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Short and Long Term Determinants of the Net International Investment Position Resulting from the Balance of Payments of the European Monetary Union Countries

Abstract: The paper aims at analysing the level, composition and factors determining changes of the net international investment position (*NIIP*) of the euro area countries. Although the improvement in the euro area's *NIIP* during the period from 2Q2012 to 2Q2016 was largely driven by current account surpluses in 13 out of 19 countries, there is a visible difference between the *NIIP* changes and their components in the surplus and deficit countries. The group of net foreign assets countries increased its position primarily by running current account surpluses reflecting mainly a positive balance on goods and, on a minor scale, a positive primary income balance. The *NIIP* in the group of net foreign liabilities countries deteriorated although the cumulative current accounts were in surplus for this period. Here, the current account improvement was largely driven by services which, in contrast to the net foreign asset countries, were in surplus. In turn, the cumulative primary income in the group of net foreign liabilities countries was in minus. Statistical analysis aimed at estimation of determinants of the changes in the *NIIP*s over the subsequent quarters shows that their short term behaviour was on a large scale positively driven by the changes of valuation effect resulting, for example, from exchange rates and prices movements. It should not be surprising that the signs which indicate the direction of valuation effect on the *NIIP* pattern are different in the short and long term. It should be stressed that the valuation effect influence decreases over time since valuation gains and losses overlap and largely neutralise each other. Nevertheless, combined losses were higher than total gains and therefore its impact on the *NIIP* was negative in the analysed period. On the other hand, the EMU current account surpluses were repetitive and persistent, being the main factor behind the improvement of the cumulative euro area *NIIP* changes.

Keywords: international investment position, net international investment position, current account, balance of payments, Eurozone

JEL: F32, F21, F45

1. Introduction

Overall, it is assumed in the economic literature that due to the close link between deficits (surpluses) in the current account and the inflow (outflow) of financial capital, there is a close relationship between the current account balance and the international investment position (hereinafter also the *IIP*) of a country. The international investment position presents the value of foreign assets and liabilities. The difference between foreign assets and liabilities is called the net international investment position (hereinafter also the *NIIP*), which indicates whether a country is a foreign creditor (a positive net international investment position) or a foreign debtor (a negative net international investment position). It is worth noting the existence of feedback between the *IIP* and the current account. Financing current account deficits requires foreign capital inflows, which increases net foreign liabilities. On the other hand, current account surpluses enable domestic entities to invest abroad thus increasing foreign assets in a country's *IIP*. In turn, the *IIP* balance influences the primary income which is part of the current account. A surplus *NIIP* can in most cases be associated with higher earnings from foreign investments rising the primary income. On the contrary, a deficit *NIIP* usually deteriorates the primary income. The link between the *NIIP* and the current (or trade) balance was examined by Forbes (2016), Śliwiński (2011; 2008), Lane and Milesi-Ferretti (2001). Empirical research concerning changes in *NIIP* determinants draws also a great deal of attention to the valuation effect resulting, for example, from price and exchange rates changes (Forbes, 2016; Sobański, 2015; EBC, 2014; Śliwiński, 2011; Devereux, Sutherland, 2010; Higgins, Klitgaard, Tille, 2006). Other lines of research related to determinants of the *NIIP* are focused on determinants of net capital flows and external debt (Cyrus, Iscan, Starky, 2009; Lane, 2000).

The paper aims at analysing the factors determining changes of the *NIIP* based on the example of the euro area countries panel. Understanding the level, composition and determinants of the *IIP* and *NIIP* is important for a number of reasons. The *IIP* and *NIIP* matter for macroeconomic adjustment to shocks, for example, if a country has considerable foreign currency liabilities, a strong depreciation of home currency can have a negative impact on the country's economic entities (Catão, Milesi-Ferretti, 2014). The size of *IIP* can be also interpreted as an indicator of financial openness or the level of integration into international capital markets (Lane, Milesi-Ferretti, 2003; Obstfeld, Taylor, 2002). The *IIP* and *NIIP* also significantly impact the trade balance and exchange rate policy of a country (Gruić, 2013). The interest in the analyses of the euro area *NIIP* is also dictated by an ongoing debate on inhomogeneities in the EMU. Many papers reveal that the euro area countries may be divided into those belonging to the core or to peripheries. Thus, the additional motivation for this paper was to ask the question whether any similarities or dissimilarities of the Eurozone members exist in the light of their *NIIP*.

The research hypotheses are as follows. Hypothesis 1 [H1]: there are two subgroups among the EMU countries which have different predominant features as far as the level, composition and determinants of their *NIIP* are concerned. Hypothesis 2 [H2]: the current account balances of the Eurozone members are the main factors underlying the development of the *NIIP* position in the euro area in the longer term. Hypothesis 3 [H3]: the short term behaviour of *NIIP* is on a large scale driven by the changes of valuation effect resulting from exchange rates and prices movements.

The structure of this paper is the following: the first section brings the explanation of the linkages between the balance of payments and the net international investment position, which is followed by the description of the European Monetary Union countries' *NIIP* as well as changes in their *NIIP* and *NIIP* components. In the next sections, methodology and results of research on determinants of the changes in the euro area *NIIP* are presented. The text concludes with final remarks.

2. Relationship between the balance of payments and the net international investment position

The concept of balance of payments (BoP) can be presented according to the Balance of Payments and International Investment Position Manual, BPM6 (IMF, 2009) in the formula, where (i) on the left side, we have the sum of the current account balance (*CA*) and capital account balance (*CAP*) corrected by errors and omissions, and (ii) on the right side, the financial account records of transactions that involve financial assets and liabilities and that take place between residents and non-residents (Eq. 1).

$$CA + CAP + EO = FA. \tag{1}$$

In the BoP, financial transactions are a counterpart to the movements in the current and capital accounts[1]. The current account comprises (i) goods (*G*) and (ii) service (*S*) accounts, (iii) primary (*PI*) and (iv) secondary (*SI*) incomes (Eq. 2). Five categories of financial flows are distinguished in the BoP accounts (Eq. 3): (i) direct investment (*FDI*), (ii) portfolio investment (*PI*), (iii) other investment (*OI*), (iv) financial derivatives and employee stock options (*DER*), and (v) reserve assets (*RES*).

$$CA = G + S + PI + SI. \tag{2}$$

$$FA = FDI + PI + OI + DER + RES. \tag{3}$$

[1] Net errors and omissions are excluded from the deeper analysis because they reflect mainly imbalances resulting from imperfections in source data.

The difference between external financial assets of residents of an economy that are claims on non-residents (plus gold bullion held as reserve assets) and liabilities of residents of an economy to non-residents is defined as the economy's net international investment position (*NIIP*) and can be presented as (Eq. 4):

$$NIIP = (FDI_A - FDI_L) + (PI_A - PI_L) + (OI_A - OI_L) + (DER_A - DER_L) + RES. \quad (4)$$

In turn, changes of *NIIP* (where Δ indicates changes over time) can be presented as follows (Eq. 5):

$$\Delta NIIP = (\Delta FDI_A - \Delta FDI_L) + (\Delta PI_A - \Delta PI_L) + (\Delta OI_A - \Delta OI_L) + \\ + (\Delta DER_A - \Delta DER_L) + \Delta RES. \quad (5)$$

Changes in each category of financial assets and liabilities result from financial transactions which are recorded in the economy's balance of payments and from other changes in financial assets and liabilities (valuation effect, *VE*). The valuation effect shows changes in financial positions that arise for reasons other than transactions between residents and non-residents, for example: the unilateral cancellation of debt by the creditor, the revaluation occurring during a given period due to exchange rate and other price changes, and reclassifications. The FDI example is as follows (Eq. 6):

$$\Delta FDI_A - \Delta FDI_L = FDI + VE_{FDI_A} - VE_{FDI_L} = FDI + VE_{FDI}, \quad (6)$$

where VE_{FDI_A} stands for the valuation effect in *FDI* assets, VE_{FDI_L} – for the valuation effect in *FDI* liabilities and VE_{FDI} means the overall valuation effect for *FDI*. Based on this logic, the valuation effect can be presented as the sum of valuation effects for all types of financial assets and liabilities comprising the international investment position of a country (Eq. 7).

$$VE = VE_{FDI} + VE_{PI} + VE_{OI} + VE_{DER} + VE_{RES}. \quad (7)$$

Thus, changes in the *NIIP* (Δ*NIIP*) can be presented as the sum of financial flows recorded in the BoP and the valuation effect (Eq. 8):

$$\Delta NIIP = FDI + PI + OI + DER + RES + VE, \quad (8)$$

or from the perspective of current transactions, as Eq. (9):

$$\Delta NIIP = CA + CAP + EO + VE. \quad (9)$$

3. Changes in the net international investment position of the European Monetary Union countries and their components

On 30th September 2016, the EMU's quarterly international investment position showed overall stocks of foreign financial liabilities exceeding foreign financial assets by $397.8bn. Among the EMU member states, however, the *NIIP*s are not homogeneous. Table 1 shows two groups of the EMU countries and their *NIIP* evolution from 2012 to 2016. The creditors, led by Germany, the Netherlands and Belgium, ran an overall net foreign assets of $2652.6 bn. The debtors, with Spain, Ireland and France in the lead, had an overall net foreign liabilities of $3050.4 bn at the end of September 2016. In the years 2012–2016, the overall EMU's *NIIP* was improved, especially by the group of creditors (an increase of $1056.3 bn at the end of December 2012 level) and slightly by the debtor countries (an increase of $84.8 bn at the end of December 2012 level). At the level of countries, we can see that only two surplus countries, Germany and the Netherlands, improved their net IIP by more than $750 bn and $340 bn respectively, thus being largely responsible for overall changes in the EMU's *NIIP*.

Table 1. Net international investment position of the European Monetary Union countries in the years 2012–3Q2016 ($ bn)

Country	4Q2012	4Q2013	4Q2014	4Q2015	3Q2016
Germany	1019.4	1315.7	1425.5	1607.1	1770.7
Netherlands	262.9	279.3	465.6	470.6	602.2
Belgium	264.6	281.1	279.3	273.2	246.9
Luxemburg	30.3	28.4	20.0	20.0	13.1
Austria	–13.4	5.8	9.0	10.8	7.3
Finland	30.9	10.8	–6.6	1.4	6.9
Malta	1.7	2.1	4.2	5.0	5.5
Estonia	–12.1	–13.1	–11.2	–9.0	–8.7
Slovenia	–23.7	–23.1	–20.0	–16.3	–16.0
Latvia	–19.6	–20.9	–18.4	–16.6	–16.5
Lithuania	–23.5	–22.7	–20.4	–18.2	–19.5
Cyprus	–33.2	–34.7	–31.4	–25.0	–23.5
Slovakia	–58.9	–63.7	–58.9	–52.2	–51.1
Portugal	–258.7	–272.8	–241.4	–213.6	–212.1
Greece	–292.7	–323.8	–286.2	–257.5	–260.8
Italy	–507.4	–560.3	–481.3	–421.5	–326.0
France	–353.3	–483.4	–439.1	–389.9	–502.7
Ireland	–318.5	–327.4	–380.4	–579.5	–520.0
Spain	–1233.6	–1334.5	–1227.3	–1053.2	–1093.5

Country	4Q2012	4Q2013	4Q2014	4Q2015	3Q2016
SUM (all)	–1538.9	–1557.1	–1018.9	–664.2	–397.8
SUM (+)	1596.3	1923.1	2197.1	2388.1	2652.6
SUM (–)	–3135.2	–3480.3	–3216.0	–3052.4	–3050.4

Source: IMF, http://data.imf.org/?sk=7A51304B–6426–40C0–83DD-CA473CA1FD52&sId=1454011359825

Table 2 describes the main factors underlying developments in the *NIIP* of the EMU countries over the period 2Q2012–2Q2016[2]. The *NIIP* components are derived from Equation (10). There are some points of note here.

1. Firstly, the improvement in the euro area's net IIP during the period was largely driven by current account surpluses in 13 out of 19 countries. Cumulative current account balances amounted to $1674.2 bn and exceeded the improvement in the EMU's *NIIP* by $739.3 bn.
2. Secondly, there is a visible difference between the net IIP changes and their components in the surplus and deficit countries. The group of net foreign assets countries improved its position largely by running current account surpluses reflected mainly in a positive balance on goods and, on a smaller scale, a positive primary income balance. This mirrors on a large scale the strong position of Germany as a net products exporter and creditor earning investment income arising from the provision of a factor of production. The *NIIP* in the group of net foreign liabilities countries deteriorated by $179 bn, although the cumulative current accounts were in surplus for this period. The current account improvement was largely driven by services which, in contrast to the net foreign asset countries, were in surplus. In turn, the cumulative primary income in the group of the net foreign liabilities countries was in minus.
3. Thirdly, we can see a relatively small impact of capital account and errors and omissions on the evaluation of the *NIIP* in both groups. However, the debtor countries were characterised by capital account surpluses in contrast to the creditor countries. This reflects capital transfers to the relatively less developed EMU countries.
4. Fourthly, revaluation effects resulting from movements in exchange rates and asset prices had a negative impact on the *NIIP* development in both analysed groups of the EMU countries. Valuation effects contributed to the deterioration of the EMU's *NIIP* by $702.1 bn.

The preceding observations present a picture of the main factors underlying the development of the *NIIP* position in the Eurozone in the longer term. However, for the analysis of the factors influencing its behaviour in the short-term, statistical research should be implemented.

[2] The presented periods are different in Tables 1 and 2 due to the availability of accurate data illustrating the components of balance of payments which were used in further statistical analyses.

Table 2. Changes (over the period 2Q2012–2Q2016) in the net international investment position of the EMU countries and their components (the cumulative values for the period)

Country	Δ*NIIP*	Σ*CA*	Σ*CAP*	Σ*EO*	Σ*VE*	Σ*G*	Σ*S*	Σ*PI*	Σ*SI*
Austria (+)	**13.6**	34.7	–4.4	7.9	–24.6	0.3	51.6	0.6	–17.9
Belgium (+)	**–57.4**	–3.0	0.7	2.7	–57.9	–18.0	34.3	15.8	–35.1
Finland (+)	**–15.0**	–13.0	0.9	–14.0	11.0	3.3	–7.8	3.0	–11.5
France	**–193.5**	–102.2	9.3	–34.0	–66.6	–200.9	84.0	242.6	–227.9
Spain	**132.4**	68.9	31.1	10.5	21.9	–105.3	251.8	–18.0	–59.5
Netherlands (+)	**383.6**	328.0	–38.3	5.1	88.8	396.1	–27.0	19.8	–60.9
Ireland	**–225.8**	77.6	–7.8	–15.9	–279.8	330.2	–64.3	–177.4	–10.9
Luxemburg (+)	**–69.4**	12.0	–4.0	–0.2	–77.1	–7.4	88.8	–71.5	2.1
Germany (+)	**854.4**	1154.6	1.7	–16.6	–285.3	1218.4	–183.5	328.6	–208.9
Portugal	**24.1**	1.9	13.7	0.2	8.4	–46.5	59.8	–18.7	7.2
Italy	**53.8**	114.5	12.4	–24.0	–49.0	223.4	–1.9	–21.9	–85.1
Greece	**5.7**	–11.9	11.9	10.0	–4.3	–103.1	86.3	4.3	0.6
Slovenia	**6.2**	10.4	0.8	–3.8	–1.2	5.3	9.4	–2.1	–2.2
Cyprus	**5.8**	–3.9	0.7	0.6	8.4	–16.3	17.5	–3.0	–2.2
Malta (+)	**4.1**	2.3	0.7	–2.2	3.3	–7.2	10.9	–2.5	1.1
Slovakia	**4.8**	3.8	8.4	–9.2	1.8	14.3	1.4	–5.6	–6.2
Estonia	**2.6**	0.3	2.1	0.0	0.2	–5.6	8.4	–2.7	0.2
Latvia	**2.5**	–2.2	3.5	0.5	0.6	–12.2	9.2	–0.4	1.1
Lithuania	**2.4**	1.3	5.2	–3.4	–0.7	–6.4	8.5	–5.5	4.7
SUM (all)	**934.9**	**1674.2**	**48.6**	**–85.8**	**–702.1**	**1662.4**	**437.6**	**285.7**	**–711.5**
SUM (+)	**1113.9**	**1515.6**	**–42.6**	**–17.3**	**–341.8**	**1585.5**	**–32.5**	**293.9**	**–331.2**
SUM (–)	**–179.0**	**158.6**	**91.2**	**–68.5**	**–360.3**	**76.92**	**470.1**	**–8.2**	**–380.3**

Source: own elaboration based on the IMF, http://data.imf.org/?sk=7A51304B–6426–40C0–83DD-CA473CA1F-D52&sId=1454011359825

4. Research methodology

The idea behind the identification of determinants of changes in the *NIIP* lies in the observation that the *NIIP* changes are a consequence of financial flows between residents and non-residents (if we analyse the balance of payments equation from the financial perspective) or current flows (including current and capital account transactions and errors and omissions) and valuation adjustments. Because the financial flows are equivalent to the current flows, the latter were selected as determinants of changes of the *NIIP* in this study. This relationship is expressed in Equation (10), where the current account is divided into its components as:

$$\Delta NIIP = G + S + PI + SI + CAP + EO + VE. \tag{10}$$

The data analysed contain information on 19 cross-sectional units (the members of the European Monetary Union) observed in 23 quarters between 1.01.2012 and 30.09.2016. Time series data on international investment positions, current accounts (and their components: balances on goods, services, primary incomes and secondary incomes), capital accounts and errors and omissions were taken from the IMF dataset[3]. The valuation effects were calculated based on the following formula (Eq. 11):

$$VE = \Delta NIIP - (CA + CAP + EO). \tag{11}$$

After identifying determinants of the changes in the *NIIP*, the next step in the research was measuring the strength and direction of their impact on the *NIIP* changes in the short run.

First, as the data analysed are levels, panel unit root tests were computed for pooled data to check the stationarity of the panel data. From the unit root tests provided by EViews[4], the following types of tests were used: (i) Levin, Lin and Chu, (ii) Im, Pesaran and Shin, (iii) ADF – Fisher Chi-square (Maddala and Wu) and (iv) PP – Fisher Chi-square (Choi). In all panel unit root tests, the null hypothesis is that panel data have a unit root, which means that the analysed data are non-stationary. The alternative hypothesis is that panel data have no unit root and thus are stationary.

Next, univariate regressions were estimated using least squares: (i) without any correction, (ii) with correction for fixed effects in cross-section dimension, or (iii) with correction for random effects in cross-section dimension. The choice between the model with correction for fixed or random effects was based on the Hausmann test, which enables the comparison between the fixed and random effects estimates of coefficients. To perform the test, a random effect estimator was estimated in all the regressions. Then the null hypothesis assuming that the random effect model is appropriate was checked.

The regression models that were estimated in this paper may be written as (Eq. 12):

$$Y_{it} = \alpha + X_{it}\beta + \delta_i + \varepsilon_{it}, \tag{12}$$

where: Y_{it} is the dependent variable (the changes in international investment position $\Delta NIIP$), α and β are model parameters, X_{it} is a regressor (one of $\Delta NIIP$ components: current account, balances on goods, services, primary income and secondary income, capital account, error and omission and valuation effect), and ε_{it} is the error term for $I = 1, 2, \ldots, 19$ cross-sectional units (countries) observed for

[3] IMF, http://data.imf.org/?sk=7A51304B–6426–40C0–83DD-CA473CA1FD52&sId=1454011359825.

[4] All the tests and regressions were carried out with the EViews software.

dated periods $t = 1, 2, \ldots, 23$ (the quarters of 1Q2012–3Q2016). In fixed and random effect models, δ_i represents cross-section specific effects (random or fixed)[5].

5. Results

In order to test the stationarity of time series, the unit roots tests were conducted. Since in an all four tests: i) Levin, Lin and Chu, (ii) Im, Pesaran and Shin, (iii) ADF – Fisher Chi-square (Maddala and Wu) and (iv) PP – Fisher Chi-square (Choi), the test statistic is much lower than the critical values, we can reject the null hypothesis that the process has a unit root[6] at a significance level $p < 1\%$. We can therefore conclude with a very low probability of making an error that the analysed time series are stationary. The detailed data are presented in Table 3.

Table 3. The results of the unit root tests

		Levin, Lin & Chu	Im, Pesaran and Shin W-stat	ADF – Fisher Chi-square	PP – Fisher Chi-square	Cross-sections	Observations
$\Delta NIIP$	Statistics	–6.07369	–7.34712	124.765	559.882	19	300
	Prob.	0.0000	0.0000	0.0000	0.0000		
G	Statistics	–12.0412	–8.82791	148.056	189.586	19	300
	Prob.	0.0000	0.0000	0.0000	0.0000		
S	Statistics	–2.94802	–2.90126	63.7652	73.6705	19	300
	Prob.	0.0016	0.0019	0.0055	0.0005		
PI	Statistics	–3.46497	3.64947	76.0338	102.630	19	300
	Prob.	0.0003	0.0001	0.0002	0.0000		
SI	Statistics	–8.88353	–6.63123	113.665	116.317	19	300
	Prob.	0.0000	0.0000	0.0000	0.0000		
CAP	Statistics	–6.73746	–5.93048	108.515	402.412	19	300
	Prob.	0.0000	0.0000	0.0000	0.0000		
EO	Statistics	–6.72829	–6.52100	110.816	178.285	19	300
	Prob.	0.0000	0.0000	0.0000	0.0000		
VE	Statistics	–3.75592	–6.86042	116.652	497.514	19	300
	Prob.	0.0001	0.0000	0.0000	0.0000		
CA	Statistics	–4.27025	–3.45082	74.5650	126.582	19	300
	Prob.	0.0000	0.0000	0.0000	0.0000		

Source: own elaboration

[5] The detailed description of unit root and Hausmann tests as well as statistic models which were used in this paper are presented in EViews®8 (2013).

[6] Levin, Lin & Chu assume a common unit root process and Im, Pesaran and Shin, ADF – Fisher Chi-square (Maddala and Wu) and PP – Fisher Chi-square (Choi) assume an individual unit root process as the null hypothesis.

Figure 1 provides a graphical description of the partial tie between the changes in the *NIIP*s and their potential determinants derived based on the relationship between the balance of payments and the *NIIP* formulas. The horizontal axis refers to the values of *NIIP* quarterly changes of all 19 EMU countries over the period 2Q2012–2Q2016. The vertical axis shows quarterly balances of all potential components of the *NIIP* changes in each panel. As shown in the panels of Figure 1, the *NIIP*s' changes when analysed over consecutive quarters appear to be mostly a function of valuation effect and, on a smaller scale, of current account (with balances on goods as their dominant component). The results of the preliminary research based on the OLS model is also presented. Only for these two determinants the coefficients of determination, R-squared, show that these simple linear regression models explain some variability of the response data around its mean. The rest of the models explain almost none of the *NIIP* changes (R-squared less than 5%)[7].

Table 4 contains regression results for the change in the *NIIP*s of the euro area countries. Firstly, as already mentioned, an ordinary OLS panel model was applied. Secondly, because it does not take heterogeneity among the studied countries into account, other estimation methods (fixed or random effects) were considered. The conventional way of estimating country panel datasets is using a fixed or a random effects model. In this research, both estimation methods were used but only one of them is shown in Table 4 based on the results of Hausmann test.

The statistical research confirms our preliminary observations. The effects of changes in valuation are positive, statistically significant at the 1% level, implying that a positive revaluation had a positive impact on the changes of the EMU countries' *NIIP*s. In short term, it seems to be their main driver. It can be also observed that the current and goods accounts, secondary incomes (the fixed model), errors and omissions and capital accounts ($p < 0.05$) have a significant positive impact on the changes of the *NIIP*s. This is not surprising as it results directly from Equation (10). Surprisingly, however, the balances on services and primary income proved to be negatively associated with the independent valuable not far from being significant at the 5% level.

[7] One must however remember that an R-squared value does not indicate whether a regression model is adequate or not. An R-squared value can be low but still deliver statistically significant predictors, and thus important conclusions about how changes in the predictor values are linked with changes in the response value can be drawn.

Figure 1. Changes in the *NIIP*s of the euro area countries versus goods (*G*) and services (*S*) balances, primary (*PI*) and secondary (*SI*) income accounts, capital (*CAP*) and current (*CA*) accounts, errors and omissions (*EO*), and valuation effects (*VE*) (yearly data in $ bn)

Source: own elaboration based on the IMF, http://data.imf.org/?sk=7A51304B–6426–40C0–83DD-CA473CA1F-D52&sId=1454011359825

Table 4. Results of the regressions. Dependent variable: changes in the net international position of the euro area countries

		Coefficient	Std. Error	t-Statistic	Prob.	R-squared
G	Panel Least Squares	0.621951	0.094900	6.553775	0.0000	0.112633
	Panel EGLS (cross-section random effects)	0.621951	0.095134	6.537635	0.0000	0.112749
S	Panel Least Squares	–1.041752	0.338596	–3.076684	0.0023	0.027243
	Panel EGLS (cross-section random effects)	–0.874492	0.464929	–1.880915	0.0608	0.010364
PI	Panel Least Squares	0.761778	0.267390	2.848943	0.0047	0.023450
	Panel Least Squares (cross-section fixed)	–1.157207	0.592651	–1.952593	0.0517	0.160096
SI	Panel Least Squares	–0.659028	0.434615	–1.516348	0.1304	0.006757
	Panel Least Squares (cross-section fixed)	5.367872	1.107314	4.847650	0.0000	0.208234
CAP	Panel Least Squares	1.696726	0.857733	1.978152	0.0487	0.01145
	Panel EGLS (cross-section random effects)	2.086805	0.843981	2.472574	0.0139	0.017753
EO	Panel Least Squares	1.260164	0.295584	4.263307	0.0000	0.051030
	Panel EGLS (cross-section random effects)	1.279840	0.279511	4.578847	0.0000	0.058531
VE	Panel Least Squares	0.955006	0.030578	31.23176	0.0000	0.742092
	Panel Least Squares (cross-section fixed)	1.009198	0.013889	72.66184	0.0000	0.951290
CA	Panel Least Squares	0.763136	0.105499	7.233588	0.0000	0.134055
	Panel EGLS (cross-section random effects)	0.763136	0.107140	7.122789	0.0000	0.134055

Source: own elaboration

6. Conclusions

This paper analyses determinants of the *NIIP*s in the Eurozone countries over the period 2Q2012 to 2Q2016 by focusing on the components of the current flows resulting from the balance of payments and valuation effects that influenced the *NIIP*s' development. The improvement of the EMU's *NIIP* over the four analysed years (long term) was mainly a result of current account surpluses in the net merchandise export countries, whereas the valuation effect had a negative impact on the *NIIP* over this period.

Statistical analysis aimed at estimation of the changes in the *NIIP*s over the subsequent quarters (short term) shows that their short term behaviour was on a large scale positively driven by the changes of valuation effects resulting, for example, from exchange rates and prices movements. It should not be surprising that the signs which indicate the direction of their impact on the *NIIP*s pattern are different in the short and long term. Even a visual analysis of Figure 2 shows that the changes in the *NIIP*s over quarterly periods were reflected by the valuation changes which were very unstable. Thus, the valuation effect was the key determinant of the EMU's *NIIP*s in the short run. However, the cumulative changes in the *NIIP*s were negatively influenced by the exchange rate and price effect. It should be stressed that the valuation effect influence decreases over time since valuation gains and losses overlap and largely neutralise each other. Nevertheless, combined losses were higher than total gains and therefore its impact on the *NIIP* was negative in the analysed period. On the other hand, the EMU's current account surpluses were repetitive and persistent (Figure 2), being the main factor behind the improvement of the cumulative euro area *NIIP* changes.

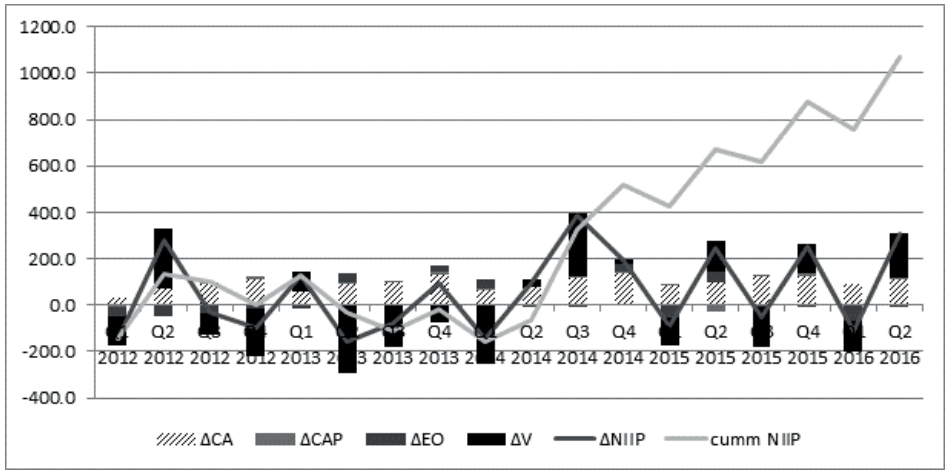

Figure 2. Quarterly changes in the EMU's *NIIP* and its main components versus cumulative changes in the EMU's *NIIP* (data in $ bn)

Source: own elaboration based on the IMF, http://data.imf.org/?sk=7A51304B–6426–40C0–83DD-CA473CA1F-D52&sld=1454011359825

As it was expected, in the short run the goods, secondary income, errors and omission balance as well as capital account were positively influencing the *NIIP* changes. The surprise may by the behaviour of services and primary accounts, as they were effecting the *NIIP* changes in the opposite directions than the theory suggests. Econometric analyses with correction for fixed or random effects showed statistically significant negative parameters by those repressors. This can be explained by the different structure of current accounts in the two Eurozone

subgroups and their substantially different impact on the EMU's *NIIP* changes (an increase of $1113.9 bn in the net foreign assets group of countries versus a deterioration of $179.0 bn in the net foreign liabilities group of countries). The net foreign assets countries recorded a surplus in the current account overwhelmingly due to a positive balance on goods, despite a negative balance on services and, on a smaller scale, because of primary income surplus neutralising the secondary income deficit. The net liabilities countries improved slightly their overall current account ($158.6 bn vs $1515.6 bn in the net foreign asset countries). The underlying positive factors were services and, on a much smaller scale, goods. Both secondary and primary incomes were negative, with the primary income deficit affecting the *NIIP* only to a small degree. Thus, these apparently inconsistent with the basic theory of the balance of payments relationships are biased by the differences in the accounts constituting the current accounts in the two subgroups, with the net asset group driving mostly the direction of the euro area's *NIIP* pattern.

The research opens the discussion on determinants of the *NIIP*s. Based on the study, one must state that the main factors that were responsible for the *NIIP*'s development in the Eurozone were the current accounts and valuation adjustments. Thus, further policy actions which are needed to improve the *NIIP*, especially in the net liabilities Eurozone countries, should contain the factors influencing the current account improvement. The econometric research of the current account determinants in both groups (creditors and debtors) analysed in this paper should be the subject of further analysis. On the other hand, the significance of the valuation effect in determining the changes in the *NIIP* should also result in further research to find the major contributors (equity, debt or derivatives) to the exchange rate and price valuation. This knowledge can be used to smooth the impact of valuation effect on the volatility of *NIIP* changes.

This paper also posts new threads to the discussion about core-periphery dualism among the Eurozone countries. Most studies in this field focus on the structure of the distribution of GDP *per capita*, the structure of international trade and different development indicators (Babones, 2016)[8].Complementary differentiation between the core and peripheral EMU countries may be also carried out by analysing their *NIIP*s. This approach is partly in line with Cesaroni and de Santis (2015), who explored the causes of the persistent current account divergences among the Eurozone countries, which – as it was presented in this article – had a great influence on their *NIIP*s.

[8] Jasiecki (2016) divides the factors influencing the differentiation of core and peripheral EU countries into two groups: (i) economic polarisation; economic development with financial deficits (and an attitude towards them) as one of the main differentiators, (ii) political polarisation; the latest division is associated with the migration crisis.

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Krótko- i długoterminowe determinanty międzynarodowej pozycji inwestycyjnej netto w krajach EMU, wynikające z ich bilansów płatniczych

Streszczenie: Celem artykułu jest analiza zmian w międzynarodowej pozycji inwestycyjnej netto (*NIIP*) oraz czynników determinujących te zmiany w grupie krajów należących do tzw. strefy euro. Mimo że poprawa *NIIP* w strefie euro w okresie od drugiego kwartału 2012 do drugiego kwartału 2016 roku była spowodowana głównie nadwyżkami w obrotach bieżących w 13 z 19 krajów, widoczna jest różnica między zmianami *NIIP* a poszczególnymi składnikami rachunku obrotów bieżących w krajach charakteryzujących się dodatnią i ujemną *NIIP*. Grupa krajów nadwyżkowych zwiększyła swoją pozycję głównie przez zwiększenie nadwyżki na rachunku obrotów bieżących, która jest głównie rezultatem dodatnich sald towarowych i na małą skalę dodatnich sald pierwotny. *NIIP* w grupie państw deficytowych pogarszała się mimo dodatnich, skumulowanych w tej grupie, rachunków bieżących w analizowanym okresie. Poprawa sytuacji na rachunku bieżącym była tutaj w dużej mierze wynikiem pozytywnego salda usług, a nie towarów (w przeciwieństwie do grupy krajów nadwyżkowych). Z kolei skumulowane salda pierwotne wpływały negatywnie na skumulowane rachunki bieżące. Analiza statystyczna, mająca na celu oszacowanie czynników odpowiedzialnych za zmiany w *NIIP* w kolejnych kwartałach, pokazuje, że w krótkim terminie zmiany *NIIP* były spowodowane w dużej mierze zmianami wycen aktywów i zobowiązań zagranicznych. Było to następstwem zmian ich cen rynkowych oraz zmian kursów walutowych. Wpływ efektu wyceny na zmiany *NIIP*, chociaż dalej negatywny, zmniejszał się jednak w dłuższym okresie, z uwagi na neutralizowanie się w dużym stopniu wahań cen wraz z upływem czasu. Z drugiej strony skumulowane nadwyżki na rachunkach obrotów bieżących w krajach strefy euro były powtarzalne i trwałe, co było głównym czynnikiem wpływającym na poprawę zmian w *NIIP*.

Słowa kluczowe: międzynarodowa pozycja inwestycyjna, międzynarodowa pozycja inwestycyjna netto, rachunek bieżący, bilans płatniczy, strefa euro

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