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OPENNESS OF THE CAPITAL MARKET IN MACEDONIA

Marjan Nikolov, MSc

Centre for Economic Analyses-CEA Macedonia

makmar2000@yahoo.com

www.cea.org.mk

Abstract

Macedonia is a small relatively open economy and its interest rate policy is very much linked to its exchange rate policy. The more integrated it became with the international financial market the more the interest rate policy will be dependent on the exchange rate regime.

One reason to analyze the behavior of the interest rate level in Macedonia is the differential between the interest rates in Macedonia and the Euro zone. In accordance with the uncovered interest rate parity, the more open the economy is the domestic interest rate should be converging to the Euro zone interest rate. If the difference, i.e. the parity spread, is high in an environment of integrated financial sector and Macedonia and still experiencing high interest rates, then the differential may be explained as a premium for the expectation of future depreciation and/or devaluation of the Macedonian Denar. Explanation then might be that there exist a misalignment within the fixed exchange rate regime in Macedonia thus, creating incentives for the market to expect depreciation/devaluation. The type of expectation (whether they are rational or adaptive) is very important, as shown in this paper.

Key words: Interest rate parity, capital account, rational and adaptive expectations.

Why measuring the capital account openness

Higher degree of openness on one side may allow increased ability to finance larger current account deficits and increase the level of foreign savings and may affect the efficiency of capital allocation thus, reduce distortion with higher return on investment and higher productivity growth. On the other side Stiglitz (2002) argues that pressuring emerging countries in the 90s to relax the barriers on capital flow was a mistake and led to currency crises.

What would be country specific to Macedonia to argue for restricting capital integration? One reason for more restriction might be the country's high vulnerability to external shocks and financial crises. The expansion of

bank credit reflects a structural shift to more commercial bank intermediation thus, raising credit risk, like unhedged foreign exchange exposures by borrowers.

Even if the stress tests show small balance sheet risks, the possible evergreening might easily occur in the banking sector if the borrowers were not as creditworthy as the bank's risk managers estimated, having in mind the business environment in Macedonia and the external challenges the country might face with the Greece fiasco. That is why it is important that an overall strong monetary institution with good financial regulation and strong supervision are on place in Macedonia. Strong institutional set up could help reducing vulnerability and the interest rates and set a firm ground for implementing more growth oriented policies.

On the question how the openness of the capital account affects economic growth, Sebastian (2000) shows that there is evidence that an open capital account positively affects growth only after a country has achieved a certain degree of economic development. Further, he concludes, that this provides support to the view that there is an optimal sequencing for capital account liberalization. For Macedonia thus, still remains a dilemma. The more open the capital account the higher the ability to finance larger current account deficits. But, does the economic growth in Macedonia provide that certain degree of economic development as Sebastian points out?

The degree of openness of the capital account is affecting also, the degree to which the expansionary fiscal policy is crowding out the private investment and the ability to which the monetary policy affect the aggregate demand.

The global crises urge analysis of the capital account openness in the face of the possible sudden stops of inflow of capital and current account reversals as well. Sebastian (2004) finds no systematic evidence suggesting that countries with higher capital integration face a higher probability of having crises. But he also finds that once a crisis occurs, countries with higher capital mobility may face higher costs in terms of economic growth decline.

Macedonia, as one with fixed exchange rate, if it have high capital and labor mobility, vis-à-vis the EU countries with which it fix the exchange rate, will have less need for exchange rate adjustment and will be better off with the existing regime. But how much is the capital mobile and how much is the labor mobile is a matter for further empirical research.

Measures of the capital account openness

One simple measure of capital openness is the inflow of capital as percentage of GDP. A useful presentation of the behavior of capital flows as % of GDP one can find in Sebastian (2000).

In Macedonia the direct investment and the portfolio investment are relatively low (average for the period 1998-2004 of \$ US 92 per capita or cumulative FDI and portfolio investments of 5 % of cumulative GDP for the same period).

The degree of capital market integration can be estimated by examining the convergence of the private rate of returns to capital across countries. In their famous work Feldstein and Horioka (1980) analyzed the behavior of the saving and investment. The argument there was that in an environment of perfect capital mobility there is no correlation between the saving and investment. Interesting results from the work of Montiel (1994) after implementing the Feldstein and Horioka approach is the benchmark of saving ratio coefficient of 0.6. If a country has a coefficient of regression higher than 0.6 it can be said that the country has a rather closed capital account. Another interesting work, on this rather quantitative indicator (the saving-investment), is presented by Buch (1999). A price measure of capital mobility shows that in integrated financial markets rates of return on identical financial assets must be the same.

One test of the degree of capital mobility uses the fact that the assumption of international mobility of capital implies that consumers can smoothen consumption over time by borrowing and lending on (international-

al) capital markets. Hence, tests on the correlation of consumption and net domestic output can be used to assess the degree of capital mobility (Bayoumi 1998).

Klein and Olivei (1999) use the IMF's exchange arrangements and exchange restrictions data to construct index of capital mobility. The index is defined as the number of years that in accordance with the IMF's binary data the country in question has had an open capital account.

Another interesting measure for effective degree of financial openness of an economy is the Stilianos and Christopher cointegration test of interactions among the current account, budget balances and real interest rates.

The model

Here a measure of openness of the capital account in an empirical environment follows the Edwards and Khan (1985) and Haque and Montiel (1991). The rationale of the model is:

The domestic interest rate - i is a structural feature of the economy and can be expressed as a weighted average of the uncovered interest parity rate - i^* and the domestic "Endemic" interest rate if the capital market is closed - i' .

The algebraic representation is:

$$i = \psi i^* + (1 - \psi) i' \text{ or } i - i^* = (1 - \psi) (i' - i^*); 0 \leq \psi \leq 1 \quad (1)$$

Where the index of capital mobility - ψ is a measure of the openness thus:

$$0 \leftarrow \text{closed capital market} \leftarrow \psi \rightarrow \text{open capital market} \rightarrow 1$$

$\psi \rightarrow 1$ open thus, external financial influences outweigh the domestic monetary factors in the determination of the domestic market clearing interest rate.

$\psi \rightarrow 0$ closed thus, external financial influences play no role in the determination of the domestic market clearing interest rate.

The model is based on the money demand and supply approach rather than calculating the Fisher approach for the domestic interest rate.

The standard money supply function is:

$$M = R + D = R(-1) + D + \Delta R \quad (2)$$

R – domestic currency value of foreign exchange reserves

D – stock of the domestic credit outstanding

Δ – first difference operator

By using the BoP identity, the money supply function can be written:

$$M = R(-1) + D + CA + Kag + Kap \quad (3)$$

CA – domestic currency value of the current account

Kag – public capital account

Kap – private capital account

The money supply that would correspond to a situation with closed private capital account denoted as M' is the actual money supply less the portion of reserve flows accounted for by private capital movements:

$$M' = R(-1) + D + CA + Kag = M - Kap \quad (4)$$

The money demand function is:

$$\log(Md/P) = a_0 + a_1 * i + a_2 * \log(y) + a_3 * \log(M/P)(-1) \quad (5)$$

y – real output

P – domestic price level – CPI

The interest rate i' is that value of i that satisfies the money market equilibrium:

$$\log(M'/P) = \log(Md/P)$$

Thus, from the equation (5) we have:

$$i' = -(a_0/a_1) + (1/a_1) * \log(M'/P) - (a_2/a_1) * \log(y) - (a_3/a_1) * \log(M/P)(-1) \quad (6)$$

The following algebra will derive the equation that we should estimate. Firstly, we take equation (6) and substitute in (1). Secondly, we take the new expression of $-i$ and substitute it in the money demand equation (5). Thirdly, take the result of this algebraic exercise and the equation (3) to derive the final specification for estimation:

$$\log(M/P) = -a_0 * (1-\psi) + a_1 * \psi * i' + (1-\psi) * \log(M'/P) + a_2 * \psi * \log(y) + a_3 * \psi * \log(M/P)(-1) + e \quad (7)$$

Data

The dependent variable in our specification is the log of the real money supply measured as $M1$ (because I am using the money market interest rate) divided by the consumer price index-CPI. The independent variables are the logs of the lagged real money, real GDP, real value of $-M'$ ($M1$ minus the domestic currency value of private capital flows – inward direct investment and portfolio investment inflow) and the money market interest rate variable.

The frequency is monthly data for the period 1998-2004. For the monthly data I produce monthly GDP data from the quarterly GDP data by using the monthly industrial index data as weights. BoP and monetary data are from the NBRM. The GDP and industrial index data are from the State Statistical Office. For the foreign interest rate I use LIBOR/EURIBOR from the Deutsche Bundesbank statistics.

Estimating rational expectations

The interest rate variable $-i$ in (7) is the defined uncovered interest parity condition. It is derived as money market interest rate plus expected depreciation in the exchange rate (that is proxied by the actual exchange rate change that takes place between periods):

$$i = \text{EURIBOR} + E(\Delta \text{FX}\%) \quad (8)$$

E – expectation operator

$\text{FX}\%$ exchange rate change between periods

The M' was derived as $M1$ minus the MKD value of capital inflow.

Since the specification incorporates rationally expected variable, a lagged dependent variable and an endogenous variable- $\log(M'/P)$; a generalized nonlinear two stage procedure (Wickens 1982) was used in the estimation of the equation (7).

To ensure that the instruments used show no contemporaneous correlation with the residuals, only the lagged values were used for EURIBOR, real GDP, money supply, CPI, imports, foreign exchange reserves, industrial index and exports.

Rational versus adaptive expectations

Philip (1994) show that uncovered interest parity test coefficients can be expressed as functions of the parameters of expectations mechanism. His research is on the base of usually rejection of the uncovered interest parity and rational expectations in the empirical studies. That is why we reestimate the equation (7) with adaptive expectations by utilizing the Kalman filter latter.

Kalman filter is a recursive algorithm for sequentially updating the one step ahead estimate of the state mean and variance given new information. It can be applied in our case to model unobserved variable with adaptive expectations. Technically, the procedure is to form a preliminary estimate of the state and then revising that estimate by adding a correction to it. The magnitude of the correction is determined by how well the preliminary estimate predicted the new observation.

The Kalman filter can help in dealing with purely temporary shocks alternated with purely permanent shocks. It is also useful to implement a learning process and apply the Bayesian approach to update the prior probabilities of the separate filters if the characteristic of the time series evolve over time. In this way we ensure not to use one fixed model for each and every time. More on the use of Kalman filter see in Bomhof (1983). See Sun (2000) for time varying coefficient of capital mobility within adaptive expectations.

Results from a model with rational expectations

The following table illustrates results from the two stage least squares non-linear estimation made in E-Views.

Dependent Variable: LM1CPI
Method: Two-Stage Least Squares
Date: 10/13/05 Time: 20:03
Sample(adjusted): 1997:10 2004:12
Included observations: 87 after adjusting endpoints
Convergence achieved after 10 iterations
LM1CPI = $C(1) \cdot (1 - C(2)) + C(3) \cdot C(2) \cdot \text{INTEIBOR} + (1 - C(2)) \cdot \text{LOG}(M1FDI) + C(4) \cdot C(2) \cdot \text{LOG}(GDP) + C(5) \cdot C(2) \cdot \text{DLM1CPI}$
Instrument list: INTEIBOR(-1) GDP(-1) M1(-1) CPI(-1) IMPORT(-1) IND(-1) WAG(-1) FDI(-1)

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	143.4910	343.7868	0.417384	0.6775
C(2)	0.995959	0.007049	141.2873	0.0000
C(3)	0.001522	0.002841	0.535765	0.5936
C(4)	0.090992	0.062978	1.444822	0.1523
C(5)	0.923898	0.036430	25.36079	0.0000
R-squared	0.938498	Mean dependent var		4.282949
Adjusted R-squared	0.935498	S.D. dependent var		0.087895
S.E. of regression	0.022323	Sum squared resid		0.040862
Durbin-Watson stat	1.795003			

We can see that the coefficient-C(2) estimate of ψ is almost 1 and the interpretation would be significant perfect capital mobility and financial integration. The money demand coefficients: C(1), C(3), C(4) are not significant and only the lagged money demand coefficient is significant-C(5).

In January 2001 there was a significant inflow of investments in the telecommunication sector in Macedonia and that outlier can cause biased results.

The split of time series in two periods, one from January 1999 until December 2000 and the other from February 2001 until December 2004 shows the following results (E-Views prints available from the author upon request):

Period	Coefficient C(2) estimate of ψ	t-statistic
1999:01 – 2000:12	0.874	12.785
2001:02 – 2004:12	0.780	2.908

Both estimations show significant relatively open capital account. The interesting finding is that in the second period the capital market is more closed.

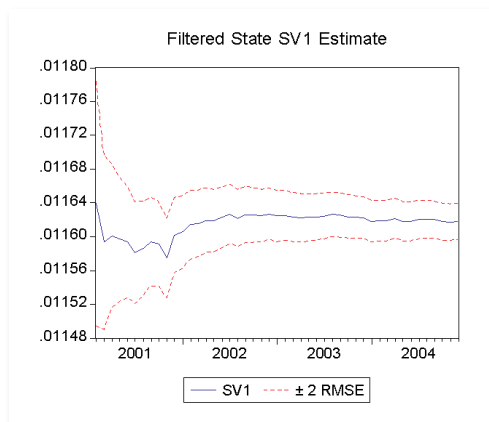
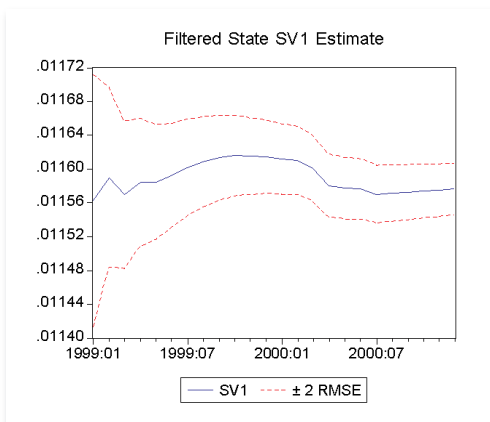
Results from a model with adaptive expectations

We run the Kalman filter estimation as well. This is more realistic type of assumption because allows for a time varying parameter on openness of capital account as well.

The results from the estimation on the time varying parameter are shown in the figures and were:

1. The parameter shows significant closed capital account.
2. The differences in the results are dramatic and depending on the type of expectations.

The results from the estimations for the two periods (one from January 1999 until December 2000 and the other from February 2001 until December 2004) are illustrated in the next figures (E-Views output available from the author upon request):



From the above figures we can see that the capital account was closed in Macedonia for the period with small changes across time. The relatively closed capital account has implications that the fixed exchange rate can still be a beneficial regime for the case of Macedonia if the economic agents have adaptive expectations. If the economic agents in Macedonia have adaptive expectations, the monetary policy in Macedonia still have relatively more powerful effect compared to the fiscal policy on the domestic demand and the trade balance.

The capital openness and the institutional set up

If the capital account is more liberalized the domestic financial market might be more vulnerable. The market stabilizing role is on the National Bank-NBRM with its supervision authority. On the other side we have the market regulating institutions as the Ministry of finance to correct certain market failures as to continue to impose or to reduce the capital flow with the amending in the legislation in joined cooperation with the NBRM.

Another way to explain the importance of the issue is to ask whether there is openness of the capital account sufficient to concern the NBRM in its policy of fixing the exchange rate and to concern the government for the possible influence on economic growth.

In Macedonia the interest rate differential is higher compared with the EU countries thus, either there are capital mobility issues or the differential is due to lack of confidence of the exchange rate policy (that is the credibility of the NBRM's policy). There is legitimate reason to believe that Macedonia pays an interest rate premium due to fear of depreciation. Is that fear rational is another issue. Still, our findings of closed capital account in an environment of adaptive expectations can be an argument for preferring the existing exchange rate regime.

We know that with the fixed exchange regime and higher degree of capital mobility the monetary policy is less effective and the fiscal policy is the only tool to smooth the economic cycles. But are the Macedonian governments using the fiscal tools efficiently so far?

The authorities in Macedonia still recognize the unstable economic environment thus; the fixed exchange regime and the possible further increase of the capital mobility and financial activity will most likely again increase the importance of the fiscal policy in affecting the aggregate demand. The alternatives of the fixed exchange regime like inflation targeting or monetary aggregate targeting would be unworkable given the unpredictability of the monetary transmission mechanism. In contrast, limited flexibility—a narrow band—could be manageable. But this would have too small an effect on banks' and borrowers' behavior to justify the risks associated with departing from the existing well-functioning anchor (IMF 2005).

Conclusion

The topic of monitoring the capital market openness is of crucial importance for Macedonia given the confirmed dedication to the fixed exchange rate.

Just for now it seems that Macedonia can keep the current exchange rate regime as long as capital markets remain relatively closed (if the expectations are adaptive). In that case the observed differences in the interest rates between Macedonia and the rest of Europe are most likely due to domestic factors. The more open becomes the capital market, the more problematic becomes the pegging monetary policy. The higher degree of the capital openness will require a choice of the corner solutions—either a more purely pegged exchange rate system – euroization or currency board or towards a purely floating system with either monetary aggregate nominal anchor or inflation as the nominal anchor (in accordance with the impossible trinity theorem).

NBRM will be less able to affect interest rates as capital markets open, if it continues to pursue a pegged exchange rate. If it continues to fix the exchange rate it will have only one policy tool to pursue the one goal, in accordance with the Tinbergen (1952) rule. It cannot target interest rates and fix the exchange rate regime at the same time. If it wants to target the interest rate it must allow for the exchange rate regime to float. The risk is that if it wants to hold down the interest rates to world level, in a floating environment, it would either print money or cause a loss of the reserves. This is why the institutional strength of the system is of importance.

The NBRM should conduct a thorough cost benefit analyses of removing/imposing capital controls in Macedonia. The cost of possible crises should be compared with the cost of having distortion in the capital

market. This is of special interest for Macedonia which suffers from sectoral deficiencies. The speculative reversals, a decline in external competitiveness, exchange rate appreciation, loss of control over the monetary base and inflation are some of the detrimental effects that can be provoked by surges in capital flows if the economy suffers from fundamental sectoral deficiencies (Oplotnik 2002).

In Macedonia the concentration of export in the production sector is high thus, in terms of flexible regime every shock on the exporting sectors might result in radical disturbances in the price level.

In theory, capital account liberalization should allow for more efficient global allocation of capital, from capital-rich industrial countries to capital-poor developing economies. For Macedonia, the EU membership provides a strong incentive for policymakers to adopt and maintain sound policies, with obvious benefits in terms of long-term growth. On contrary, the expected membership will be unlikely to boost capital market integration to a significant degree and to trigger huge capital inflows in Macedonia. The membership in the EU will require that Macedonia abolish remaining entry barriers into their financial sectors and hereby import institutional stability. Seen from this angle, the benefits of further capital account liberalization may outweigh the risks of such a strategy. At the moment this is still a distant future to trigger such analyses taking into account the recent failure to NATO membership expectations and the fragile expectation of EU candidature.

Capital account liberalization could pose major risks if implemented in unfavorable circumstances. In the case of Macedonia with the fixed exchange rate regime, and especially when domestic macroeconomic policies might not be consistent with the requirements of the regime, it can be a reason for crises. For instance, capital account liberalization can aggravate risks associated with imprudent fiscal policies by providing access to excessive external borrowing. The foreign borrowing and overall fiscal sustainability is very important issue in the light of the fixed exchange regime in Macedonia and higher degree of capital mobility.

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