# INFORMATION ON THE EXCHANGE RATE STABILITY IN 2010

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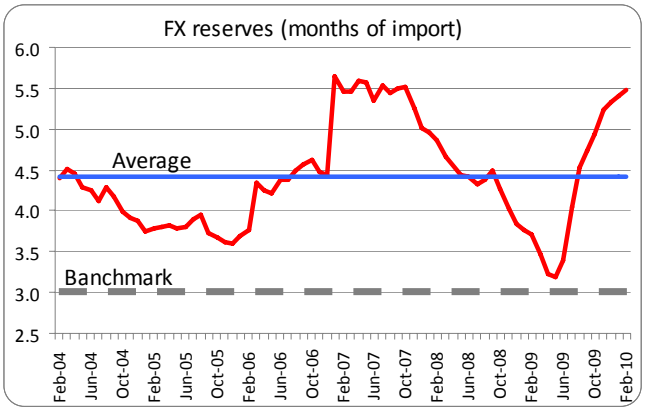
This analysis seeks to estimate the risk of potential correction of the EUR/MKD exchange rate in the course of 2010. In order to identify the F/X risk in the current exchange rate regime the analysis elaborates three key issues: first, **assessment of foreign reserves adequacy**, second, **balance of payments trends**, and third, **the relationship between F/X risk and F/X risk premium**.

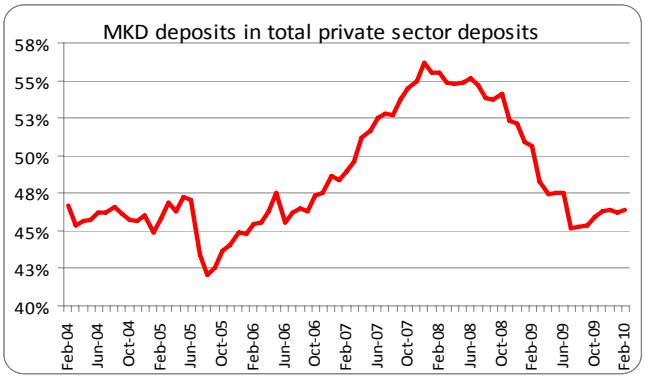
# 1. ASSESSMENT OF FOREIGN RESERVES ADEQUACY

Entering the crisis in the fall of 2008, international reserves stood at the level of €1.7 billion. By May 2009 they had fallen to a low point of below €1.2 billion as the central bank sold €500 million to defend the peg. However, reserves recouped much of their losses and reached the level of €1.6 billion by the end of the year. In order to estimate whether this level of reserves is appropriate we have used three standard benchmarks for assessment of reserves adequacy: **Reserve coverage of import**, **Greenspan-Guidotti rule** and **Reserve coverage of broad money**. Although these measures are informal rules of thumb based on general economic intuition rather than rigorously derived theoretical concepts, they perform quite well in empirical studies of reserve adequacy and thus provide useful guidance for policymakers and economic agents.

## RESERVE COVERAGE OF IMPORT

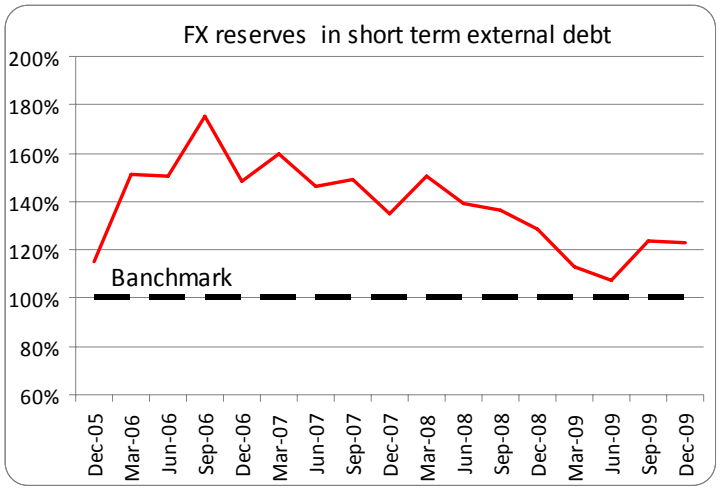
An import-based benchmark of assessing the reserves adequacy is usually recommended for small and open market economies where the external sector is the main source of instability for the exchange rate. The most popular import-based rule is that a country should hold foreign currency reserves in sufficient level to cover three months of imports. This provides a buffer in the event of a sudden drop in export revenues or loss of access to external financing. On that note, Macedonia's €1.6 billion reserves at the end of 2009 are well above this three-month rule and close to the highest values of this indicator in the last seven years. Moreover, the value



of the indicator in 2010 is close to its 2006-2007 level, a period in which the banking sector saw the highest conversion of F/X deposits to local currency deposits. Such conversion in 2006-2007 period implied greater confidence of the general public in the value of the local currency and hence lower exchange rate risk. However, Macedonia's 5.3 months of import coverage at the end of 2009 is slightly below the emerging market median of 6 months import coverage and emerging markets with pegged exchange rates median with 5.7 months coverage.

## GREENSPAN-GUIDOTTI RULE

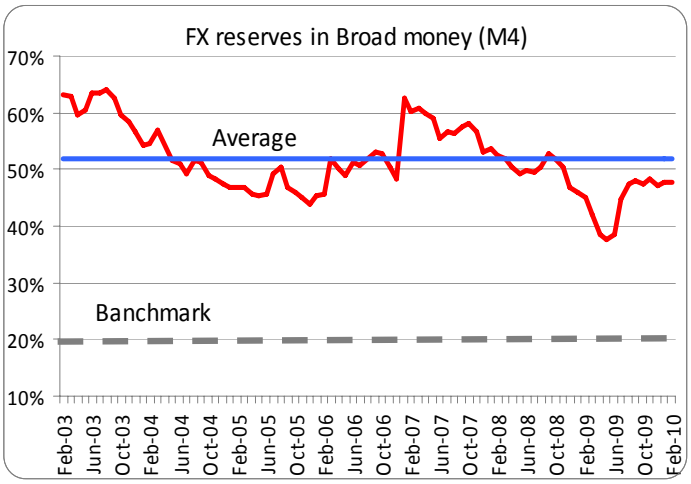


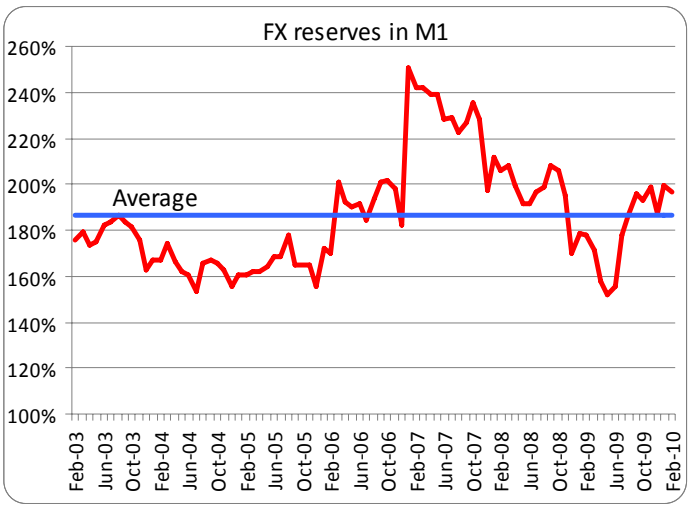

Another well-known benchmark for reserves adequacy is the Greenspan-Guidotti rule. The rule states: To avoid a default, countries should maintain foreign currency reserves equal to at least 100% of their short-term foreign debt maturities. The underlying idea here is that the country with reserves equal to or more than the total external debt falling within one year should be able to service its immediate external obligations even during a financial crisis. With reserves covering 123% of countries' short-term external debt at the end of 2009, Macedonia comfortably passes the Greenspan-Guidotti test of reserve adequacy.

## RESERVE COVERAGE OF BROAD MONEY

Money-based indicators for reserves adequacy provide a measure of the potential for resident-based capital flight. For example, a sizable money stock in relation to reserves suggests a large potential for out-of-money capital flight, especially if money demand is unstable and there is evidence of a weak banking system. Of course, this metric might be less relevant for countries that don't have fully liberalized capital account. Although there is no general consensus on the desired coverage ratio of broad money, the suggested

values according to Wjinholds and Kapteyn (2001) range from 5% to 20% as a "minimum" threshold for this ratio. The lower end of the ratio is considered appropriate for flexible exchange rate regimes and the upper for fixed exchange rate regimes. However it should be noted that in cases of small economies, where the money demand tends to be unstable, the desired value of this indicator should be higher than the minimum threshold. In any case, the broad money coverage ratio for Macedonia suggests comfortable levels of reserves on the basis of this indicator. Namely, Macedonia's 47.2 percent coverage is well above the median of 34 percent among the emerging market sample and 32 percent among emerging market pegged regimes.




## CONCLUSION

The different benchmarks looked at in this analysis suggest that the exchange rate peg is backed by sufficient level of foreign currency reserves.

| Indicator | Rule | Emerging market countries with fixed ER regime (median) | Macedonia 2009 |
|---|---|---|---|
| Import Coverage | 3 months | 5.7 months | 5.3 months |
| Reserves to Short-term debt | 100% | 150% | 123% |
| Reserve to Broad Money | 20% | 32% | 47.2% |

Source: WEO, IMF estimates and SB calculations

# 2. BALANCE OF PAYMENTS TRENDS

The current and expected balance of payments trends are also critical for assessing the exchange rate stability. This requires an evaluation of both current and capital account trends. Such an assessment is particularly difficult in light of current uncertainties about the global economy and financial system. However, in the generally accepted macroeconomic framework for 2010, the external sector prospects are foreseen as more favourable compared to 2009. The expected increase of the current account gap is reflecting the deterioration of the trade deficit on the back of expected rise in oil prices in 2010. Since volatile trends are not foreseen, the net inflows from private transfers are expected to remain the main source for financing the unbalanced trade activity in 2010. On the capital and financial account side, the most significant capital inflows in 2010 are expected to come from foreign direct investments and increased government borrowing. Given the limited domestic financing sources, for fiscal deficit financing (2.5% of GDP) it will likely be necessary to seek private external financing (possibly another Eurobond).

Overall, in the baseline scenario the external sector is not expected to post pressure on the exchange rate peg. Namely, in the baseline scenario the FX reserves are projected to cover 5.1 months of import, thus representing significant buffer for the exchange rate peg. However, since the large current account deficit leaves Macedonia dependent on external financing, in the scenario analysis presented in the table below we also look at the effects of possible deterioration of the capital account assumptions of the baseline scenario. Namely, our Scenario 1 considers situation when the fiscal deficit is mainly financed by domestic sources and consequently, the capital inflows from increased external government borrowing are zero. Under this assumption the reserves cover 4.7 months of imports and 40.6% of broad money, both suggesting sufficient coverage of the exchange rate peg with F/X reserves. Moreover, in the second scenario in addition to the assumption for domestic fiscal financing we assume that the FDI's will remain at the same level as in 2009. Under this scenario the reserves are projected to cover four months of import and 35.7% of broad money. Evidently, in both scenarios, the buffer provided by the foreign currency reserves is sufficient to preserve the stability of the exchange rate.

Balance of Payments
(millions of euros)

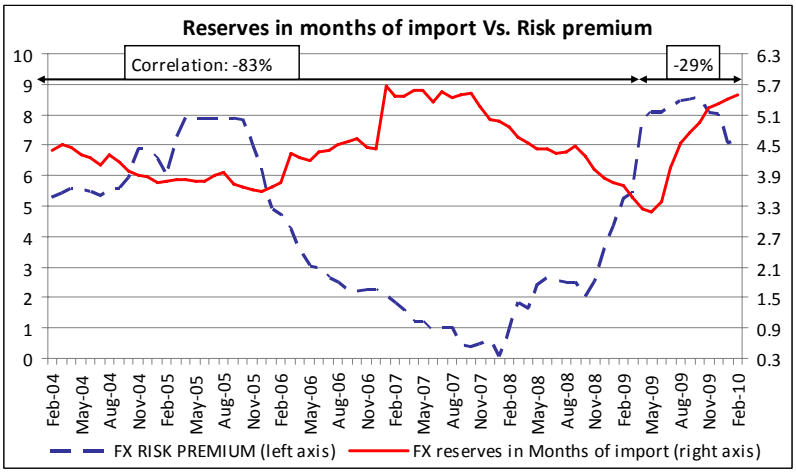
| | 2009 | 2010 | | | 2011 |
|---|---|---|---|---|---|
| | Actual | Baseline | Scenario 1 | Scenario 2 | Projection |
| **Current account** | **-483** | **-641** | **-641** | **-641** | **-526** |
| (excluding official transfers) | -537 | -681 | -681 | -681 | -566 |
| Trade balance (fob) | -1,551 | -1,680 | -1,680 | -1,680 | -1,493 |
| Exports | 1,921 | 2,120 | 2,120 | 2,120 | 2,468 |
| Imports | -3,472 | -3,800 | -3,800 | -3,800 | -3,961 |
| Services (net) | 28 | 19 | 19 | 19 | 21 |
| Income (net; including net interest) | -92 | -98 | -98 | -98 | -136 |
| Transfers (net) | 1,131 | 1,118 | 1,118 | 1,118 | 1,082 |
| Official | 54 | 40 | 40 | 40 | 40 |
| Private | 1,078 | 1,078 | 1,078 | 1,078 | 1,042 |
| **Capital and financial account** | **535** | **646** | **521** | **342** | **601** |
| Capital account (net) | 19 | 0 | 0 | 0 | 0 |
| Financial account | 516 | 646 | 521 | 342 | 601 |
| Direct and portfolio investment (net) | 276 | 506 | 381 | 202 | 514 |
| Direct investment | 172 | 351 | 351 | 172 | 379 |
| Portfolio investment | 104 | 155 | 30 | 30 | 135 |
| *Of which* : Eurobond (net) | 175 | 125 | 0 | 0 | 100 |
| Errors and omissions | 17 | 0 | 0 | 0 | 0 |
| Overall balance | 51 | 5 | -120 | -300 | 75 |
| Change in gross foreign reserves (increase:-) | -69 | -5 | 120 | 300 | -75 |
| **Stock of gross foreign reserves** | **1,599** | **1,603** | **1,478** | **1,299** | **1,678** |
| **F/X reserves (in months of import)** | **5.3** | **5.1** | **4.7** | **4.1** | **5.1** |
| **F/X reserves (in M4)** | **47.2%** | **44.0%** | **40.6%** | **35.7%** | |

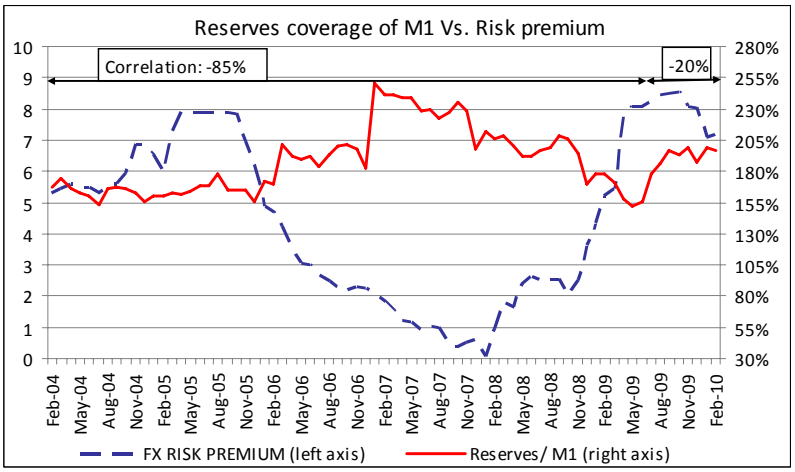
Sources: NBRM, IMF and SB calculations

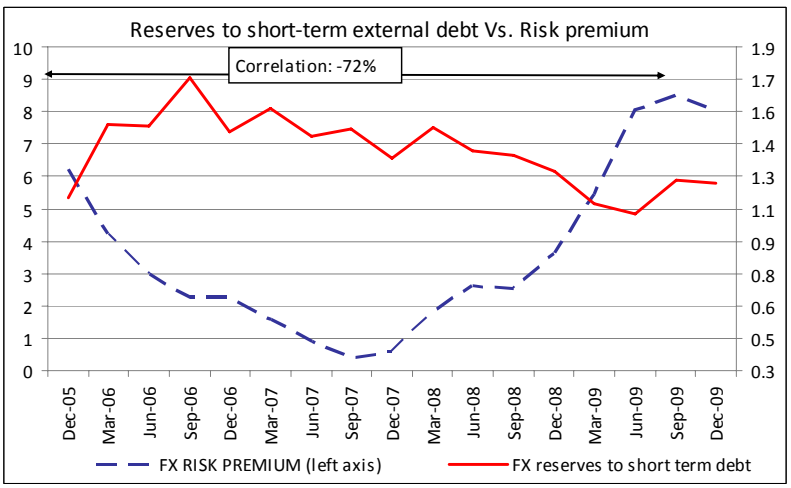
# 3. THE RELATIONSHIP BETWEEN RISK AND RISK PREMIUM

In this part of the document we are analysing the historical relationship between F/X risk and F/X risk premium. For the purpose of the analysis the F/X risk premium is defined as the difference between 28 days CB Bills rate and 1 month EURIBOR rate. It is the opportunity cost for banks from placing their excess liquidity as deposits in foreign banks instead investing in 28 days CB Bills. Since both alternatives are risk free investments, in terms of credit risk, the difference between the two interest rates represent the F/X risk premium. For measurement of the F/X risk we are using the three standard indicators as in the first part of the document.

As presented in the charts, in the January 2005-May 2009 period we have identified significant statistical relationship between F/X risk premium and F/X risk. Namely, during periods of relatively high level of F/X reserves, which implies low F/X risk, the risk premium tended to be lower and vice versa. However, since Q3 2009, due to relatively quick recovery of F/X reserves in environment of different stance of the monetary policy in Macedonia relative to the Euro area, the risk premium diverged from the risk level in a way that the premium was not reflecting the risk behind the exchange rate. Namely, the current risk premium that an investor/ risk taker is receiving, for accepting the F/X risk, is significantly higher in comparison to its historical value for the similar level of F/X risk (measured by the previously mentioned indicators). Consequently, based on the historical relationship between F/X risk and F/X risk premium, we observe that not only the nominal, but also the risk adjusted opportunity cost of money market placements in foreign banks is high by historical standards.



# 4. CONCLUSION

Based on the different aspects analysed in this document we conclude the following:

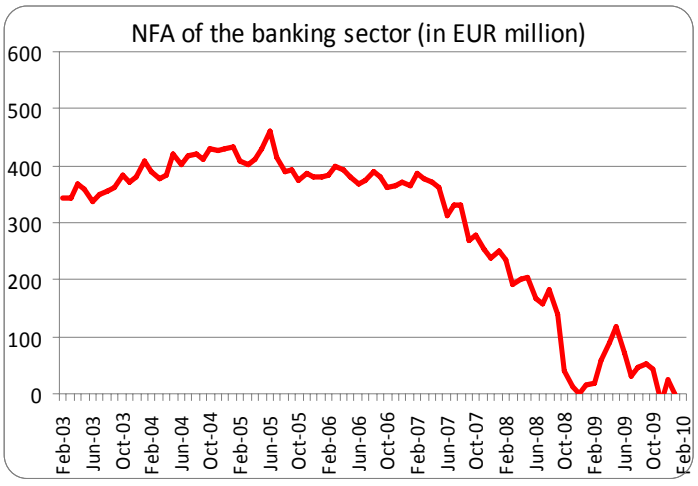
1. The three popular benchmarks analysed in the first part of the document, suggest that the exchange rate peg is backed by adequate level of foreign currency reserves.

2. In the generally accepted macroeconomic framework for 2010, the external sector is not expected to post significant pressure on the exchange rate peg. Moreover, even if the external imbalances are slightly deteriorated (as presented in scenario 1 and 2) the buffer provided by the foreign currency reserves is sufficient to preserve the stability of the exchange rate. However, higher imbalances generated by fundamental internal disequilibria may reduce the F/X reserves significantly.

3. The current F/X risk premium is perceived as high not only by nominal standards but also on risk adjusted basis.

Main risks identified and related to the above mentioned conclusions are:

1. The net foreign assets (NFA) of the banking sector, which are also perceived as a buffer for the exchange rate in environment of external imbalances, are low compared to pre crisis level. Namely, banking sector NFA at the end of 2009 totalled EUR 24.8 million which is much less compared to EUR 183.2 million in August 2008. In this respect the official central bank reserves are the only sources for financing the external imbalances.



2. The presented conclusions are based on the assumption for global economic recovery and consequently, the risk of double-dip (W-shaped) recession is not taken into account. Namely, if the global economy does not recover as projected, and the risk aversion among investors remains high, the capital inflows in the domestic economy might significantly undershoot the projections which will consequently create higher pressure on the exchange rate.

3. In addition to the expected recovery of the world economy, another assumption for this analysis is that domestic policymakers will maintain their published macroeconomic targets, which especially refers to the fiscal expenditures.

# APPENDIX