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The Polish Zloty and the Swedish Krona in the Prospects of the ERM II

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Abstract

The economies of Poland and Sweden are quite different, but the Polish and Swedish foreign exchange markets are similar. The main difference between them is the size of turnover, the Swedish market is more than five times larger than the Polish one. The aim of the paper is to identify factors determining the relationship between exchange rates volatility of the Polish zloty, Swedish krona, U.S. dollar and euro in the context of the development of the foreign exchange markets. The strong correlation of the EUR/USD exchange rate with the USD/PLN and USD/SEK exchange rates can be explained by the transactional and currency structures of the Polish and Swedish markets.

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Introduction

The economies of Poland and Sweden are quite different. Sweden is a country with mature market economy; Poland has been in the process of transition from a communist to capitalistic economy for 20 years. Basic economic indicators place these countries on opposite sides of the European countries’ rankings. Sweden has been a member of the EU since 1995 and a monetary cooperation of that country with the EU began in 1973. Poland has been a member of the EU since 2004 and its monetary cooperation with the monetary authorities of Community is limited to a minimum. For several years Sweden has been meeting the nominal convergence criteria for the euro area, with one exception – participation in the ERM II. Poland has serious problems with reaching the required level of indicators of the Maastricht Treaty and is also not a member of the ERM II.

What therefore led us to compare the Swedish krona and the Polish zloty in the context of accession of those countries to the euro zone? In our opinion there are two common features of the foreign exchange market situation of these countries:

• High level of correlation of fluctuations of SEK and PLN exchange rate to USD exchange rate as compared to EUR exchange rate,
• Similar structures of the Polish and Swedish foreign exchange markets.

The aim of the paper is to identify factors determining the relationship between exchange rates volatility of the Polish zloty, Swedish krona, U.S. dollar and euro in the context of the potential inclusion of PLN and SEK into the ERM II. The paper consists of three parts. In the first part the correlation coefficients of PLN and SEK exchange rates to EUR and USD exchange rates are analyzed. In the second part the Polish foreign exchange market is examined, and in the third – the Swedish one.

1. The analysis of the correlation among SEK, PLN and EUR/USD exchange rates

As stated in remarks presented in the introduction to this paper we believe that correlation coefficients of USD/SEK, EUR/SEK, USD/PLN, EUR/PLN and EUR/USD are good measures of the real convergence between the currencies. The strong correlation between SEK, PLN and EUR would mean that the Polish zloty and Swedish krona are the shadows of the common European currency and without any significant risks can be introduced into ERM II. For the purpose of the research we have assumed that Poland and Sweden have currently the bi-currency standard of the foreign exchange market what means that both EUR and USD serve as an international currency on their domestic financial markets. That means that the fluctuations of the EUR/USD exchange rate strongly determine changes of the Polish zloty and the Swedish krona exchange rates. From the point of view of statistical analysis the assumption of the bi-currency standard means that EUR/USD exchange rate becomes a benchmark for the examined coefficients of correlation.

Firstly we have examined the Polish foreign exchange market. Three measurements have been used to study the correlations estimated on the basis of Reuters database (the daily closing-bid rates shown in the Graph below): correlation coefficient, Pearson’s coefficient and R² coefficient. The study comprises the period between January 3, 2000 and March 14, 2012.

A comparison of the coefficients presented in Table 1 shows that the changes of USD/PLN exchange rate were much more correlated with the changes of EUR/USD then EUR/PLN exchange rates. It proves that zloty is stronger determined by fluctuations of U.S. dollar on global foreign exchange markets then by fluctuations of euro.

Graph 1. The fluctuations of the euro-US dollar, the US dollar–zloty and the euro-zloty exchange rates
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