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POTENTIAL TRADE IMPLICATIONS OF JOINING THE EURO ZONE FOR THE POLISH AGRO-FOOD SECTOR

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Abstract

In the period of 1995-2013 the Polish agro-food export exhibited a very dynamic growth. It has happened under free-floating exchange rate system, which is believed to help stimulate exports when the Polish currency depreciates. Using some econometric procedures we have found that the exchange rate fluctuations played very little role in shaping the Polish agro-food trade. A comparison of relative prices of selected agricultural and food products in Poland and in the EU suggests that adoption of euro at a conversion rate close to the recent market levels should not have a significant impact on the Polish agro-food export.

Keywords: Euro adoption, agro-food trade, Poland.

Introduction

Costs and benefits of adopting euro in Poland have been extensively analyzed in recent years. However, this problem is explored mostly from macroeconomic perspectives, what is understandable as only at that level of aggregation an economic rationale for such potential development and its implications for the Polish economy as a whole can be properly highlighted. The expected benefits include lower transaction costs related to currency exchange and exchange risks, lower interest rates, elimination of a financial crisis risk, more transparent and comparable prices, and increased macroeconomic stability. Among the costs mainly disappearance of autonomy in monetary policy, a risk of inflation, risk of a credit boom, and asymmetry in distribution of the effects of replacing the national currency are listed. Opinions that the overall balance of costs and benefits of joining the euro zone would be clearly positive for the Polish economy are prevailing. Simulations carried out by the National Bank of Poland indicate that exports from Poland should increase by 12-13% annually at least over a period of several years contributing substantially to the economic growth.

These expected positive trade implications are very much in line with the results of many studies, mainly based on gravity models of international trade, showing positive effects of a common currency or monetary unions on international trade (e.g. Rose, 2000, Frankel and Rose, 2002, Glick and Rose, 2002). In this vast body of literature there has been relatively little empirical evidence on how this impact is distributed across countries and sectors. Theoretically, different sectors may benefit differently from euro adoption due to technological and market structure characteristics as well as differences in specialization at national level, which can lead to emergence of “winners and losers” in the export competition (Pappalardo and Vicarelli, 2012). This issue has also been addressed in some other works (de Nardis and Vicarelli, 2003, Baldwin, Skudelny and Taglioni, 2005, de Nardis, de Santis and Vicarelli, 2008).

In the period of 1995-2013 the Polish agro-food sector enjoyed a very dynamic growth in foreign trade, especially visible on the export side. The export increased from around 2 to around 18 bn euros and import from around 3 to 14 bn euros. Trade balance was slightly negative until 2002 and afterwards, especially since the accession to the EU, it was increasing, so in 2013 Poland reached around 4 bn euro positive trade balance in agro-food products. The economic crisis caused a slight decrease in agro-food industry export and import in 2009, but in subsequent years the rates of both export and import growths recovered to the levels prior to 2008, which was even almost 40% a year. In 2013 export amounted to 18.7 bn and import to 13,7 bn euros. In the period of 1995-2013 the agro-food trade constituted 8-13% of the Polish total export and 6-10% of the total Polish import. In 2013 this was 12.5% and 9.2%, respectively. So, the agro-food sector plays an important role especially in the total Poland's export. As of 2012 the agro-food products were mostly exported to the EU27 (76.9%). Also majority of the agro-food import came from the EU27 (68.5%).

In this context an interesting question arises how the potential adoption of euro would affect the Polish agro-food trade, particularly with the EU countries. Our main goal is to make an attempt to answer this question looking at variability of the exchange rate and development of relative prices of selected agricultural commodities and food products in Poland and in the major EU markets in the post-accession period of 2004-2013. Among other, this is motivated by rather widely accepted opinion that big part of the Polish success in agro-food trade can be attributed to the flexible market-based floating exchange rate regime, which is was introduced in Poland in 2000.

The objectives of the paper are the following:

- depict development of the Polish agro-food foreign trade as well as the exchange rate fluctuations after the accession to the EU;
- present movements of relative prices of selected agro-food products in comparison to the exchange rates fluctuations;
- make an attempt to assess how the adoption of the euro may affect the Polish agro-food trade dynamics, particularly with the EU countries.

Methods

The basic theory says that the exchange rates play a vital role in a country's level of trade. This simply means that depreciation or appreciation of currency may have an impact on export and import volumes. Following this fundamental theoretical assumption we have tried to detect existence of a relationship between variability of the Polish currency exchange rate and the export and import dynamics using several econometric procedures including the Johansen test for existence of long run relationships, the VECM model, and autoregressive distributed lag error correction model (ARDL-ECM); (Pesaran, et al., 2001, Huchet-Bourdon and Korinek, 2011). The explained variable was agro-food trade balance while the explanatory variables included real PLN/€ exchange rate, volatility of the nominal PLN/€ exchange rate (measured by standard deviation for the last 12 months) and demands for agro-food products in the euro zone and Poland reflected by the respective indices of wholesale and retail food trade as proxies. The values of the explained variable were adjusted for seasonality using X12-ARIMA procedure. All variables were expressed in logarithmic terms.

With reference to the Law of One Price (LOP) and Purchasing Power Parity (PPP) theory we have also looked at the levels and fluctuations of relative prices of selected agricultural commodities and food products in Poland and in the EU markets in the post-accession period, i.e. in 2004-2013, to see how these prices relate to the market determined currency exchange rate levels and fluctuations. Specifically, we have been interested in identifying potential cases of undervaluation or overvaluation and expected price adjustments considering significantly different levels of fixing the exchange rate, which might be applied to convert Polish zloty into euro when joining the euro zone.

Results

As it can be seen in Figure 1 in the period of 2004-2013 the Polish agro-food export to the world exhibited a very strong growing trend explaining almost 90% of its variability. A very similar picture appears when the Polish agro-food export to the EU-28 countries is considered, which understandable due to proximity of the European markets and trade divergence after the accession in 2004. Behavior of the PLN/€ and PLN/\$ exchange rates in the same period depicted in Figure 2 was extremely changeable and volatile. Till July 2008 Polish zloty appreciated systematically against euro (below the level of 3.5), then rapidly started to depreciate reaching the level of 4.51 in June 2009. Since that moment the trend has become more or less horizontal. Distribution of the logarithmic rate of returns appeared to be

asymmetric and leptokurtic and did not meet tests for normality. The PLN/\$ exchange rate followed an analogous pattern.

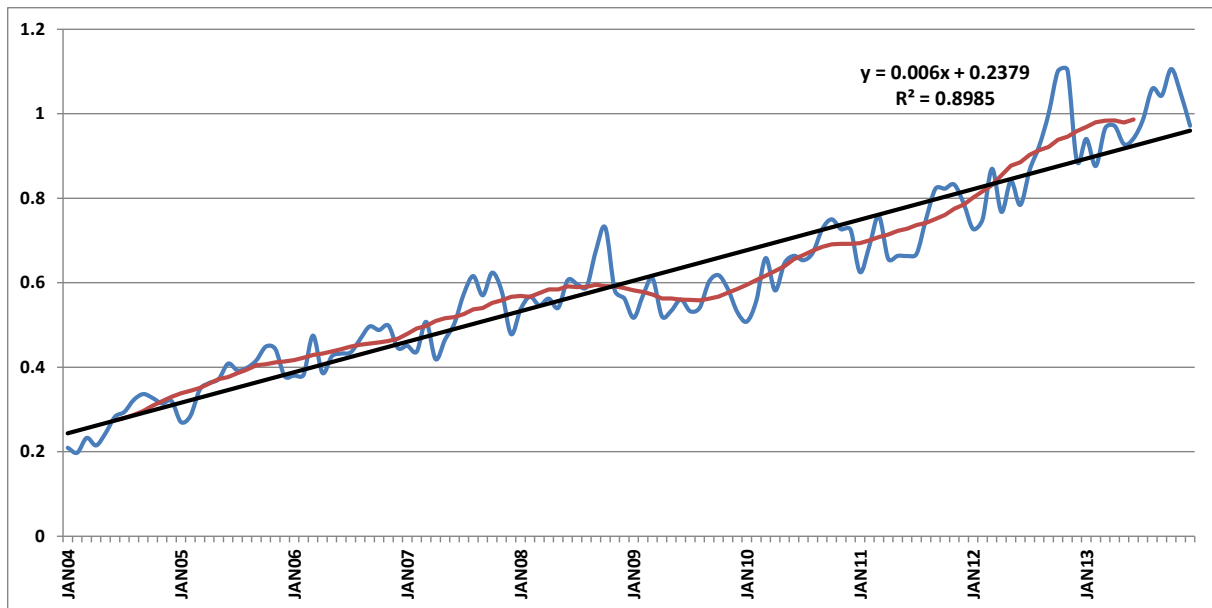


Figure 1. Polish Agro-food Export to the World in 2004-2013.

Source: Own calculations based on the CAAC data.

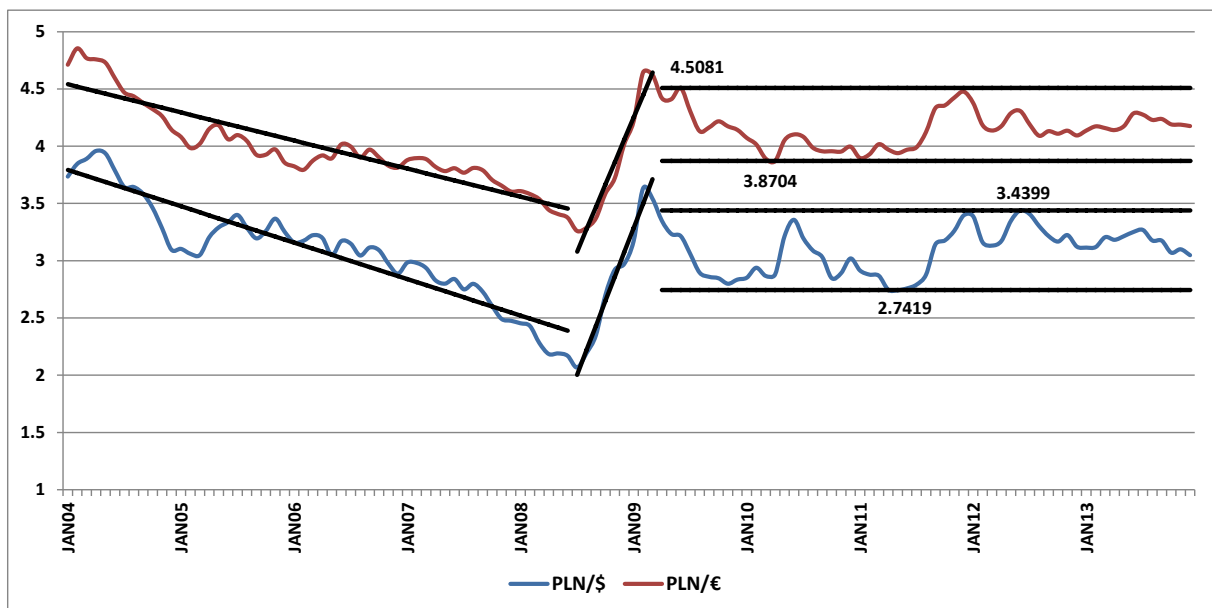


Figure 2. The PLN/\$ and PLN/€ Exchange Rates in 2004-2013.

Source: Own calculations based on the NBP data.

Results of an econometric analysis aimed at identifying a relationship between trade volumes (export and import) and exchange rates fluctuations are not obvious, however some influence of the exchange rate on the agro-food export and import dynamics cannot be excluded. Testing for stationarity showed that all analyzed variable were integrated of order 1. The trace test indicated one co-integrating vector, which means that there is relationship

between the analyzed variables. The estimated VECM model parameters were statistically significant regarding adjustments of the variables to a long run equilibrium. Impulse response functions suggest that depreciation of the Polish currency against euro had some short time positive effects on the agro-food trade balance. Results obtained from the ARDL-ECM model were more ambiguous.

Much more revealing in terms of explanation of the underlying foundation of the Polish agro-food export and import dynamics were simple comparisons of relative prices of selected commodities and products, representative to the Polish agro-food trade, such as wheat, pork poulets and butter presented in Figure 3. We hypothesize that the conversion rate of the Polish currency in case adoption of euro should lie in the range of 3.5-4.5. These comparisons allow to identify which of the main branches of the Polish agro-food sector would currently face potential adjustments due to adoption of euro at certain fixed levels of the national currency conversion (undervaluation versus overvaluation scenarios) and formulate some suggestions regarding the trade implications.

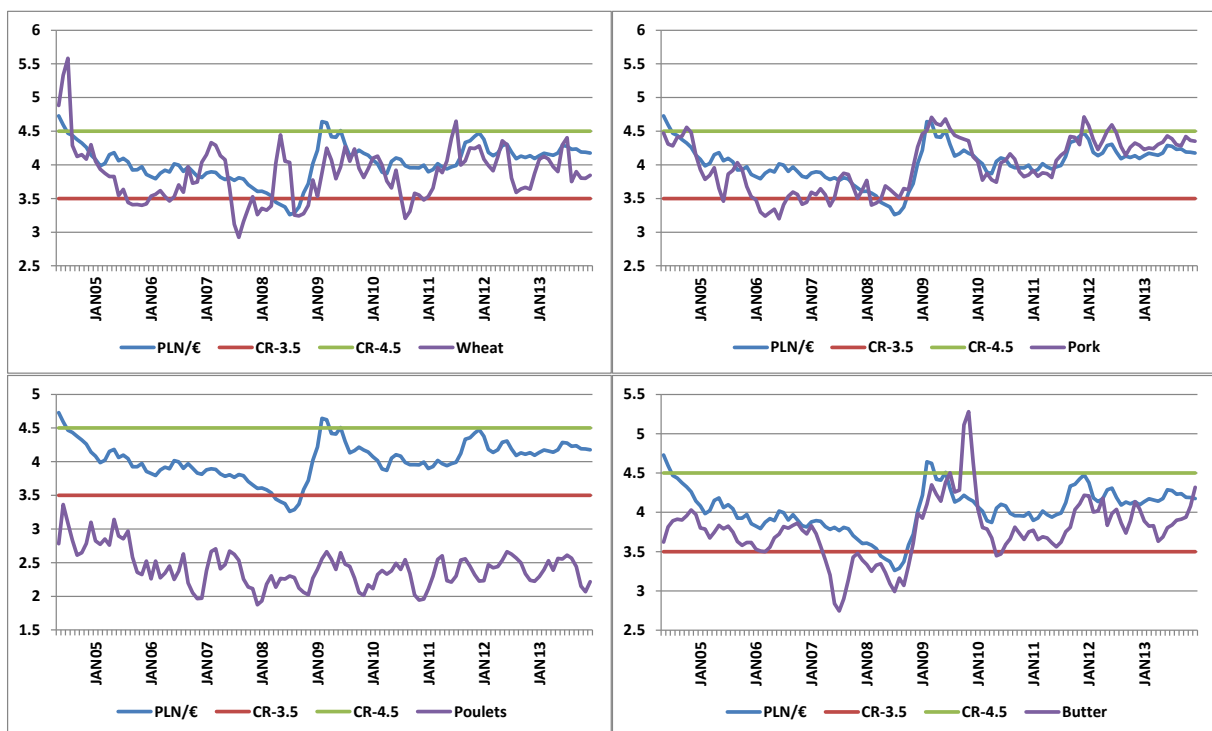


Figure 3. Relative Prices of the Selected Agro-food Products (PLN/€) and Potential Currency Conversion Levels.

Source: Own calculations based on the NBP and the EC data.

Relative price may stimulate or dampen exports. Undervalued currency translates into implicit export subsidies, whereas overvalued currency into implicit export taxes (Shuch, 1974). Considering number of monthly observations in the analyzed period percentages for cases of relative undervaluation for each agro-food product taken into account were calculated. They are as follows: wheat – 78.4% of cases (mostly slightly undervalued); pork – 45.7% of cases (undervalued mostly till 2008, later on the situation turned around); poulets – 100% of cases (highly undervalued); and butter – 93.1% (undervalued with rather few incidental exceptions).

Conclusion

Both Polish agro-food export and import were changing considerably in the analyzed period of 2004-2013 exhibiting strong growing trends. This may suggest an influence of the currency exchange rate fluctuations ranging at the same time from 3.26 to 4.85. Despite a quite common perception very little of the export variability can be attributed to the PLN exchange rate movements, although periods of lower and higher export dynamics were accompanied by appreciation and depreciation of the PLN. Sources of the Polish agro-food export boom are rooted mainly in successful adjustment in the period of economic transformation, opened foreign markets, and growing demand for Polish products meeting international quality requirements and standards. Based on comparison of relative prices, reflecting PPP concept in a very simple manner, mostly cases of relative undervaluation of the Polish agro-food and price convergence could be observed. Given this fact emergence of relative losers and winners (i.e. some branches in the sector might be better off than the other) would depend on the level of accepted conversion rate of the national currency when joining the euro zone. Current market exchange rate as a potential conversion rate would rather be favorable for the Polish agro-food export.

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