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Original scientific paper

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FINANCIAL LIBERALIZATION AND THE FINANCIAL EUROIZATION

Abstract

The issue of financial liberalization is one of the most exploited topics in the late transitioning countries' financial crises discussions. One thing the literature is seeking is what the role of the limited capital movements is. Particulary, does it send a signal to the possible investors that the country has something to hide that in terms of future macroeconomic policies will lead to financial crisis. Along with the debate of financial liberalization, the question on financial eurozation is also one important issue regarding emerging or transitioning economies. The debate on euroization is more concentrated on the determinants that in the end conclude that one very important incentive for investors to invest in instruments with foreign currency clause is the monetary credibility. The distrust of the ability for one country to maintain the inflation rate and exchange rate at a stable level merges these two issues (financial liberzlaition and euroization) in one. The first part of the paper presents two models, discussing the factors that affect domestic agents to invest abroad. The second part elaborates those factors on the case of Macedonia. Throughout the signals the deposit euroization is sending the macroeconomic policies which the paper is concluding that if the models are correct than there is no place for fear of large scale capital outflows in case of financial liberalization.

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Introduction

Cross-border capital movements within the global economy has been increasing steadily for the past decade. One of the reasons for this trend was the increasing global integration in terms of trade, human capital and financial instruments. The dynamics of capital flows between the developed countries is a well known issue. However, we have witnessed that in the recent years these flows between the developing and emerging countries are also increasing. Indeed, the liberalization of the capital flow as a strategy for growth of certain countries was one major factor.

The years that followed after 2002 brought increase in the capital flow from the rich to developing countries. In the year 2008 only, the International Monetary Fund measured a growth in net private capital flows by 30 %. This was supported by strong economic growth, favorable conditions of trade, low inflation and low interest rates worldwide.

Additionally, if we look at the dynamics of the net private flows to developing countries, we can notice that they tend to increase in times when the monetary conditions are favorable (low interest rates). On the other hand, when the risk aversion in the global markets is growing, private flows are declining, (regardless the level of the interest rates). This is especially true for the years when the countries are to be threatened with the major financial crises. Thus, the movements of the international capital markets are primarily driven by the perception of the risk. In fact, these expectations effect the nature of the flows that can be variable. In the end, we can accept the fact that the liberalization of capital flows carries certain risks.

The literature dealing with the liberalization of the transfer of capital concludes that even though there are positive effects from the high amounts of inflow of foreign capital, they can also pose a great threat. After all, the chronology of the financial crises incorporates the variable nature of the movements of international capital. In fact, sudden

stops or retreat of the flows, are one of the reasons for initiation or intensification of negative trends in the economies.

1. Model

1.1. Limited capital flows

In this part, through one simple model we are going to elaborate the motives of the domestic agents to export their savings abroad. At the beginning, we will assume that an economy has economic agents that can invest in domestic assets only. The choice they have is limited with the investments in bank deposits and instruments on the capital market. The period and currency of the deposit are unlimited, but the instruments of the capital market are limited to shares issued by the domestic companies. For simplification of the model, agents are not allowed to invest in voluntary pension schemes, investment funds or life insurance policies. In such conditions, the distribution of assets in the portfolio will be limited to:

$$p_1 = a + d + d^* + s, \ldots, (3.1)$$

where p_1 *is* $f(W, I, DEV)$; a, d, d^* *and* s *are* $f(c, i_g, i_t, i_t{}^*, r_s)$; t (0,3) *and,*

p_1- total portfolio of financial instruments,
a- now accounts,
d,d^*- savings acounts (domestic and foreign currency clause),
s- capital market investments-stocks,
W- wealth,
I- income,
DEV- development of the financial markets,
c- macroeconomics policies confidence,
$i_t, i_t{}^*, i_g$- interest paid on savings (domestic and foreign currency clause)
r_s- capital market returns.

Therefore, the choice of investment opportunities is limited to domestic assets. Furthermore, in accordance with their financial capabilities (wealth and income) and the range of available financial instruments, the agents will form their portfolio based on future

expectations of economic trends in their country. The total yield of the portfolio will be set to:

$$r_{p1} = i_g + i + i^* + \mathrm{r_s}, \ldots, \ (3.2)$$
$$where \int_0^1 f(\pi_e, ex_e, dev) \ dr_{p1}$$

and,

π_e- expected inflation,
ex_e – expected exchange rate movements,
dev- types of financial instruments.

The total return of investment in the economy will be a result of the distribution between these instruments. Therefore, if the agents believe that the economy is facing high risks, than their yields will be closer to the yield of the funds that can cover these risks. Contrary, if there are no major economic uncertainties, the total yield of the agents will be closer to the best long-term investment. In reality, in countries with underdeveloped financial system, and where uncertainty is high, most of the funds are denominated in „a“ and „d*“ . Herein, a particularly interesting issue for us is the large share of foreign currency deposits. On the other hand, in countries where there is an option for portfolio diversification, the investments in such instrument are low.

The theory of time inconsistency suggests that the main factors that influence on the choice of investment possibilities, are connected to the capability of the government to maintain the planned policies. In those terms, agents analyze the threats of low inflation, stable exchange rate and existence of hedge instruments. Hence:

$$p_{i1} = \mu a + \nu d + \pi d^* + \theta s, \ldots, (3.3)$$
$$where \ \mu, \nu, \pi, \theta \ are \ f(\pi_e, ex_e)$$

and,

p_{i1} - total portfolio in financial instruments,
μ – proportion of current accounts,
ν –proportion of saving acounts (domestic currency clause),
π - proportion of saving acounts (foreign currency clause),
θ – proportion of capital market investments-stocks,

$$proportion \ of \ the \ \mu + \nu + \pi + \theta = 1$$

It seems that the best option for protection against the volatile inflation and the uncertainty of the exchange rate ("c"), is to invest in financial instruments denominated in foreign currency. However, we should not forget that we are talking about economy in which agents are not allowed to invest in foreign external financial instruments, due to limited capital flows. For these reasons and in absence of hedging financial instruments, the agents will insist on investing in domestic assets that are free of the risk of the exchange rate.

1.2. Transfer of the free capital

In this part we will elaborate the case where the agents in the country have the opportunity to invest their funds in assets abroad. In that case, the distribution of the portfolio could be presented with:

$$p_2 = a + d + d_1^* + d_2^* + s + s_1, \ldots, \quad (3.4)$$

where p_2 *is* $f(W, I, DEV, DEV^*)$; *and* $a, d, d_1^*, d_2^*, s, s_1$ *are* $f(c, c^* i_t, i_{t1}{}^*, i_{t2}{}^*, r_s, r_{s1})$; $t(0,3)$ *and,*

p_2 - total portfolio of financial instruments,
a –current accounts,
d, d_1^*- saving accounts in the country, d_2^*-saving accounts abroad,
s, s_1, - capital market investments-stocks in the domestic markets and aborad,
W - wealth,
I - income,
DEV, DEV- domestic and foreign capital market developement,*
c,c - trust in the domestic and foreign macroeconomic policies,*
$i_t, i_{t1}{}^*, i_{t2}{}^*$- interest paid on savings in the domestic financial sector (domestic and foreign currency clause and aborad),
r_s, r_{s1}– return of investment in domestic and foreign capital market.

Thus, in this model we show that the agents can choose to invest not only in domestic, but also in foreign instruments. Therefore, the yield of the total portfolio will be the sum of:

$$r_{p2} = i_g + i_t + i_{t1}{}^* + i_{t2}{}^* + r_s + r_{s1}, \ldots, \quad (3.5)$$

$$where \int_0^1 f(\pi_e, ex_e, dev, dev^*)\ dr_{p1}$$

Despite the uncertainty and the level of the yields on assets in the domestic economy, the agents will analyze the global economy and financial system too. Thus, if a country has a high level of deposit euroization, we should have in mind that domestic agents trust more on the external monetary authorities than the national central bank.

This analysis will actually have to answer the question whether the risks that are expected in the domestic economy may be reimbursed with the yields of the domestic or foreign funds[4]. The shares of financial instruments will depend from:

$$p_{i2} = \mu a + \nu d + \pi d_1^* + \delta d_2^* + \zeta s + \kappa s_1{}^*, \ldots, (3.6)$$
$$where\ \mu + \nu + \pi + \delta + \zeta + \kappa \left(\pi_{edif}, ex_{edif}, i_{dif}, r_{dif}\right)$$

and,

p_{i2} - total portfolio in financial instruments,
μ – proportion of now accounts,
ν,π - proportion of savings acounts (domestic currency clause)
δ - proportion of savings acounts aborad
ζ, κ – proportion of capital market investments, domestic and abroad -stocks,
π_{edif}–expected inflation rate differentials.
ex_{edif} – expected exchange rate differentials,
i_{dif}–interest rate diferantial (domestic and foreign),
r_{dif}–return differentials (domestic and foreign).

$$proportion\ of\ the: \mu + \nu + \pi + \delta + \zeta + \kappa = 1$$

In addition, for simplification of the model we accept that the differential of the exchange rate is equal to ex_e. In fact, if we assume that there is only one foreign currency, then there will be only one exchange rate. In addition, agent will analyze the expected exchange rate only, as in the previous model. Additionally, in this model capital mobility is assumed unlimited, because we think that the interest rate parity holds. This model now suggests that $\pi_{edif}, ex_e, r_{dif}$, as major factors in the decision process.

According to the risk aversion theory, domestic agent will invest abroad if πedif and exe are growing, and rdif is decreasing. If we assume that the concentration of the savings in an economy is in deposits

[4] Here, to simplify the model, we predict that the difference in transaction costs for trading at home and abroad are negligible.

denominated in foreign currencies, and thus confidence in domestic policies is small, then the opening of the financial account should mean spilling of those deposits. The thesis that we wanted to test with these models is: What is the relationship between high deposit euroization and limited capital movements, and is there any possibilities for larger amounts of deposits to go abroad in case of capital account liberalization?

The models shows that the main factors that agents have in mind when they are investing, are the risks associated with the decisions of the macroeconomic policies. Moreover, if one wants to discover the link between deposit euroization and other variables in an economy, the answer should be connected with the inflation rate and the exchange rate movements' expectations.

In this regard, the analysis usually are directed to: changes in the level of prices in the economy, the money supply, the discount rate, the change in foreign exchange reserves, the current account balance or level of external indebtedness of the economy. These factors will be tested in the case of Macedonia in the following part.

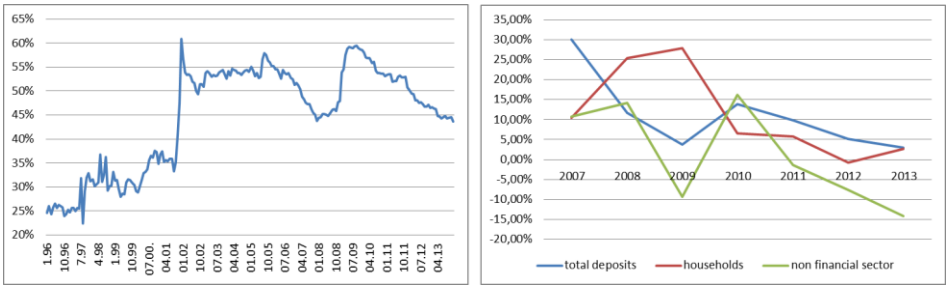
2. Liberalization of capital movements in Macedonia

If we accept the assumptions integrated in the previous models, we can accept that in one developing country with a high level of deposit euroization agents do not believe in domestic policies! In such conditions, the fear of loss of the value of properties by increasing prices or reducing the value of the domestic currency makes them to avoid assets denominated in the domestic currency. This is especially apparent in conditions of free capital movement, where the risk for most of the funds to go out of the domestic economy is very hight. Hence, regardless of the instruments that we have invested in (deposits or securities), the motive for these investments will be to reduce the uncertainty of changing macroeconomic policies.

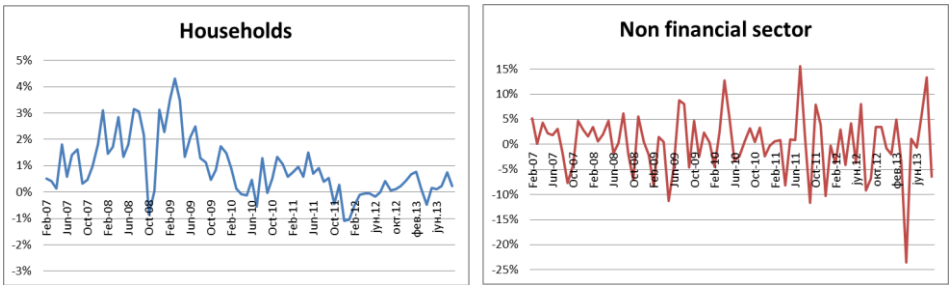
Below we will try to answer the question whether the factors for deposit euroization that we discussed in the previous part apply to the case of Macedonia. The idea that we want to test is associated with the possibility of unpredictable capital movements, especially if the financial account opens. For these reasons, the analysis seeks for conclusions that are based on the equation 3.3, where the reasons for investing in deposits

with foreign currency component are associated with expected inflation and depreciation of the exchange rate.

Figure I.3.: Deposits with foreign currency clause to total deposits, yearly and mounthly growth of the total deposits to households and nonfinancial sector



Mounthly growth of the foreign currency deposits



Source: NBRM, authors calculations.

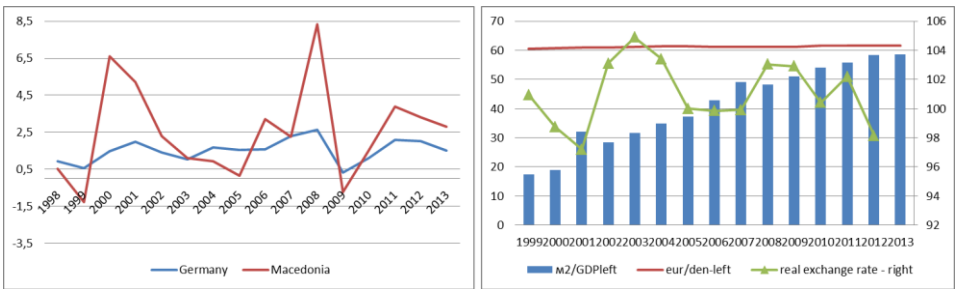
Macedonia is among the countries with high rates of deposit euroization. Since 2002, the share of deposits with foreign currency component sets up to 45% of the total deposits. If we want to explain deposit euroization through the effect of distrust in domestic policies, than that is exactly what happens in Macedonia. In those terms, we can clearly notice that whenever an adverse event occurs in Macedonia, which affects decrease / increase the in confidence of domestic / foreign currency, the share of deposits with foreign currency component changes. This was especially evident during the period of 2008-2010, when with the decreased confidence in the euro the currency component of deposits had changed.

Distrust in achieving the golas of the economic policies is mainly connected with maintaining low and stable inflation and stable exchange

rate. Analuzing this, we will show the annual changes in inflation[5]. The rate of inflation will be compared with that of Germany, believing that full confidence in the euro comes from the confidence in the economic policies of Germany.

Figure I.4.: Inflation, nominal and real foreign exchange rate and the money supply in Macedonia

Inflation, year to year *M_2/GDP(%), eur/den (nominal), real exchange rate (base: 2005)*



Source: IMF, (IFS, 2014),NBRM, authors calculations.

Hence, taking into account the difference between the dynamics of movement of inflation in Macedonia and Germany, we can easily conclude why agents insist on deposits with foreign currency component. Namely, in terms of fixed exchange rate, if the country has a higher rate of inflation from the peg, long-term real appreciation of the domestic currency should occure.

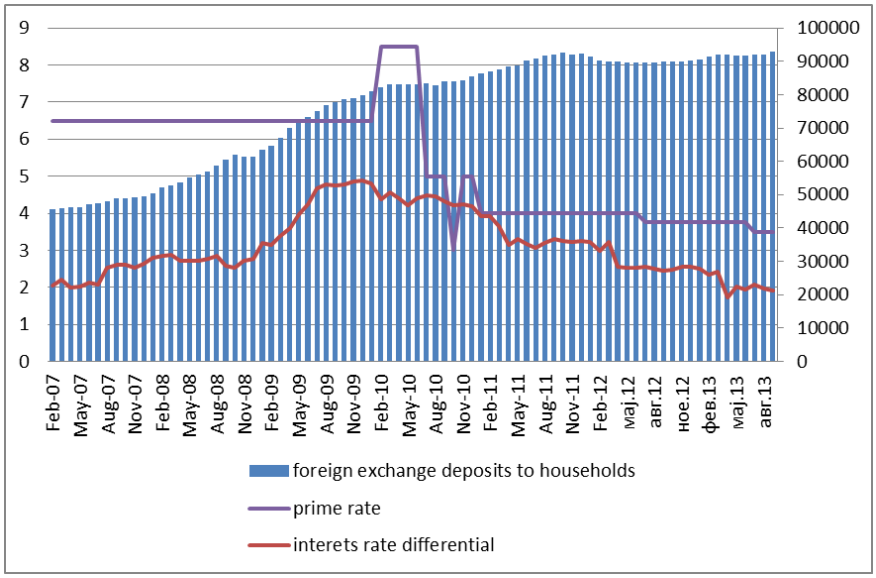
As mentioned above, the central issue in this part of the paper is: in case of financial account opening the deposits drain outside the country will follow. Previously we showed that mistrust economic policies can be acceptable argument for high deposit euroization in Macedonia. Moreover, based on that argument, but because of restrictions on capital movements, most households in Macedonia acctualy react to the changing expectations of inflation and exchange rate movements.

This can be illustrated with relatively high interest rate gap between denar deposits and deposits with foreign currency component, (in the analyzed period - 2.97 pp). In terms of expectations for changes in inflation and nominal exchange rate, the "shelter" in assets

[5] IFS (2014).

denominated in foreign currencies is confirmed by the existence of the difference in the interest rate on denar deposits with currency component. That spread explains the mood for the currency of the household deposits. Moreover, we want to emphasize that if confidence in macroeconomic policies is not in doubt, the higher interest rate spread should not affect the increase in investments in assets denominated in the domestic currency. To this we could add that even in terms of negative real interest rates in the country the deposit euroization grows.

Figure I.5.: Interest rate differentilas, prime rate and the balance of the foreign currency deposits (million denars)



Source: NBRM, authors calculations.

Figure 6 shows that from the third quarter of 2007 to early 2009, the real return on deposits is negative, while the deposit euroization is growing (figure 5). This fact is rather expected, if we consider that the interest rate on deposits is dependent on the amount of the prime interest rate (that one of the treasury bills). Additionaly, its movement in terms of a fixed exchange rate, is associated with the instrument to maintain its stability. This again points to the importance of increasing the confidence in the domestic currency.

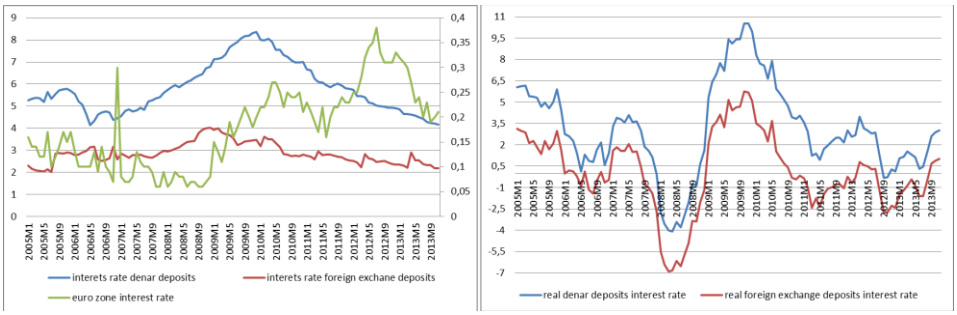
However, even though we have accepted that mistrust in the domestic currency is one factor for deposit euroization, this still is not an argument for outflows in case of financial liberalziation. This especially

is apparent in conditions when real chances for loss of deposits does not excists, since most of the deposits are insured. After all, for such thing, one needs something more than the liberalization of capial movements.

If we accept the assumption[6], that there are significant transaction costs for the transfer of funds between countries, the main motive for investing outside the country should be the returns of the funds (interest rate and returns on stocks). Given that, even in terms of free financial flows, the interest rate does not play a significant role in determining the level of deposit euroization, we can assume that low interest rates in the euro area (figure 6) also will not affect the amount of outflows from the country.

This confirms the expectations for convergence of interest rates as a result of the theory of interest rate parity. Hence, the fear of spilling out large amounts of money in the form of deposits out of the country could be based on the appetite for higher returns (interest), but with expectations of lower risk.

Figure I.6.: Nominal and real interest rates on deposits in domestic and foreign currency



Source: IMF, (IFS, 2014),NBRM, authors calculations.

The difference in the interest rates on treasury bills in Macedonia, The Eurozone and Germany can be analuzed as a signal for the perception and compensation for the higher risk. Here, we would like to mention that investing in treasury bills for households is not a full substitute for investments in deposits. Even thou, the analysis of the movement of the interest rates could give us two answers: first, whether there is a link between the growing level of risk to public finances at

[6] With reserve.

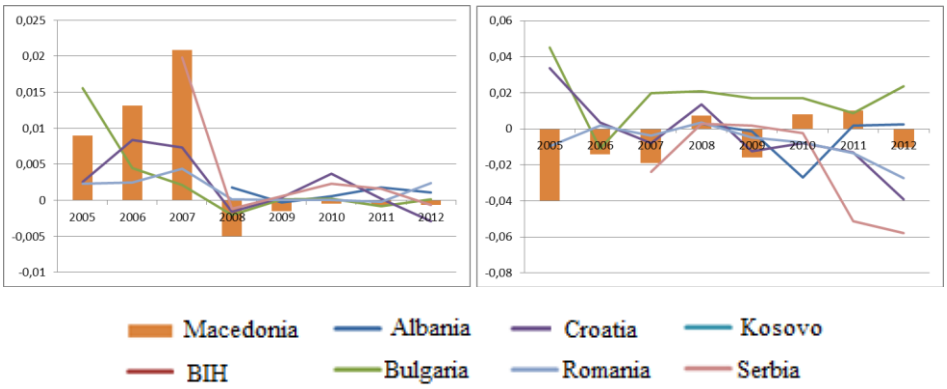
home and abroad, and second, is there a connection between these rates and those of the deposits.

The analysis so far to this part of the paper can not find strong arguments for fear of sharp drain of the deposits abroad. In fact, since agents are investing in deposits with foreign exchange clause the percepted time inconsistency problem is to be compensated with the foreign exchange rate risk free instruments. These instruments can be also used as a hedge from the implication of the eventualy inflation tax policies. Thus, this tool provides the agents to have fully protected and almost risk-free instruments in their portfolio.

The analysis to this point shows that, if agents do not respond to changes in interest rates, one of the reasons for seeking the save haven in the deposits with foreign currency component is exactly the excistence of underdeveloped capital market. With this concludion we have come to a head note of the entire course of the study. Namely, if we assume that with the opening of the financial account, the agents will invest in capital markets abroad, the question that arises is: Is it possible that the liberalization will not affect the development of the domestic capital market?

Figure I.9.: Portfolio investments (as % from GDP)

Equities *Net investments*



Source: IMF, (IFS, 2014),NBRM, authors calculations.

Next thing we want to test is what the conection between domestic and foreign capital markets is. The negative balance of the financial account should not be considered as a signal for capital ouflows in Macedonia. In fact, such balance could be interpreted as a signal form

the foreign investors, whose behavior can be followed by domestic agents. However, if we consider that the main factor for the changes in assets and liabilities are government debt securities and loans of the monetary authorities, as well as foreign institutional investors (particularly in the period 2007-2009), the greatest risk that the country could face is stopping the flow of funds on that basis, but not the private outflows. Here remains the question: Whether and how the change in the mood of the international creditors will affect the decisions of domestic agents regarding the type and location of theirs investments if the freedom in the choice of destination exicts? To this point of the paper no other reason for capital outflows than the low macroeconomic policy credibility is factor for outflows of the domestic deposits. Additionally, if we have in mind that with the possibility to invest in foreign currency deposits[7] that are secured with insurance funds, than the outflows of these instruments should not be expected.

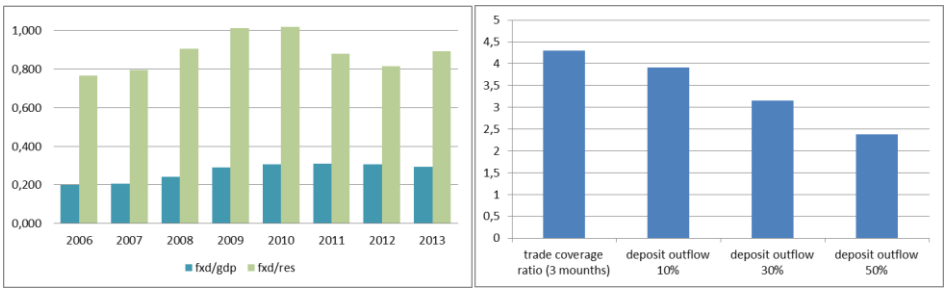
At the end of this paper, we will make a simulation of the change in foreign exchange reserves as a result from possible deposit outflows[8]. The scenarios are assuming that the expected deposit outflows will range from 10% to 50% of total deposits with foreign currency component. The results shows that only 50% of the deposit outflows will distrubate the coverage of imports by foreign exchange reserves. That means that the foreign exchange reserves will fall below 3 months trade coverage.

This assumption, we must admit, is rather unrealistic. It is eaven more elusive, if we consider that 50% of deposits with foreign currency clause presents 25% of total deposits. Reduction of the deposit base by 25% for each banking system, especially for Macedonias', whose main source of funds is exactly the deposits would entail much bigger financial and economic turbulence.

[7] That provides shelter form inflation and depreciation risk.

[8] Here we want to stress out that we are aware that the deposit outflows does not mean that the foreign exchange reserves will decrease in the same amount.

Figure I.10.: Foreign currency deposits.GDP, total non gold foreign exchange and changes in the trade coverage ratio



Source: NBRM, authors calculations.

Conclusion

Cross-border capital movements within the global economy have been increasing steadily for the past decade. The years that followed year 2002 brought increase of capital flows from the rich to developing countries. In the year 2008 only, the International Monetary Fund measured growth in net private capital flows of 30%. This was supported by strong economic growth, favorable conditions for trade, low inflation and low interest rates worldwide. Literature dealing with the capital movements' liberalization concludes that even thou there is positive effects from the high amounts of inflow of foreign capital, they can pose a great threat too.

Analyzing the models that are representing the agents' preferences on investment in terms of both open and limited financial account shows several things. First, the agents are always seeking for an optimal portfolio that would bring them greater return and lower risk. Second, no matter the return rate, the major reason for theirs shifts from one to other instrument (less riskier) is the perception of the stability of the macroeconomic policies. This is especially connected with the possibility of the country's economic policies to maintain stable inflation rate and predictable exchange rate policy.

The central issue in this paper is: Will there be any changes in the deposit balance if a financial accounts opening occurs. Previously we showed that mistrust in the economic policies can be acceptable argument for high deposit euroization in Macedonia. Moreover, based on that argument, but because of restrictions on capital movements, most

households in Macedonia actually react to the changing expectations of inflation and exchange rate movements in the manner of euroization.

Hence, the assumption of no confidence on economic policies as a basis for possible deposit outflows, leads us to the conclusion that, even in a limited capital movements the economic policies must focus on establishing higher confidence. Finally, we have concluded that the possibility of investing in instruments without exchange and credit risk would affect the reduction of pressure on deposit outflows.

Having that in mind, liberalization of the financial account probably limits only the financial development, with no other expected negative results especially in banking deposit balances. This also is important when in the country the deposit euroization is allowed. On the other hand, the high level of deposit euroization, however, points out the weaknesses in the financial and institutional development. It is to these aspects that the economic policies should address their strategies.

References:

1. Aghion, P., Bolton, P., 1997. A theory of trickle-down growth and development. The Review of Economic Studies 64, 151–172.
2. Aizenman, J., 2008. Large hoarding of international reserves and the emerging global economic architecture. The Manchester School 76, 487–503.
3. Alesina, A., Barro, R.J., 2001. Dollarization. American Economic Review 381–385.
4. Arellano, C., Heathcote, J., 2010. Dollarization and financial integration. Journal of Economic Theory 145, 944–973.
5. Arora, V., Cerisola, M., 2001. How does US monetary policy influence sovereign spreads in emerging markets? IMF Staff papers 48, 474–498.
6. Arteta, C., 2002. Exchange rate regimes and financial dollarization: does flexibility reduce bank currency mismatches?
7. Arteta, C., 2003. Are financially dollarized countries more prone to costly crises? Board of Governors of the Federal Reserve System.
8. Arteta, C., Eichengreen, B., Wyplosz, C., 2001. On the growth effects of capital account liberalization. unpublished.

9. Bartolini, L., Drazen, A., 1997. Capital account liberalization as a signal. National bureau of economic research.
10. Basso, H.S., Calvo-Gonzalez, O., Jurgilas, M., 2011. Financial dollarization: The role of foreign-owned banks and interest rates. Journal of banking & finance 35, 794–806.
11. Beckmann, E., Scheiber, T., Stix, H., 2011b. How the crisis affected foreign currency borrowing in CESEE: Microeconomic evidence and policy implications. Focus on European Economic Integration Q 1, 25–43.
12. Bencivenga, V.R., Huybens, E., Smith, B.D., 2001. Dollarization and the Integration of International Capital Markets. Journal of Money, Credit & Banking (Ohio State University Press) 33.
13. Bobba, M., Della Corte, G., Powell, A., 2007. On the determinants of international currency choice: will the Euro dominate the world? Working paper//Inter-American Development Bank, Research Department.
14. Bokor, L., Pellényi, G., 2005. Foreign Currency Denominated Borrowing in Central Europe: Trends, Factors and Consequences, ICEG EC Opinion Nr.5, February 205. International Center for Econmic Growth–European Center.
15. Bordo, M.D., Meissner, C.M., Stuckler, D., 2010. Foreign currency debt, financial crises and economic growth: A long-run view. Journal of International Money and Finance 29, 642–665.
16. Broner, F., Rigobon, R., 2004. Why are capital flows so much more volatile in emerging than in developed countries?
17. Calvo, G.A., 1998. Capital flows and capital-market crises: The Simple Economics of Sudden Stops. Journal of applied Economics 1.
18. Calvo, G.A., Izquierdo, A., Talvi, E., 2003. Sudden stops, the real exchange rate, and fiscal sustainability: Argentina's lessons. National Bureau of Economic Research.
19. Defever, F., Suedekum, J., 2014. Financial liberalization and the relationship-specificity of exports. Economics Letters 122, 375–379. doi:10.1016/j.econlet.2013.12.034
20. Kydland, F.E., Prescott, E.C., 1977. Rules rather than discretion: The inconsistency of optimal plans. The Journal of Political Economy 473–491.

21. Mendoza, E.G., 2001. The Benefits of Dollarization When Stabilization Policy Lacks Credibility and Financial Markets Are Imperfect. Journal of Money, Credit & Banking (Ohio State University Press) 33.
22. Moreno-Villalaz, J.L., 2005. Financial integration and Dollarization: The case of Panama. Cato J. 25, 127.
23. Nicolo, G.D., Honohan, P., Ize, A., 2005. Dollarization of bank deposits: Causes and consequences. Journal of Banking & Finance 29, 1697–1727.
24. Rodrik, D., Subramanian, A., 2008. We must curb international flows of capital. Financial Times 25.
25. Tkalec, M., 2011. The Determinants of Deposit Euroization in the European Post-transition Countries: Evidence from Threshold VECM, in: 17th Dubrovnik Economic Conference, Young Economists Seminar.
26. Yinusa, D.O., 2008. Between dollarization and exchange rate volatility: Nigeria's portfolio diversification option. Journal of Policy Modeling 30, 811–826.