases the financial instability of the country.

2.4 Policy response to capital inflows

Even though China is growth-oriented, the government sees the potential damage that is caused by excessive short-term capital inflows. Therefore the government is already taking some measures to prevent the economy from downturn. As stated by Khan and Reinhart (1995), “policy response to capital inflows is necessary because of the fear of inflationary pressures, real exchange rate appreciation, and loss of competitiveness and deterioration of current account.

Capital inflows could also destabilize financial markets". There are several measures, which can be used to control the capital inflows or at least to decrease the severity of the consequences. As stated by Khan and Reinhart (1995) country can regulate capital inflows by either monetary or fiscal policy. Therefore, in the next sections we will present the main monetary and fiscal tools for capital controls.

2.4.1 Exchange rate regime

Central bank can decide whether to keep exchange rate floating or keep it fixed, there are positive and negative aspects on either of these decisions of the monetary policy. Keeping the exchange rate floating may result in reducing the inflation, since increased demand in national currency would put pressure on nominal exchange rate, but not prices (Khan and Reinhart, 1995). Another aim of floating exchange rate is to bring the uncertainty to foreign speculators, since floating exchange rate can also result in depreciating target currency, which would mean losses for short-term investors. However, according to theory stated by Reinhart and Dunnaway (1996), because of increased demand of currency, which occurs when country is faced with capital inflows, exchange rate tends to appreciate, so this would make the country even more attractive to speculators. Also letting the nominal exchange rate to float freely would result in contracted trading sector, since the appreciating currency would not only make export goods more expensive, but it would also bring uncertainty to foreign markets in general.

Having fixed exchange rate regime, central bank has to change money supply constantly to keep the exchange rate stable. If a country is facing a surge of capital inflows, their currency would appreciate because of increased demand of that currency. However, if there is a fixed exchange rate, central bank has to decrease money supply to offset the effect of capital inflows and that way make the exchange rate stable. If there is a bulk amount of capital inflows, it can be hard for a central bank to control the supply. Then increased money supply results in increased inflation and bigger prices of export goods. In one way, fixed exchange rate is beneficial, because it is less risky for foreign markets, since there is no fluctuation in exchange rate, plus import sector would especially benefit, because it would thrive when economy is faced with domestic inflation (Kenen, n.d.). On the other hand because of increased inflation and prices of products, the exporting sector would still endure a big loss. There are also two

sides when dealing with capital inflows. When a speculator is dealing with a fixed exchange rate, he feels safer, because there is no way a currency could depreciate, but it is also less profitable, since there is no profit gained from appreciating the target currency.

Neither floating nor fixed exchange rates are completely perfect, so a country can also choose to manage the exchange rate, which means that technically the exchange rate can float, but the central bank makes sure that fluctuations would not be sharp and severe to the economy. A country can manage the exchange rate by pegging its currency to another currency or a basket of currencies, it can also create a ceiling and floor for exchange rate fluctuations. One more measure suggested by Martin and Morrison (2008) is currency depreciation. By depreciating its currency, a country could scare off speculators. However, it is only a one-time short-term measure which is also controversial in domestic and foreign markets.

2.4.2 Sterilized intervention

One more measure that central banks could choose to use is sterilized intervention. Sterilized intervention or sterilization is when a central bank uses open market operations to exchange domestic securities for foreign exchanges (currency, securities, and assets) (Investopedia, 2012a). This measure is not used to stop the surge of short-term capital inflows, but rather to control the consequences of them. By sterilization, the central bank tries to isolate the economy from any macroeconomic effects created by increasing the amount of capital inflows. Khan and Reinhart (1995) argue that encouraging the growth of the monetary aggregates may be undesirable because then the availability of credit increases and the quality of loans decreases, putting the banking system at risk. Also, a rapid growth could “overheat” the economy as well as increase inflation. In theory, by using sterilization, central banks can avoid these consequences of capital inflows. However, sterilization decreases the money supply and according to the Mundell-Fleming model, decreased money supply results in increased domestic interest rates, so in the long-run sterilized intervention actually attracts more short-term capital inflows as it becomes more profitable to speculate. Additionally, as Calvo, Leiderman, and Reinhart (1996) stated, sterilization involves increasing the number of domestic bonds, which then should be bought by domestic banks to offset the currency inflow and this results in increased public debt. If public debt grows as large as to create uncertainty for investors about the country’s policies, it could

actually stop the capital inflows, but it may also start a quick surge of capital outflows, which may increase economic vulnerability to financial crisis. Lavigne (2008) also identifies negative consequences of overusing sterilized intervention. He argues that sterilized intervention may lead to financial markets' distortions, to be more specific – under intermediation. Since usually central banks force or stimulate other banks to buy its securities, it makes banking sector less profitable, also it interferes with free market resource allocating. Though sterilized intervention does help to reduce the inflation caused by capital inflows, it creates a lot of other problems, also every time the amount sterilized has to be bigger and bigger.

2.4.3 Banking regulation and supervision

Banking sector is of greatest importance when it comes to capital inflows, because if domestic interest rates are high, a lot of short-term foreign capital is being deposited into banks for quick profit. That is why central bank is using bank regulations and supervision to decrease the vulnerability and risk of banking sector. When commercial banks are faced with highly increased amount of deposits, but economic environment in a country is perceived to be developed, risk will be evaluated as low, leading to an over-expansion of credit issuance. Rapid growth of credit leads to credit and asset price bubbles which eventually makes the banking system vulnerable and risky (Roengpitya, 2010). This problem especially occurs with big banks which have a lot of customers as well as loans and deposits. These banks are being called “too big to fail”, because if they would go bankrupt, the whole banking sector as well as financial system in a country might collapse. Therefore, managers of such banks intentionally take up more risk when investing or lending money, because in case of failure central bank would be expected to save their bank from going bankrupt. This situation is called moral hazard (Khan and Reinhart, 1995). By regulating banking system central bank can decrease credit supply and therefore increase loans and investments quality. As a result, banking system would not be at higher risk and inflationary pressure would decrease. This is the only measure that does not have any drawbacks on the financial markets, but on the other hand it is the hardest measure to implement. It is nearly impossible to create a regulatory system that would flawlessly cover all aspects of banking and include all financial institutions. Also, especially in huge countries it is harder to follow if all the requirements are followed correctly.

It is important to emphasize the importance one measure from bank regulation- it is reserve requirements for domestic banks. This is because this tool is thought to be effective for controlling the effects of excessive capital flows (Reinhart and Dunnaway, 1996). Raising the reserve requirements for banks would decrease the credit supply and that would decrease the risk of having a lending boom and an asset price bubble. Reinhart and Dunnaway (1996) noted that reserve requirements are a tax on banking system, but banks tend to pass this tax on their clients. If the tax is passed on to depositors it could actually decrease capital inflows, because decreased interest rate on deposits would make it less profitable for speculators to invest in such deposits. However, if it is passed on to borrowers it would actually increase capital inflows, since firms would then rather borrow from foreign investors, than borrow from domestic banks. Another problem is that this is a onetime measure, so it could only help for a short time period. In the long-term new institutions would be established bypassing the regulations (Khan and Reinhart, 1995). Such institutions would grow until they become “too big to fail” and country would be faced with the similar problems as global economy had during the financial crisis of 2008. To sum up, raising reserve requirements just hold of the negative capital inflows’ effects for a short period of time, but eventually the effectiveness of this measure diminishes.

2.4.4 Fiscal tightening

One more measure practiced by governments is fiscal tightening. Keynesian theory states, that government has to step in and increase government spending when economy is in a downturn, but it has to contract its expenditure when economy is booming. Decreasing government spending should result in lower aggregate demand (Khan and Reinhart, 1995). This happens, because cut expenditure to institutions would lower their spending for products and services or wages to their workers. Lower aggregate demand would result in contracted domestic market and eventually in decreased inflationary pressures, since it would be unprofitable to raise prices in low demand market. Fiscal tightening would benefit the country not only by decreasing inflation, but it would also be less attractive to capital inflows, because contracted market and slower economy offers lower returns. Schadler (2008), however, argues that fiscal restraint may actually attract more capital inflows. This would happen, because investors would feel safer with stable fiscal policy, making their investments less risky. Schadler

(2008) also explains that capital inflows attracted by fiscal tightening would be preferable to country, since it would not attract speculators (because of decreased return), but mostly FDI. However, usually governments do not choose this measure because it decreases country's GDP, it takes a long time to discuss such sensitive matter and most importantly it is unpopular for politicians to take such decisions. To make matters worse if this measure is delayed or not taken to its full extent, rapid growth could outrun it and after the economy had grown significantly, the country could lack basic infrastructure due to flaw of governmental expenditure.

2.4.5 Trade barriers for capital inflows

The main objective of this section is to discuss the ways of controlling short-term capital flows by imposing taxes and other barriers for foreign capital. Such measures would increase the price and risk for speculators. Theoretically this would reduce the "noise" in financial markets (Spahn, 1996) and increase the maturity of investments. This instrument has been widely discussed by economists for couple of decades and we elaborate this more in the next paragraphs.

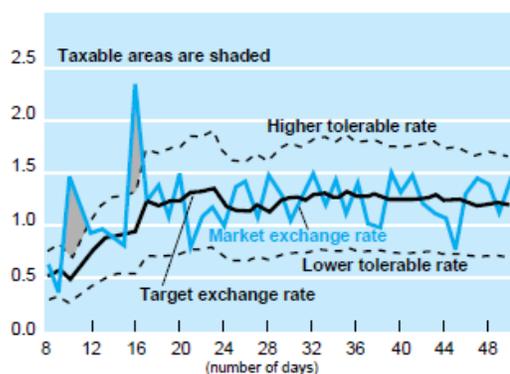
The idea of implying taxes on financial market instruments was introduced by James Tobin already in 1972. It was developed as a percentage tax on all currency conversions and was intended to reduce the amount of speculation in the financial markets (Investopedia, 2012). After the financial crises in Asia and South America the discussions about the tax got more "fuel" (Besson et al., 2006). Tobin argued that free capital flows combined with flexible or adjustable exchange rate are "hazardous to the economic wealth of nations" (1996, pp. 63). He also claims that the financial markets have become over-efficient as they are frictionless and easy accessible (Tobin, 1996). This attracted short-term capital speculators which increase volatility of exchange rate and instability of the economy (ibid). The tax would slow down the round-tripping speculations without having significant impact on the international trade (ibid). The volatility of exchange rate would be reduced which would positively affect global financial stability (Spahn, 1996). Also, the tax would raise considerable amount of money (Frankel, 1996).

On the other hand, not everyone agrees with the benefits of taxing foreign exchange markets. First of all, in order for the tax to actually have any influence at all it has to be used by all major financial centres and supported by such world financial organizations as the World

Bank or International Monetary Fund (IMF) (Spahn, 1996). Still, there is no guarantees, only a possibility, that the Tobin tax would distort short-term capital flows more than long-term ones (Frankel, 1996). There is a strong belief that Tobin tax would affect commodity trade significantly (Westerhoff, 2003 cited in Besson et al., 2006) as only small percentage of all trade is speculative, the rest are regular money market transactions which provide liquidity (Grahl and Lysandrou, 2003 cited in Besson et al., 2006). Couple of economists also argues that the tax rate has to be relatively high in order to reduce the “hot money” inflows and such high tax would have painful consequences for all global markets (Spahn, 1996; Davidson, 1997 cited in Besson et al., 2006). Another flaw is that the automatic taxing system is not able to see institutional differences between regular trading of currencies that makes the financial markets less volatile, and destabilizing speculative trading, which should be the only target of the tax (Spahn, 1996). Also, there is possibility of avoiding the tax by participating in secondary markets and trading in financial derivatives (ibid).

Spahn (1996) suggest a modification of the Tobin tax to make it two-tier. First tier would include constant minimal tax rate on all on-spot currency transactions. He argues that this would give a stable rise in revenues without declining the liquidity of the financial markets (ibid). The second tier of the tax would only come into effect when the exchange rate went through the pre-determined tolerable rate (see Figure 3).

Figure 3. Two-tier Tobin tax model



Source: Spahn 1996

Spahn (1996) describes this tax as an additional measure for increased exchange rate stability, but not a structural improvement of the monetary system. He focuses on the positive

effects on the Tobin tax modification. However, he has failed to mention the difficulties that might occur when deciding on target and tolerable exchange rate. Also, it is not covered in the article how to calculate the percentage: what is the amount of basic tax that should be applied without reducing the liquidity and how high should be the second tier tax to reduce the speculative attacks. This version of Tobin tax doesn't solve the biggest flaws: the ones caused by secondary markets. Also, this brings uncertainty to non-speculators as transaction costs might change in a day.

One more way to create barriers for short-term capital inflows is reserve requirements. It forces investors to put a percentage of their investment in domestic banks without receiving any interest and usually for a period longer than a year (Korinek, 2010). Unfortunately, this theory hasn't been well developed by the economists. Therefore, we cannot discuss the theoretical effectiveness and all possible implications of this theory. However, it has been actually successfully implemented in the past. We will discuss this in later chapters, though.

As we can see from the theories above, there is no perfect monetary or fiscal policy tool that would be completely effective and had no flaws. Even if the measure is used according to the theory it might hurt economy in other ways. That is why central banks and governments (if they are separate bodies) work together and combine measures. It is unlikely for a country to use only one policy response to capital inflows and as Reinhart and Khan (1995) outlines, measures' effectiveness depends on the nature of inflows, their causes, and the macroeconomic and policy climate of the recipient country.

2.5 The People's Bank of China measures against the short-term capital flows

The People's Bank of China (PBC) sees the problems that excessive short-term capital inflows are causing and already started using measures to control these inflows and to reduce the unwanted consequences. The question remains if they are really working. Since China is a communist country, the PBC has a strong control over the banking sector, having in mind, that four biggest banks (accounting for 69% of total bank deposits and 72% of total bank loans) are owned by the state (Hu, 2003). Because of the control, loans from banks to small and medium

enterprises are almost non-existent. However, according to Li (2011) China's private lending is on the boom, since "micro-credit" and internet lenders are not constrained by the government. Lack of governmental regulation makes such loans very popular despite the risk of low quality loans (Lee, 2011). However, as mentioned above, these regulations were only applied to banks, and private lenders found a way how to bypass all requirements making a huge gap in the efficiency of the measure.

To control the consequences of short-term capital inflows is practiced by the People's Bank of China uses measure called sterilization or sterilized intervention (Bouvatier, 2007). It issues central bank bills to sterilize short-term capital inflows and slow down the expansion of the monetary base (ibid). Higgins and Klitgaard (2004) estimated that from 2000 to 2003 about half of increase in net foreign assets was sterilized by open market operations. Bouvatier (2007) explains that along with the open market operations the People's Bank of China also used reserve requirements and window guidance for domestic banks to reach their goals. Between 2003 and 2004 PBC raised reserve requirements from 6% to 7.5% in order to decrease the effect of money multiplier and in that way drain liquidity. In 2010 China's international reserves reached \$2.8 trillion which is around 50% of country's GDP (Aizenman and Sengupta, 2011). Open market operations and reserve requirements are supported by window guidance – PBC persuasion for other banks to act the way the PBC would like. Window guidance should have diminished the moral hazard problems, decreased the lending and in that way reduced the monetary base in economy as well as increased the quality of loans. Again, private lending businesses are not restrained by these regulations as no reserves are required from them. Therefore, capital inflow sterilization only diminishes the effect of flows that come through official financial institutions.

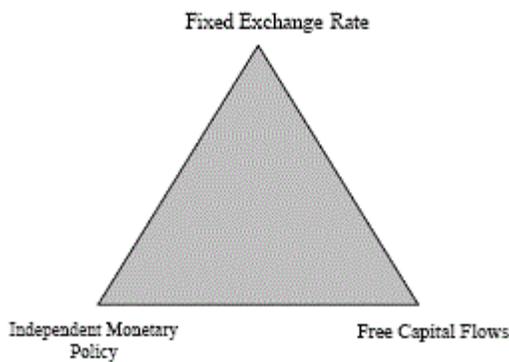
The PBC is already taking some measures both to reduce the excess of short-term capital flows and to weaken the consequences that it causes. However, there are still many flaws in the governmental actions as there are many institutions which can pass bulk amount of short-term capital into the country without being regulated.

3. THEORETICAL FRAMEWORK

In this chapter we discuss the theoretical framework that is used in the paper. As a base for the understanding of a well functioning economic system we use the Mundell-Fleming model based trilemma (also known as the impossible trinity) of the international finance (see Figure 4). The policy makers would like to have fixed exchange rate for trade stability and speculation control, free capital flows for international integration and independent monetary policy to have as an economic tool (Mankiw, 2010). However, the theory states that a country can only have two and one has to be refused (ibid).

If policy makers choose fixed exchange rate and free capital movements the monetary policy is only used as a tool to maintain the exchange rate stability and cannot be used as an independent tool to control the economy (used by countries inside the euro zone). In other situation, if a country had fixed exchange rate and independent monetary policy it cannot allow free international capital movement because it would distort the markets. The last option is to have free capital flows and independent monetary policy which makes fixed exchange rate impossible as it is determined by market (used by the US). There is no way to say which choice is the best as it depends on the economic environment in a particular country.

Figure 4. The impossible trinity.



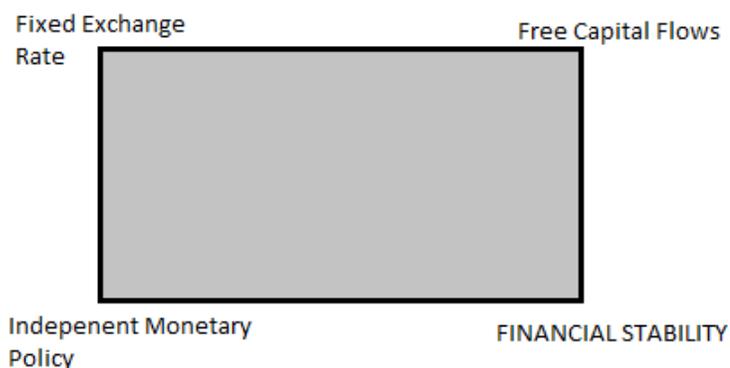
Source: Reserve Bank of India 2012

De jure, China represents the choice of independent monetary policy and fixed exchange rate and international capital flows are under control (Mankiw, 2011). However, as we can see from the previous paragraphs, words capital being “under control” do not exactly describe the *de facto* situation in China. There are significant capital inflows mostly due to the bulk amounts

of FDI. Also, capital inflows, especially short-term, are fuelled by speculators who find a way around the restrictions. China’s capital movement policies have been liberalized over time, still communist Chinese government prefers to have control over the capital inflows and its effects on domestic industries. Seeing the data of Renminbi exchange rate (see Figure 2, pp. 8) it would be more correct to say that renminbi exchange rate is managed but not fixed. As it is mentioned in previous chapters, PBC try to keep the exchange rate low and stable to maintain competitiveness in the global markets (McKinnon, 2009). However the currency is strongly undervalued. The financial market forces, as well as foreign countries’ politicians, gives pressure for the revaluation of renminbi (Soofi, 2009). That is why PBC let the currency float to the extent where it does not harm the domestic industries. The third corner of the “impossible trinity”- the independent monetary policy- is also acquired only to some extent. PBC can use it to affect the economy, though the use is mostly used for the maintenance of the exchange rate.

As it can be seen from the paragraph above China is trying to take reach all the “corners” of the “impossible trinity” and it actually has at least some features of every policy. In this way China disproves the theory that the “trinity” is completely impossible. Another research by J. Aizenman (2011) has improved policy “trilemma” into policy “quadrilemma” making one more policy goal – financial stability. This improvement of the theory allows China to have fixed exchange rate, independent monetary policy and free capital flows at least to some extent, but now it has to sacrifice financial stability (see Figure 5) (Aizenman, 2011). Due to governmental policies and rapid development China mainly faces the problems caused by large short-term capital inflows. China’s choice to try control everything rather than keep the financial system stable might lead to even bigger distortions of the markets and to an economic crisis.

Figure 5. “Quadrilemma” of international finance.



According to Aizenman (2011), all the problems in China's economy could be related to policy "quadrilemma". Having this in mind, China should be better off if it would sacrifice one of the impossible trinity goals and keep financial stability. In this paper we mainly focus on how to reach this stability. Financial stability is the main issue as the instable system leads to instability in other sectors and sooner or later to a financial crisis.

4. DESCRIPTION OF THE METHOD

The method that we use is essentially analytical. We analyse different measures in different economies which suffered from capital inflows. The method is based on comparing how these measures were implemented in two or more countries and if they comply with the theories. The most important part of the method is to implement the same measures to China's current economic situation and to analyse the theoretical or practical (if the measure is already being used in China) results.

We analyse each measure separately, dividing the analysis in few parts. First we analyse theoretically all fiscal and monetary policy measures that in theory should reduce short-term capital inflows or at least help to control them. In the other part of our method we found countries that similarly used the measures which are analyse in the first section. After that, we implement the same measures to China's economy and analyse all the advantages and disadvantages of these measures. If China's government or central bank is already using the same measure to control short-term capital inflows we look for the ways to improve the implementation of it. When we implement the measures, we analyse how they would change China's economy and would it actually help to reduce the possibility or severity of financial crisis in China.

After analyzing the influence of short-term capital inflows on China's economy we are able to understand that it has negative consequences and therefore analyse the theoretical measures for solving this problem. By using this method we analyse the past experience of using different measures against excessive short-term capital by other countries to find the best policies and measures that can reduce the possibility and severity of crisis in China.

5. PAST EXPERIENCE

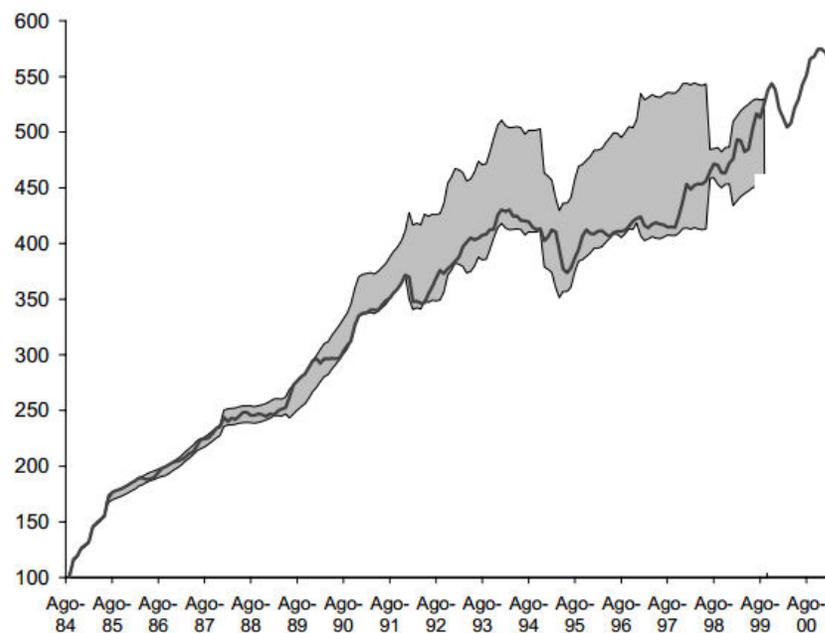
In this section we are going to use our method in order to analyse different measures used by different countries and see what effects they had for their economy. First we are going to analyse monetary policy tools used by countries which were suffering from short-term capital inflows and after that we will analyse fiscal policy tools and measures pointed to the same problem.

5.1 Exchange rate regime

Most of the developed countries (e.g. USA, Canada, EU (the euro zone) and UK) have free floating exchange rate regime. It helps to reduce inflationary pressures on prices and at the same time increases the risk for speculators because at any time the value of the investment currency falls, speculator endures losses and experiences risk, which leads to less attractive country to foreign investors. However, countries that were and are suffering from excessive capital inflows do not let their exchange rate to float freely. This is because currency tends to appreciate when country is faced with capital inflows and most developing countries base their economies on export, which would suffer when exchange rate decreases sharply.

However, Chile is the country that let the exchange rate to fluctuate between some margins decided by the central bank. Exchange rate appreciation and depreciation was possible, though the government tried to protect it from severe changes. Since Chile's economy and growth was based on exports, the government did not want to let their currency to appreciate freely. However, they were also scared by real exchange rate appreciation and inflation, so fixed exchange rate was not a solution. The solution that Chile's government chose to use was the construction of a band around the official rate which was calculated out of the dollar, the deutschmark and the yen and their respective weights associated to their share in Chilean trade (Agosin and Ffrench-Davis, 1995). On 1998 the exchange rate band was 12.5% on either side of the official rate, so it was quite free floating. However, as we can see from Figure 6, this policy did not work exactly as wanted. Every time speculators bet on currency appreciation, the market exchange rate kept close to the band floor and Chilean government kept widening the margins of the band.

Figure 6. Nominal Chilean Peso exchange rate and exchange rate band (CLP/USD)



Source: Central Bank of Chile cited in Morande, 2001

By looking at years 1991, 1992 and 1996 in Figure 6, every time nominal exchange rate touched the floor of exchange rate band, the band was widened. Also, every time band got widened, nominal exchange rate depreciated, this is clearly the pressure of capital inflows and speculators. One more interest thing is that nominal exchange rate all the time was close to the floor of the band, except from 1998-99, when exchange rate band was abandoned. Moreover, as we analysed from the Figure 6 Instead of bringing uncertainty to the speculators the government did the opposite and that way only fuelled short-term capital inflows into the economy.

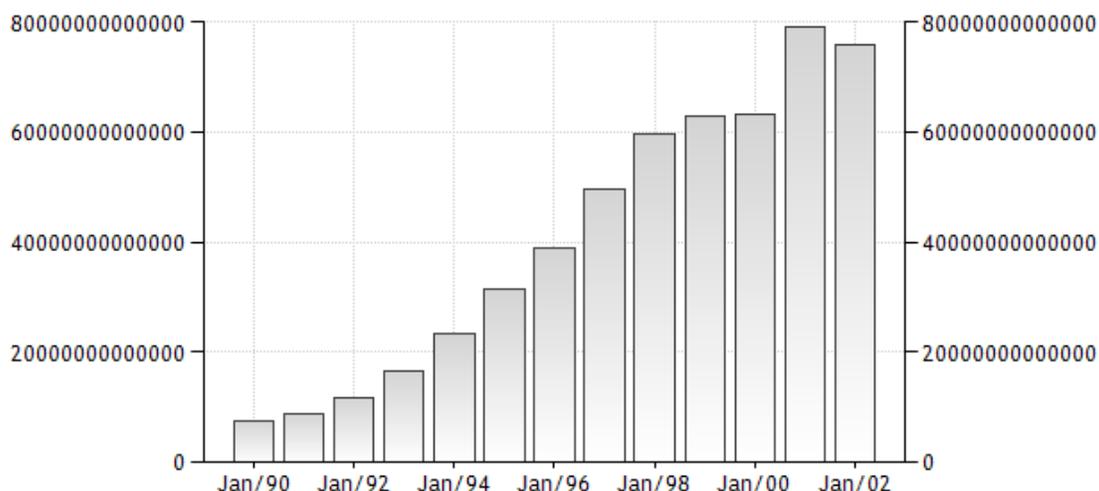
5.2 Sterilized intervention

Sterilization or sterilized intervention is another tool practiced by central banks, when a country is faced with the surge of capital inflows (Reinhart and Dunnaway, 1996). Basically, central bank issues bonds and other securities and sells them in domestic market, usually to domestic banks. When domestic banks buy these securities, central bank is draining liquidity out of the market and curbing the money supply. By decreasing the money supply central bank can lower inflationary pressures and avoid the “overheating” of the economy. However, examples in

the 1990s all over Latin America and East Asia show that sterilized intervention also has unwanted effects on economy (Edwards, 1999a).

In 1990 a new president for Colombia was elected and he started liberalizing the financial sector. However, government did not foresee that imports would stagnate while capital inflows would surge into the country and that created difficulties for Colombia. As Edwards (1999) pointed out, imports did not grow as fast as the government expected. On the contrary, Colombia experienced big trade surpluses and growing inflation as money supply soared (Edwards, 1999). One of the tools to soften the consequences of these trade surpluses was sterilized intervention. Colombian central bank issued indexed short-term securities and sold them in the domestic market. The main goal of this measure was to reduce the liquidity of money aggregates and to reduce the amount of money circulating in the economy. However, this resulted in growing domestic credit, as shown in figure 7.

Figure 7. Domestic credit in Colombia (Colombian Pesos)¹



Source: Trading Economics, 2012

As we can see from Figure 7, every year the magnitude of domestic credit was higher. The use of sterilized intervention only diminished the consequences without reducing the inflows of short-term capital. Furthermore, it did not stop the inflation: from years 1989 to 2002 it averaged at about 19.35%, however, from the start of 1990s inflation was significantly decreasing almost every year (Index Mundi, 2012). Instead of dealing with the problem,

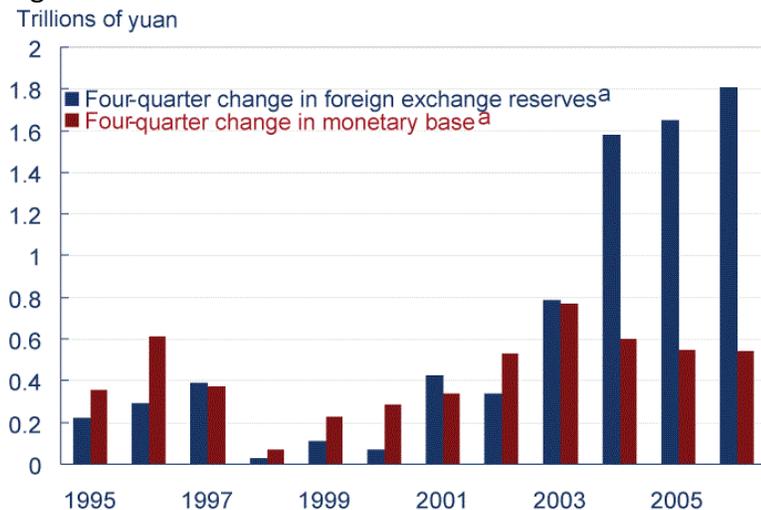
¹ 20 billion COP ≈ 11 billion USD. COP- Colombian Pesos; the exchange rate is approximated.

sterilized intervention created more issues for the Colombian government (Edwards, 1999). Sterilization decreased the money supply which increased the interest rates and this resulted in even bigger attraction for speculators. To sum up, increased interest rates fuelled more capital inflows into the country, which made the problem an even bigger issue.

As Buitert and Sibert (n.d.) expressed, sterilized intervention could work only in theory, but not in practice: “Sterilized intervention is an empty gesture – spitting against the wind”. That is why experiences from other countries show, that the usage of sterilization only holds the problem for a longer period. However it could give time to find out other tools or mixes of measures that could help to reduce the consequences of capital flows in the long-run. The reason why sterilized intervention is so popular amongst other measures is that it is easy and frictionless to use open market operations. Also, the reduced money supply can be seen immediately. However, this measure does not solve structural problems and governments take the “easy road” and delay using other measures to control capital inflows.

People’s Bank of China has been practicing sterilization intensively since the first surge of capital inflows into the economy. It can be seen in Figure 8 as all the sterilized capital is kept as foreign exchange reserves. In order to keep the monetary base growth stable, each year bigger amount of capital flows have been sterilized and added to reserves (see Figure 8). It can be seen that sterilized intervention did not help to reduce the amount of short-term capital flows.

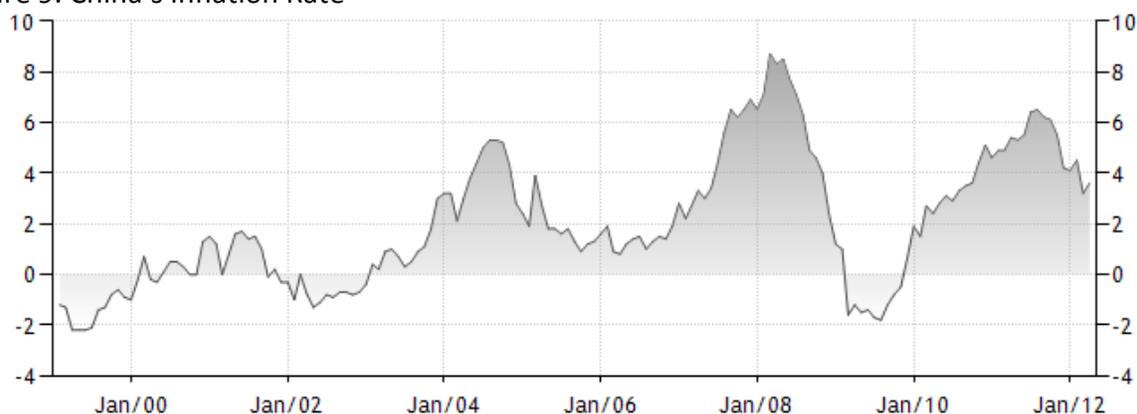
Figure 8. Growth of China’s international reserves and monetary base



Source: Federal Reserve Bank of Cleveland, 2007

In 2011 third quarter China had 3 223 billion of US dollars (approximately 20 trillion Yuan) in its international reserves. To make it easier to understand the mast of these reserves, if Chinese government would distribute all of this money to Chinese citizens, every man, woman and child would get about 2 500 dollars. By extensively using sterilized intervention the People’s Bank of China managed to control inflation so it wouldn’t exceed 9% even during the financial crisis in 2008 (Figure 6).

Figure 9. China’s Inflation Rate



Source: Trading Economics, 2012

To make things even worse, China’s economic growth and surge of capital inflows are still bigger than the effects of sterilization. From Figure 9 we can see that China had more struggles with inflation in recent years. In addition, banking sector is on a halt partly because of sterilized intervention. While the biggest banks in China are actually owned by the government (Hu, 2003), central bank is forcing these banks to buy People’s Bank of China issued securities which have low yields and are unprofitable for banks.

All in all, sterilized intervention is only holding back the economy from excess liquidity consequences. This measure can be well used for this purpose, though it does not solve the roots of the problem. Infinite sterilization cannot be a possible solution because eventually it attracts more and more short-term capital as it could be seen in Colombia’s example.

5.3 Banking regulation and supervision

Gavin and Hausman (1995) state that lending booms are one of the reasons for financial crises. Countries that are facing a surge of capital inflows know that one of the most important

measures to maintain financial stability is banking sector supervision. Increasing regulations or taxes on banks could benefit in two ways. First, the banking sector would be safer and protected from going bankrupt and second, it would decrease the amount of money circulating in the economy, which would decrease inflationary pressures. Because banking sector is of greatest importance when it comes to capital inflows, all countries tried to regulate it, but we will discuss only few of them and whether these regulations were successful or not.

One of the countries that extensively used banking regulation and supervision was Chile. Chile suffered from its banking crisis in 1982-83, so after that stricter banking regulations were established to protect economy from such risks in the future. However, in 1990s when the financial situation improved, capital started flowing into the country. Therefore, bank supervision was strengthened even more (Agosin and Ffrench-Davis, 1995). From Table 1 we can see, that Chile does not have the strongest regulations in Latin America. However, it did reach the best performance out of everyone, a big part of this success is the reason of banking reforms that took place in 1980s rather than 1990s, so Chile already had stable and sound banking sector when capital started flowing into the country.

Table 1. Banking regulation indicators in Latin America (199-)

	Argentina	Brazil	Bolivia	Chile	Mexico	Peru	Venezuela	United States
Minimum capital-asset ratio requirement (%)	11.5	11.0	10.0	8.0	8.0	9.1	10.0	8.0
Actual risk-adjusted capital ratio (%)	16.4	15.8	11.4	12.3	13.0	12.7	14.0	12.0
Capital stringency index	6.0	3.0	5.0	3.0	4.0	5.0	2.0	4.0
Capital regulation index	8.0	6.0	8.0	5.0	7.0	6.0	2.0	6.0
Overall bank activities and ownership restrictiveness index	1.8	2.5	3.0	2.8	3.0	2.0	2.5	3.0

Source: Barth et al., 2001 cited in Stallings and Studart, 2003, pp. 14

It is because of *de facto* Chilean banks had even stronger reserve backup than it was required by the central bank. As we can also see from Table 1, actual capital-asset ratio to banks in Chile was average at 12.3%, so it is 4.3% higher than was the requirement.

However, the most important measure, why Chile performed so well is banking sector supervision. As we can see from Table 2, Chile was one of the countries that had strengthened

the bank supervision and avoided banking crises (with the exception of Argentina). On contrary, all countries that failed to strengthen oversight, had some significant problems (see Table 2).

Table 2. Banking crises and stronger oversight

		Oversight strengthened at the time of reform	
		Yes	No
Banking crises or significant problems subsequent to reform ^a	Yes	Argentina (1995).	Bolivia (1994), Brazil (1994), Colombia (1998), Costa Rica (1994), Ecuador (1995), Mexico (1994), Paraguay (1995), Venezuela (1994).
	No	Chile, El Salvador, Nicaragua, Peru, Uruguay.	

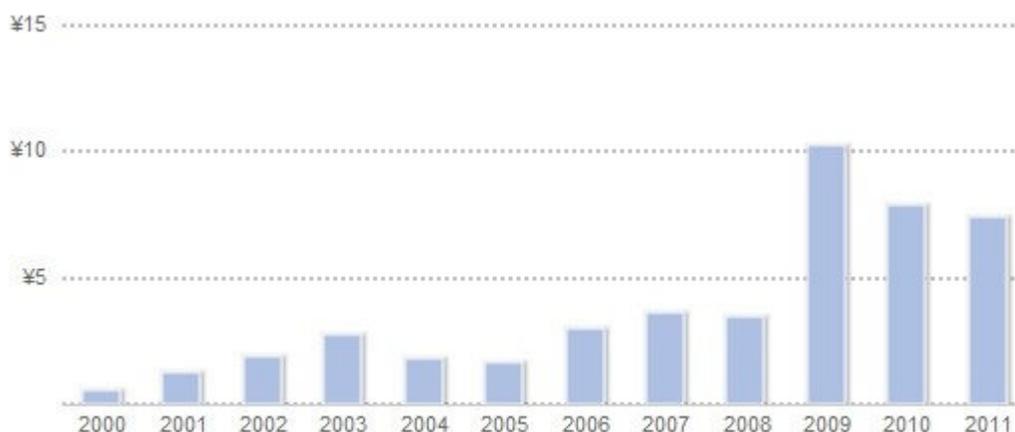
Source: Lora 1998 and Frydl 1999 cited in Livacic and Saez, 2001, pp. 123

Chile established an independent supervisory institution called Superintendencia de Bancos e Instituciones Financieras (SBIF) for checking if banks follow all the laws and regulations. By being independent SBIF could control financial institutions without any interruptions and not have any pressure from the government or politicians. In 1998 the percentage of non-performing loans to total was only 1.6% to comparison with Argentina which had 10.4% (Morris, Dorfman, Ortiz and Franco 1990 cited in Livacic and Saez, 2001, p.124). Another phenomenon of Chile was that its banks managed to be one of the most profitable in Latin America, so banking sector was not on a halt and prospered from 1980 to 1999 increasing banking depth by 25.4% as opposed to Argentina which increased its banking depth only by 6% (IMF various issues cited in Livacic and Saez, 2001, p.124). As we can see from this example, the effectiveness of banking regulations are much more efficient when it is combined with strict supervision of banking sector. Strengthened position of Chile's financial sector even helped Chile to some extent to avoid the consequences of "tequila crisis" in 1994. It is not necessary to restrain banks form lending, it is only important to assess bank's risk and do not let them undertake risky investments.

The situation in China is different. The People's Bank of China has instituted the China Banking Regulatory Commission (CBRC), which in *de jure* is independent institution and has a role of supervising and regulating Chinese banking institutions. However, Chinese banking supervision still resembles a strong planned economy (Deng, 2009). China is allocating its forces not to banking supervision, but regulations. One of the most popular measures in banking

industry regulations used by the People’s Bank of China is reserve requirement. PBC is always changing the capital to asset ratio and in 2011 it was raised to 21.5% to large banks and 19.5% to small banks, while Basel accord has it only at 8%. That way the Chinese government wants to drain the liquidity out of the market and protect the economy from lending booms. However, it does not diminish the problem because other financial institutions arise bypassing the regulations and increasing lending (see Figure 10).

Figure 10. China’s banks’ lending (trillions of Yuan)



Source: People’s Bank of China

The data in Figure 10 only takes into account banks working in China that are regulated by CBRC, but the numbers would be much higher if also micro-lenders and internet lending would be taken into account. However, the biggest problem is that lending booms may lead to higher amount of non-performing loans (Gavin and Hausman, 1995) and recently Chinese banks have reported, that 385.97 billion Yuan of non-performing loans were registered since the beginning of 2011 (Shenlu, 2011). Eight banks registered more than 10% increase in bad loans. These numbers suggest, even though PBC imposes strict regulations, there is lack of supervision of the financial sector.

5.4 Fiscal Tightening

As business cycle theory explains, economy is pro-cyclical – it cannot be always booming and economic growth is always followed by a downturn. However, according to Keynes, if governments should use fiscal tightening, when economy is on a rise, the economic downturn

would be less devastating. Although, he suggested such measure is very unpopular amongst politicians.

Thailand is one of the countries that used fiscal tightening when faced with the surge of capital inflows. In Table 3 we can see, that government expenditure decreased by 3.4% to GDP and central government balance as well as public sector balance changed dramatically from deficit in first year of increased capital inflows to surplus in the end of capital inflow surges.

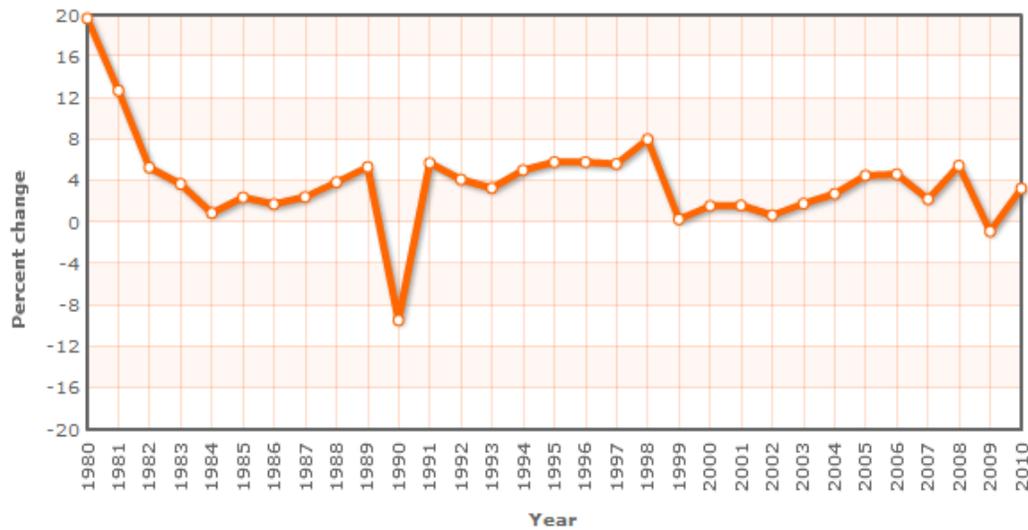
Table 3. Fiscal policy during inflow episode in Thailand

Thailand (1988-91)	Average of three years prior to episode	Year prior to episode	Inflow episode			
			Year 1	Year 2	Year 3	Year 4
Consolidated nonfinancial public sector balance	-4.2	-1.6	1.3	4.1	4.7	3.9
Central government balance	-4.1	-2.2	0.7	3.3	4.8	4.9
Revenue	16.3	16.5	17.6	18.6	20.1	20.3
Current expenditure	16.3	15.3	13.6	12.9	12.3	11.9
Capital expenditure	4.1	3.5	3.2	2.4	3.0	3.5
Real GDP growth	6.8	9.5	13.2	12.0	10.0	8.2

Source: IMF staff reports and estimates cited in Schadler, et. al. 1993, p.17

Table 3 also shows that fiscal restraints in Thailand did not diminish the growth of GDP completely. It decreased by 5%, but still remained at 8.2% after the fiscal tightening. This confirms Schadler's (2008) ideas that fiscal tightening does not only represents the contraction of country's market, it is also a proof of sounder and less risky investing environment. Also as we can see from Figure 13, Thailand managed to control inflation, while using fiscal restraint as the main tool. Because it did not stop the capital inflows, inflation bounced back quite fast, but remained stable at around 4-5%, what is not severe for an economy faced with a surge of capital inflows.

Figure 13. Thailand's inflation rate



Source: International Monetary Fund, 2011

However, by using fiscal restraint Thailand's government created other problems. Although country's economy was still rapidly growing, its infrastructure was lacking funds and government expenditure and while economy was completely evolved, Thailand's government realized that the country is still deeply underdeveloped. As stated in 2008 Thailand's infrastructure annual report: "Thailand is facing a series of infrastructure challenges, including, for example, the need to "catch up" with economic development (within the country and with competing economies)".

5.5 Trade barriers for capital inflows

In this chapter we discuss what barriers on capital flows have been created by governments and how they were implemented in the past. Also, we will discuss what effects the measures had on countries' economy.

Due to the harsh discussions between the proponents and opponents of Tobin tax, it has not been very popular among governments. However, Sweden is one of the countries that tried to implement it. The results that followed were simply called "a total disaster" (Shedlock, 2012). The tax collected half the revenue that government expected which was one of the main goals of the tool (Aslund, 2011). Also, because of the increased costs, most of the investors took their capital to Oslo or London financial markets (ibid). In theory, a very important condition of the

tax is that it has to be implemented in all major financial markets. The Sweden's example confirms this rule. In the global economy with free capital movements investors are capable of reacting quickly to any market changes and choosing the best alternative. In this case the best alternative is financial commodities that have similar risk, similar returns but cost less, i.e. have no additional taxes. After the failure of Tobin tax implementation, there is now a strong public opinion in Sweden against similar taxations (Aslund, 2011).

Discussions in France and Germany began to emerge at the beginning of 2012 on possibility of imposing the Tobin tax. In March France alone adopted the tax. We cannot tell what the effects are yet but other countries are looking at it cautiously and waiting how the experiment will end. Some are sceptical as investors already find the ways how to go around this regulation, mostly by using derivatives or switching to other financial markets (Love, 2012).

The two-tier tax on currency transactions, offered by Spahn (1996), doesn't solve the problems caused by the original Tobin tax. This version of tax has never been imposed as it immediately received a lot of critique (Stotsky, 1996).

Another measure to create barriers is to require reserves on foreign investments. Most successfully this tool was implemented in Chile in 1991. The government took strong actions against short-term capital flows and imposed a 20% non-interest bearing reserve requirement on all external debt (Agosin and Ffrench, 2000). Reserves had to be kept in the central bank at least for 90 days but less than year (ibid) as the government goal was to increase the maturity of foreign capital and not restrain all the capital flows. However, investors quickly found ways how to hide the short-term flows by misinvoicing or showing them as FDI (Edward, 1999b). Government took action to stop this and a year later they increased the reserve requirement to 30% and, most importantly, started to carefully check all FDI applications for disguised financial capital (Agosin and Ffrench, 2000). The results of this policy can be seen in Table 3. After the imposition of the reserve requirements in 1991, the amount of short-term capital in Chile dropped more than three times- from almost 1.7 to 0.5 million US dollars. The long-term capital stayed the same. When the regulations were tightened in 1992, it gave even better results. Short-term capital dropped twice compared to last year, on the opposite, much wanted long-

term capital increased more than double. Chilean government completely changed the maturity composition of their external debt from 96% to only almost 3% of short-term debt.

Table 3. Gross Capital Inflows To Chile (millions of USD)

Year	Short term flows	Percentage of total	Long term flows	Percentage of total	Total
1988	916,564	96.3	34,838	3.7	951,402
1989	1,452,595	95.0	77,122	5.0	1,529,717
1990	1,683,149	90.3	181,419	9.7	1,864,568
1991	521,198	72.7	196,115	27.3	717,313
1992	225,197	28.9	554,072	71.1	779,269
1993	159,462	23.6	515,147	76.4	674,609
1994	161,575	16.5	819,699	83.5	981,274
1995	69,675	6.2	1,051,829	93.8	1,121,504
1996	67,254	3.2	2,042,456	96.8	2,109,710
1997	81,131	2.8	2,805,882	97.2	2,887,013

Source: Edwards, 1999b

At first there was a sharp decline in the total amount of external credit, the situation drastically changed in couple of years, though. In 1996 the total amount exceeded the pre-regulation level. The average maturity increased significantly making the investments in Chile much more sustainable. As it can be obviously seen from the Table 3, the measure together with strict supervision worked exactly as the government wanted.

To sum up, the Tobin tax so far has not met its expectations, though some countries like France still believe that it might be a good solution to control the financial markets to some extent. A more successful example is reserve requirement imposition on external debt in Chile.

Even though at first all capital flows diminished, after couple of years Chilean government reached their goal as planned and increased the average maturity of debt drastically.

6. IMPLEMENTATION OF THE MEASURES IN CHINA

6.1 Exchange rate regime

China's exchange rate regime has a great influence on capital flows into the country. In this section we discuss how exactly different exchange rate regimes would affect capital inflows and which regime is best for China's economy.

First of all, we reject the possibility of completely fixed exchange rate regime for China. This is due to very high pressure on the Renminbi to appreciate. Since 1997 to 2005 China had kept the value of the Renminbi fixed at around 8.28 Renminbi to US dollar (Morrison and Labonte, 2011) but this is not possible anymore. Because of cheap currency and low labour costs, China's economy was growing rapidly, attracting enormous amounts of FDI. This economic growth should have resulted in appreciating currency, but Chinese government kept the Yuan stable (Soofi, 2009). Now Renminbi is still undervalued at about 20-30 % compared to the US dollar (Scott, 2011). Also, there is strong political pressure for the appreciation of Chinese currency. China was already blamed for "currency manipulation" (Soofi, 2009) and in 2010 and 2011 President Obama addressed Chinese government strongly encouraging them to go forward a floating exchange rate regime (Morison and Labonte, 2011). This proves that a fixed exchange rate is not a solution for China.

As explained in previous chapters, letting the exchange rate to float freely is one of the solutions that can help reduce the inflation as well as discourage short-term capital flows into the country. In 2005 the PBC started to gradually revalue the currency and the Renminbi was appreciating ever since. This is the main reason, why China is so attractive amongst speculators- there is no risk in depreciating target currency. As mentioned before, Renminbi is highly undervalued and if China would adopt free floating exchange rate, its currency would rapidly increase about 20-30 % (Scott, 2011). Changing the current exchange rate regime to a free floating would shock the businesses (especially the foreign capital companies in the country) and would result in drastic economic downturn. The Renminbi is too much undervalued and switch to free floating currency would be a rapid and very strong shock to all economy. This would stop the speculators, however, it is not very logical to provoke a crisis while trying to

prevent the economy from one. While it would help to reduce short-term capital inflows in the long run, in the short-run it would shock China's economy and ruin the export sector. It would also hurt China's economic growth and this is against the governmental policies. However, some economists still encourage China to adopt free floating exchange rate as it would reduce the inflationary pressures and increase China's purchasing power (ibid).

China chose the third option: not floating and not fixed but a managed exchange rate. Due to high pressure on the currency, the People's Bank of China cannot keep the exchange rate fixed, though in order to keep the currency from rapid appreciation the PBC manages the exchange rate. This might sound like a golden mean, though it has many flaws, especially in China's case as the Renminbi is clearly undervalued. In the second section of this essay we gave example of how Chile managed their exchange rate regime in order to control capital flows. The Chilean government formed a band from their major trade currencies to stop the domestic currency from appreciating rapidly (Agosin and Ffrench-Davis, 1995). However, the exchange rate kept to the band floor and the central bank kept widening it. Such government's reaction proved to speculators that there is no actual limit for the exchange rate and the band is not effective. Even though the situation is far from identical, we could compare it with the managed exchange rate regime in China. As the Renminbi is undervalued, there is a downward pressure on the exchange rate, similarly to the exchange rate of the Chilean Peso keeping to the band floor. The same as in Chile, such management of exchange rate is just attracting more short-term capital speculators. Such exchange rate regime helps the Renminbi to approach its real value without sudden shock to economy. However, it becomes a large attraction for the speculators against which the government should target.

One more thing that the People's Bank of China could do is temporary increase the amount of open operations and give pressure for the currency to depreciate. This would bring uncertainty and scare off the speculators. However, as it was mentioned in previous chapters this is only one-time and temporary measure. Also, we would not recommend it to China because the Renminbi would become even more undervalued and after this opposite shock the value of the currency would go through the roof.

It seems that there is no perfect solution for China when it comes to exchange rate regime. As we see from the analysis in this essay, the best of the worse would be if China managed the exchange rate from extreme changes but let it appreciate quicker than it is appreciating now. It is obvious that the Yuan has to appreciate sooner or later. This would make exports more expensive and decrease the global competition, though with China's rapid growth it is inevitable. To protect the economy from a strong shock, the appreciation has to be proceeded gradually. However, it has to be quick enough because the sooner it gets closer to its predicted value the sooner speculators will start seeing risk and investing less. Such a rather quick appreciation of currency should be carried out with other measures like financial sector supervision in order to keep financial markets stable.

6.2 Sterilized intervention

Sterilized intervention is one of the tools that China is using extensively and by doing this tries to diminish the consequences of the capital inflows to the economy. As an example from Colombia shows, sterilization is only a solution for short-run, in the long run it is useless, though. China used this measure ever since capital inflows started to put an upward pressure on the country's inflation. One of the PBC's goals is to keep the price stability in the country (People's Bank of China, 2012) so high inflation is unacceptable. Despite the huge amount of short-term capital inflows, the inflation is reasonably stable: it is fluctuating from -2% to 8% (Trading Economics, 2012). This inflation is controlled by sterilized intervention so China's reserves are growing rapidly. However, there are no signs of decrease or at least stagnation of capital inflows. This pressures the Chinese government to think of other measures that could actually help in discouraging short-term capital inflows rather than basing their whole policy on sterilization. By only using sterilization the government is even attracting more capital while domestic interest rates keep rising. It is important to notice, that the PBC should not stop sterilizing the incoming capital while looking for other measures, as the quick abandonment of this tool would shock China's economy with high growth of inflation.

It is sensible to keep using this measure while there is excessive liquidity in the economy. However, in the long-run, when other measures take place, sterilized intervention must be

diminished, because it is restraining banking sector, raising domestic interest rates and making economy more vulnerable to shocks in general.

If other measures would be successful and reduce the short-term capital inflows, Chinese government could actually use the excessive reserves, to increase the social welfare of Chinese citizens. That way China could achieve goal for being a developed country. However, the government might need to change their goal from rapid growth to sustainable growth and social welfare improvement. If, however, they would not increase people's welfare, but instead concentrate on fast growing economy once again, there is a risk of social unrest and possible crisis leading from that. Also, this would put China further from being considered as a developed country.

6.3 Banking regulation and supervision

The People's Bank of China has imposed strict regulations on domestic banks such as restrictions on loans for small and medium businesses. However, as it was mentioned in previous chapters, there is a lack of regulation on alternative financial institutions, also called "micro-credit" lenders. This is due to weak supervision of the financial sector. As we can see from example of Chile, banking supervision is a key factor in bringing financial stability to an economy. Instead of improving the supervision the PBC is blindly increasing regulations on banking sector. In theory this should reduce money supply in a country as well as inflation. Also, the banking sector should become less risky. The need of supervision also applies to monitoring the transactions of FDI and import/export invoices to see if they are not frauds. This is the main way that short-term capital goes around the regulations and the government is unable to control it. So the result of regulations without supervision is an enormous increase in "shadow banking". As Gongloff (2011) pointed out: "we're talking about a large, off-balance-sheet world of debt, China's "shadow banking" system, which has grown to make up about 22% of all new financing in China". This suggests that regulations in China have many flaws. In order to decrease "shadow banking" and all the risks lying beyond it, the PBC has to rearrange the regulatory system that is applied on the financial sector. Well organised banking sector might also reduce corruption in the country. According to Zhou's (2006, cited in Cheng and Ma, 2009) calculations, Chinese banks lose around \$3 billion due to bank frauds and corruption every year

since 2000. The People's Bank of China has to take into account all unregulated lending institutions that act as "shadow bankers" and control them. However, we believe that it is important to allow loans to small businesses and private borrowers at least to some extent. Otherwise, the "shadow banks" would still take up a large part in China's economy.

Still most importantly, stricter supervision has to be implemented rapidly to increase the soundness and decrease the riskiness of the financial system. Best solution might be to create an independent institution that would monitor both public and private banks and all other kinds of financial institutions. That way the decisions made in the financial system would not be in favour of government's or politics' wishes. This could be a useful measure to increase the financial stability of the economy, though China's might not want to separate this important sector from the government's control.

All these changes would not only reduce the risk of country's financial system. Greater supervision would help track and reduce short-term capital inflows, since, according to official regulations, they are not allowed. Instead of making a rule, that forbids short-term capital inflows to the country, the supervisory institution could actually monitor all the capital transactions made in a country and stop the speculator's investments.

6.4 Fiscal Tightening

One of the fiscal policy tools that China's government could use to discourage short-term capital inflows as well as to diminish the inflationary pressures is fiscal tightening. According to Keynes, this should be the right measure to use when an economy is booming. Some countries have followed this theory. As we can see from the example of Thailand, the fiscal tightening helped to reduce both short-term capital inflows and inflation. However, the theory does not cover the potential damage that an undeveloped country might face. Thailand's development suffered from tightened fiscal policy as there was a lack of investment into such areas like infrastructure.

China, however, is acting opposite than the Keynes's theory suggests. The government is not using fiscal tightening at all. The situation is *vice versa*- China is putting all of their effort to increase economic growth. China's economy is booming but this might lead to a devastating downturn, according to the business cycle theory. However, Chinese government cannot cut

enormous spending drastically as the projects provide jobs for millions of Chinese citizens. Also, this measure is against the basic target of China's monetary and fiscal policy- economic growth. On the other hand, we still believe that China's government has to curb the expenditure, which fuels fast growing markets. Otherwise there is a big risk in "overheating" economy which might end in a crisis.

Another option might be to change the direction of governmental expenditure. To keep up the GDP growth China's government is investing in building new cities that are suited to accommodate millions of people. However, all these buildings remain empty. Speculators created a real estate market "bubble" and raised the price to such level that most of the people that actually need the apartments cannot afford them and are living in poverty. To reduce the "bubble" the Chinese government should provide subsidies for their citizens to actually buy these apartments. This would increase the welfare but more importantly cool off the housing market as well as speculators. If China orientated their policies to stability instead of growth they could finance less profitable projects like building schools and hospitals in rural areas. The improvement of welfare system might not have a direct influence on the financial markets. However, if government would change the direction of its expenditure to welfare and not for example real estate, the government would keep the expenditure level without overheating the economy. We believe that China has the resources to start becoming a developed country. A stable welfare system could increase stability in the whole economy.

To sum up, we believe that China has to decrease expenditure in the real estate market as it is close to overheating. Instead China should invest more in creating social stability and increasing welfare. This would decrease the attractiveness for speculators without slowing down the development of the country. The main thing, that China's government should do in order to stabilise the economy, is to move on to being a fully developed country, instead of being just a rapidly growing developing market.

6.5 Trade barriers for capital inflows

Another measure that China could implement is to create barriers for capital inflows. One of such barriers could be a tax on currency exchange, the so called Tobin tax. The increased friction of the financial markets in China theoretically could scare of speculators. However,

other theories state that the tax should be relatively high in order to decrease speculators profits significantly. If the country expects strong currency appreciation, the tax should be so high that it would be “politically infeasible or impractical” (DPAD, 2011) and this is the case for China. Such measures then might damage China’s economy a lot as it would increase the cost of non-speculative trade as well. In 2011 country exported almost 1,8 billion US dollars worth goods and services (The World Bank, 2012). Also, if China alone would implement the Tobin tax, it would be inefficient as other financial markets are easily accessible and would have lower transaction costs. The example of Sweden proved this in practise. Only if all major financial markets implemented the Tobin tax it could have some positive effects to the economy. It would decrease volatility in financial markets and might scare off speculators at least to some extent. However, there still might be a possibility of bypassing this tax in secondary markets. Also, this would increase the prices of exports and decrease China’s competitiveness in global markets. It is unlikely that all financial markets would implement the Tobin or similar tax as it is widely criticized amongst economists. Therefore, the possible benefits are not significant enough to help China’s economy and it actually might have the opposite effect and harm the financial markets.

Another type of capital inflows barrier that China’s government could impose is non-interest bearing reserve requirements on investments. Although the theory about this measure is not well developed, we can see how it was implemented in Chile when the country was faced with a surge of short-term capital inflows. Investors had to deposit a part of their investment in domestic banks without earning any interest for at least three months. At first couple of years short-term investors decreased to a minimum. Although this slowed Chile’s economy at first, couple of years later the amount of foreign capital increased to a pre-regulation level and with significantly longer maturity. This shows that the measure does not bring results immediately. However, for medium and long periods it improved Chile’s financial stability more than expected.

The question remains if the same measure would help China’s economy. There is excess liquidity in China’s financial markets due to large inflows of short-term capital. Thus, increased debt maturity that this measure should offer is very desirable. However, even if China’s

government imposed reserve requirements on investment this would hardly be effective. The main reason for this is that almost all short-term capital to China enters through misinvoicing as China has put a ban on such inflows (DPAD, 2011). And it is impossible to impose a requirement on a capital that in theory does not enter the country. Again, due to lack of supervision different measures lose their meaning.

To sum up, it is very difficult for China to control the short-term capital inflows directly as they usually are “hot money” transfers hidden behind FDI and misinvoicing. Any taxations or requirements would get passed by considering the current level of governmental supervision.

7. CONCLUSIONS

We found couple of theories (Petroulas, 2004; Gavin and Hausman, 1995) which prove from different perspectives that current economic situation and governmental policies lead China towards a financial crisis. The situation is mainly caused by inability to control excessive short-term capital inflows. The relevance of our research question remained: how to reduce the severity of the upcoming financial crisis?

In order to answer the question we found five measures that negatively affect short-term capital inflows or reduce their influence on the economy. First of all, we analysed what is the most efficient exchange rate regime for China's economy. We found that fixed exchange rate is impossible as the Renminbi is too undervalued. Sudden change in the value of the currency though, would cause a strong shock to the economy. However, we believe that the Chinese government should start implementing measures for gradual revaluation of the Yuan so it would approach its market value in couple of years. A measure to control the effects of short-term capital inflows is sterilised intervention, i.e. selling domestic financial assets and then purchasing foreign financial assets and adding them to reserves in order to decrease the pressure on the domestic currency. This measure comes in effect instantly and therefore is preferred by governments. However, we found that this is just a temporary measure and it does not provide any structural improvements. Another measure that is crucial in controlling short-term capital inflows and financial sector overall is banking supervision and regulation. There is need to improve financial sector regulations in China as illegal financial institutions comprise for around 22% of lending in the country (Gongloff, 2011). It is more important to create effective supervisory institutions to assure that all regulations are followed. This is also very important to reduce the amount of "hot money" that comes to China by misinvoicing imports and exports or "fake" FDI. One more tool that China's government could use is fiscal tightening to contract the economy and thus reduce short-term capital inflows. However, this might negatively affect country's development as it is still emerging. Also, this is inconsistent with China's policy that is growth-oriented. The fifth measure that is theoretically suggested is creating direct barriers for capital inflows. It could be a tax on foreign exchange transactions (i.e. Tobin tax). However, we found that this would not work if China alone implemented such tax. Also, according to the

theories the tax should be very high in order to scare off speculators and therefore would hurt whole economy. Another barrier that could be imposed is non-interest bearing reserve requirements on all investment for a period not shorter than chosen by the government. Theoretically this would bring the desired results for China's economy. However, in theory the short-term capital does not enter the country and the regulations would not work on the "illegal" short-term capital that comes, as we already mentioned, through misinvoicing.

After analysing theories and real examples we suggest the mix of measures that should increase financial stability in China. First of all, it is inevitable for Chinese government to let the value of the Yuan increase. Thus, we suggest increasing it gradually but with a faster pace than it is being revaluated now. The People's Bank of China should keep using sterilized intervention while they implement other measures. Refusing this measure would increase inflation significantly. It "cools off" the economy, though it is not a solution for economic problems. As we can see from our analysis, the banking sector has to improve significantly in order to keep China's economy stable. China's government has to regulate all lending institutions (e.g. internet "micro-credit" lenders), though not forbid lending completely. Otherwise illegal financial institutions would still take up a large part of China's financial sector. Well organised banking sector might also reduce the corruption in the country. As we could see from both theoretical and practical perspective, it is highly important to have effective supervision of financial sector. Lack of supervision is one of the main causes why short-term capital from foreign markets reaches the country. If there were institutions set up that would screen FDI and suspicious invoices the capital flows management would improve drastically. We believe that China should not impose any strict fiscal tightening measures in order to keep development. However, they should change the direction of governmental expenditure and invest more in social and economic development instead of overheating real estate market. Also, we suggest that China should not impose any direct capital barriers. As we found, such measures would have no effect. This mix of measures that we analysed would decrease the amount of short-term capital inflows and increase the overall financial stability. Also, after analysing China's economy we suggest that in order to increase the stability significantly and start becoming a

developed country the government should orientate their policies not to rapid but to sustainable growth of both economy and welfare.

We relate our conclusions with the policy “quadrilemma” explained in the theoretical framework. Financial stability is the key factor that has to be followed when choosing different measures. China has a priority of keeping independent monetary policy to help the government seek its goals. Therefore, we believe that suggesting China to refuse monetary independence is unrealistic. This is also consistent with the fact the Chinese government has control over all financial sector of the country. Then we are left with choosing between fixed exchange rate and free capital flows. Referring to the suggested measure mix, China should impose stronger supervision over capital controls. This should mean that the Renminbi can stay fixed. However, this is not exactly the case. There is strong macro economic and political pressure for the currency to appreciate. China should gradually reevaluate the Yuan and then keep the exchange rate fixed. Such solution of the policy “quadrilemma” is the best for China’s economy.

The essay has some limitations. Although the theories that were used and practical cases could be applied to other countries, the conclusions are essentially based on the economic situation of China. Also, the potential crisis and solutions for it are only analysed through the perspective of excessive short-term capital inflows.

In the future, this topic may be developed further. Less popular measures that may help to control capital inflows or their effects on the economy might be analysed as well. Also, it would be interesting to take a different approach when considering the reason why China is vulnerable to economic crises than analysing short-term capital inflows.

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Linnaeus University – a firm focus on quality and competence

On 1 January 2010 Växjö University and the University of Kalmar merged to form Linnaeus University. This new university is the product of a will to improve the quality, enhance the appeal and boost the development potential of teaching and research, at the same time as it plays a prominent role in working closely together with local society. Linnaeus University offers an attractive knowledge environment characterised by high quality and a competitive portfolio of skills.

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