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Global imbalances from the flow and stock perspective

Abstract

The objective of the paper is to identify global payment imbalances from the flow and stock perspective in the years of 2000–2017 as well as to define the causes of differences in the development of global imbalances in both of the analysed aspects. In order to achieve the objective, current account balances and international investment positions that are systemically significant to economies were analysed with the use of descriptive statistics techniques and specific analytical indicators. From the conducted studies it arises that after the outbreak of the global financial crisis, the global flow imbalance declined, whereas the global stock imbalance rose significantly. The demonstrated divergence was caused by insufficient changes in current account balances (flow imbalances) in order to cause a decrease in net international investment positions (stock imbalances) systematically significant to economies and by a weakened impact of the transactions registered in the balance of payment (flows) on the change of an international investment position (stock).

Keywords: global imbalances, flow imbalances, stock imbalances, current account, international investment position
JEL Classification Codes: F32, F34

Introduction

A rapid increase in external imbalances of key global economies observed in the first decade of the 21st century, concluded with an outbreak of the global financial crisis of 2008, has rekindled economists' interest in the issues of global payment imbalance. A reduced relationship between the transactions of the balance of payments and the changes in countries' international investment position demonstrated in multiple studies has caused a traditional measure of an external imbalance in the form of the balance of current flows, reflecting a flow imbalance, to be recognised as insufficient. Analyses of global imbalance were extended by adding a study of countries' international investment position, reflecting a stock imbalance.

The purpose of the paper is to identify changes in the global imbalance of payments from the flow and stock perspective during the years of 2000–2017 as well as to attempt to determine the causes of differences in the development of the global imbalances from both of the analysed perspectives. On the basis of research results found in the literature, which indicate that along with the development of the international financial integration and the increase in the amounts of states' foreign assets and liabilities, in the 21st century the dependence of NIIP changes on CA balance has become weaker, the following research hypothesis was formulated: A decline in the global flow imbalance after the outbreak of the financial crisis in 2008 was accompanied by a substantial rise in the global stock imbalance.

In the first part of the paper, the concepts and measurement methods of the global imbalance of payments as well as the global stock imbalance were presented, along with the fundamental relationships occurring between them. The second part of the article features analyses of changes in the scale and structure of the subjective global imbalance from both of the examined perspectives. The third part constitutes an attempt at explaining the reasons for the demonstrated divergences in the development of the global imbalance in terms of flows and stocks.

In order to achieve the objective, analyses of countries' current account balances and international investment positions were carried out with the use of descriptive statistics and specific analytical indicators. The study encompasses the period of 2000–2017, hence it refers to the years before and after the outbreak of the global financial and economic crisis.

1. Global flow imbalance and global stock imbalance: methods of measurement and relationships

In the literature of the subject many views on the nature, causes and consequences of global imbalance can be found. Despite the development in research, so far no uniform, commonly acceptable definition of the phenomenon has been developed, nor has any uniform method of its measurement [Chinn, 2017; Bogołębska, 2013, pp. 17–22].

From a traditional perspective, global payment imbalance means the occurrence of high surpluses in the current account balances of certain countries and corresponding high deficits in the current account balances of other countries [Misztal, 2018, p. 150; Obstfeld, 2012; Lutkowski, 2011, p. 7; Bilewicz, 2010, p. 6; Serven, Nguyen, 2010]. It is a global view of a flow imbalance, since current accounts (CA) reflect the value of annual streams (flows) of receivables and liabilities between countries, resulting from the transactions conducted between national entities abroad. The values of countries' CA balances and indicators based on them are used to measure the global scale of flow imbalances. The scope of global flow imbalances is most frequently evaluated on the grounds of a comparison of CA balances of countries/groups of countries playing a significant role in the global economy (e.g. the USA and China), the sum of CA surpluses/deficits of all surplus-/deficit-showing countries of the world, the sum of the absolute values (modules) of CA balances of all countries (in absolute terms, in relation to a country's GDP or in relation to the global GDP). Furthermore, the ratios of dispersion, concentration and sustainability of CA balances are employed (in absolute and relative terms) [IMF, 2018a, pp. 5–28; Bracke, 2009, p.17–21; Farquee, Lee, 2009].

Global imbalance is also interpreted as the occurrence of large positive balances of foreign assets and liabilities of some countries, corresponding to negative balances of foreign assets and liabilities of other countries [Alberola, Estrada, Viani, 2018, pp. 3–12; Canals, 2018; Bergant, 2017]. From this perspective, global imbalance is examined in terms of stock, as foreign assets and liabilities reflect the total value (stock) of the accumulated foreign receivables of a given state as well as its liabilities towards foreign countries (as of the date of drawing up a balance sheet). In order to measure global stock imbalance, the value of the net international investment position (NIIP) is used, i.e. the balance of foreign assets and liabilities of selected countries in absolute and relative terms (e.g. in relation to a country's GDP or the global GDP), along with the gross international investment position (IIP), as well as ratios based on NIIP and IIP [IMF, 2018a, pp. 5–28; Butzen, Deroose, Ide, 2014, pp. 43–50; Sawicki, 2014, pp. 26–31; Bracke, 2009, pp. 21–23].

There are close relationships between global flow imbalance and global stock imbalance, which result from interdependencies between CA and IIP [IMF, 2009]. The stock amount of foreign assets and liabilities comprises an accumulated value of foreign flows of receivables and liabilities, thus NIIP is equal to accumulated CA balances, adjusted for changes in the value of foreign assets and liabilities as a result of changes in valuation and other qualitative changes. In turn, the amount of returns on investments, which are a component of CA, depends on the value and structure of foreign assets and liabilities (IIP) [Knap, 2016]. Therefore, variations in flow imbalances constitute a determinant of changes in stock imbalance, while stock imbalance affects flow imbalance through the balance of returns on investments.

2. Changes in the scale of the global imbalances during the years of 2000–2017

When evaluating the changes in the scale of the global flow imbalances through the sum of CA balance modules of all countries, it is possible to determine that after a strong increase at the beginning of the first decade of the 21st century, in 2009 a rapid drop in the ratio occurred both in absolute terms as well as in relation to the global GDP (Figure 1). In 2000 the sum of CA balance modules amounted to 1.2 bn USD and it constituted 3.0% of the global GDP, whereas in 2009 the ratio rose respectively to 3.3 bn USD and 5.5% of the global GDP. The upsurge in the sum of CA balance modules during the years of 2010–2012 can be considered as a post-crisis 'bounce', since in the subsequent years the measure demonstrated a declining trend and in 2017 it was equal to 2.5 bn USD, which constituted 3.2% of the global GDP. Therefore, the global financial crisis meant an adjustment of an excessive global imbalance from the flow perspective, the scale of which at the end of the analysed period was lower than in the year directly preceding the outbreak of the crisis, although it was still significantly greater than in 2000. However, in relation to the global GDP, the imbalance in 2017 was smaller not only in relation to the pre-crisis year, but also to the beginning of the analysed period (Figure 1).

Figure 1. Sum of the absolute values of current account (CA) balances of all countries during the years of 2000–2017 (in billion USD – left scale; in relation to the global GDP – right scale)
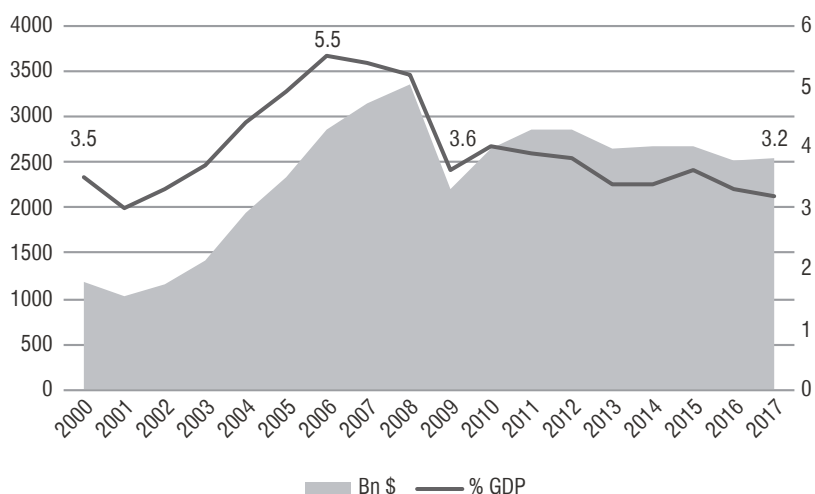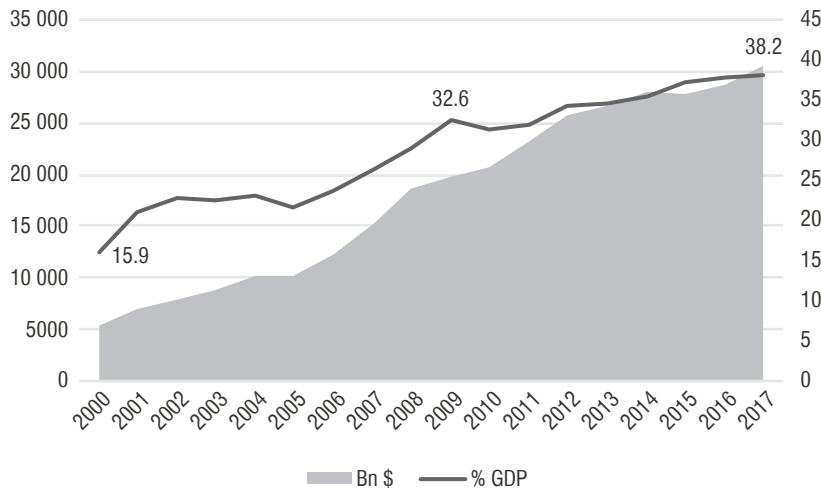

Source: own elaboration on the basis of [IMF, 2019b].

However, a decrease in the global flow imbalance did not translate into a diminished stock imbalance. In the analysed period, the sum of countries' NIIP modules demonstrated a growing trend and it climbed from 5.4 bn USD in 2000 to 19.7 bn USD in 2009 and to 30.6 bn USD

in 2017 (Figure 2). In relation to the global GDP it means a rise in the stock imbalance ratio from 15.9% in 2000 to 32.6% in 2009 and to as high as 38.2% in 2017 (Figure 2).

Figure 2. Sum of the absolute values of countries' net international investment positions (NIIP) during the years of 2000–2017 (in billion USD – left scale, in relation to the global GDP – right scale)

Source: own elaboration on the basis of [IMF, 2019a; IMF, 2017].

The dissimilarity of the trend in the case of the flow imbalance and stock imbalance in the analysed period is confirmed by the differences of changes in the degree of dispersion of CA balances and NIIP between countries. Although the diversity of CA balances clearly diminished after 2008, the differentiation of NIIP of the countries in the world showed a growing trend during the entire analysed period (Figure 3).

Figure 3. Coefficient of variation (CV, left scale) and standard deviation (SD, right scale) of the value of current account (CA) balances and the net international investment position (NIIP) of the countries in the world during the years of 2000–2017
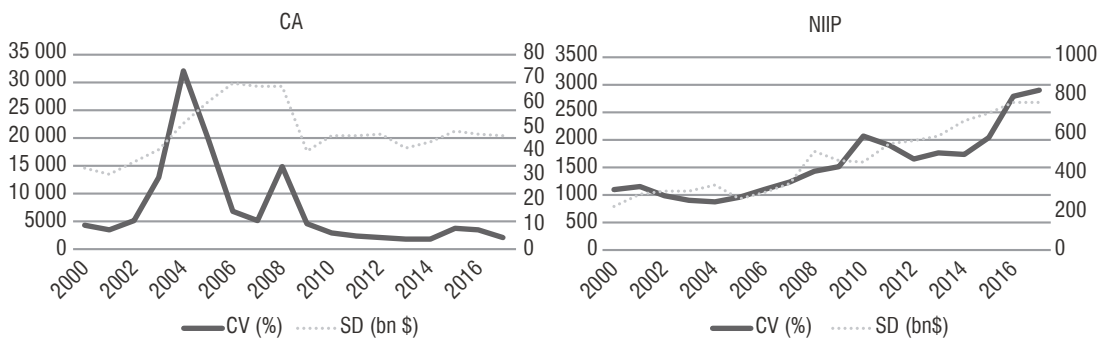
Source: own elaboration on the basis of [IMF, 2019a; IMF, 2019b; IMF, 2017].

3. Changes in the breakdown structure
of the global imbalance

The global flow imbalance in the entire analysed period demonstrated a very high degree of concentration. On average, each year there was approximately 70–80% of the global sum of surpluses per ten countries of the highest positive CA balances, and as much as 80–90% of the global sum of deficits per ten states of the greatest negative CA balances (Table 1). The countries demonstrating the highest, constantly positive CA balances included China, Japan and Germany (only with the exception of the years of 2000–2001), whereas in the analysed years chiefly the United States as well as Great Britain, Australia and Turkey demonstrated the highest, constant CA deficits (Table 1) [IMF, 2019b].

Table 1. The countries of the greatest CA surpluses and deficits in 2000, 2009 and 2017
(bn USD)

Surplus-showing countries					
2000		2009		2017	
Japan	130.7	China	243.3	Germany	291.0
Russia	45.4	Germany	196.7	Japan	196.1
France	36.1	Japan	145.3	China	164.9
Switzerland	32.5	Russia	50.4	Netherlands	87,5
Norway	25.3	Netherlands	50.0	Taiwan	82,9
China	20.4	Norway	41,5	Korea	78.5
Canada	18.6	Taiwan	40.7	Switzerland	66.6
United Arab Emirates	16,8	Switzerland	39.9	Singapore	61,0
Kuwait	14.7	Korea	33.6	Italy	53.4
Saudi Arabia	14.3	Singapore	32.4	Thailand	51.1
Other countries	177.5	Other countries	292.9	Other countries	324.9
The world	532.3	The world	1166.7	The world	1457.9
Deficit-showing countries					
2000		2009		2017	
United States	−403.5	United States	−372.5	United States	−449.1
United Kingdom	−39.9	United Kingdom	−85.4	United Kingdom	−99.2
Germany	−34.2	Spain	−64.3	Canada	−48.8
Spain	−26.3	Australia	−46.6	India	−48.7
Brazil	−24.8	Italy	−41.4	Turkey	−47.4
Mexico	−18.8	Greece	−40.8	Australia	−36
Australia	−16.4	Canada	−40.4	Argentina	−31.3
Portugal	−12.8	India	−38.4	Algeria	−22.1
Poland	−10.3	Brazil	−26.3	Mexico	−19,4
Turkey	−9.9	Portugal	−25.5	Indonesia	−17,3
Other countries	−68.0	Other countries	−226.8	Other countries	−233.9
The world	−664.9	The world	−1008.4	The world	−1053.2

Source: own elaboration on the basis of [IMF, 2019b].

The global stock imbalance featured a high degree of concentration, similar to the flow imbalance (Table 2). The greatest positive NIIP in the entire examined period was observed in the countries accumulating constant, positive CA surpluses, thus Japan, China and Germany, as well as Switzerland, Norway, Asian financial centres (Taiwan, Singapore and Hong Kong) and groups of oil exporters (the United Arab Emirates and Saudi Arabia). In turn, the USA, Spain, Brazil, Mexico and Italy featured the highest negative NIIP in all the years of the period between 2000–2017 (Table 2 ([IMF, 2019a].

Table 2. Countries of the highest positive and negative NIIP in 2000, 2009 and 2017 (bn USD)

| Countries of positive NIIP					
2000		2009		2017	
Japan	1157.9	Japan	2916.5	Japan	2909.1
Switzerland	307.6	China	1490.5	Germany	2124.4
United Arab Emirates	250.7	Germany	885	China	1814.1
Saudi Arabia	227.9	Switzerland	759.3	Hong Kong	1421.2
Hong Kong	220.6	Hong Kong	735.3	Taiwan	1180.8
Taiwan	193.5	Taiwan	585.7	Norway	886.0
Belgium	141.7	Singapore	444.3	Switzerland	811.0
Qatar	86.7	Saudi Arabia	434.6	Singapore	804.3
Russian Federation	70.1	United Arab Emirates	376.3	Saudi Arabia	611.1
Luxembourg	42.9	Norway	323.8	Netherlands	528.8
Other countries	267.8	Other countries	1551	Other countries	1839.8
The world	2967.4	The world	10502.3	The world	14930.6
Countries of negative NIIP					
2000		2009		2017	
United States	−1536.8	United States	−2627.6	United States	−7725.0
Brazil	−260.7	Spain	−1453.9	Spain	−1172.6
Mexico	−216,9	Australia	−675.1	Australia	−757.1
Spain	−209.2	Brazil	−559.1	Brazil	−642.2
Australia	−196.0	Italy	−505.5	Mexico	−559.8
Finland	−182.0	France	−394.7	France	−553.5
Turkey	−98.4	Mexico	−393.4	Ireland	−526.9
Sweden	−83.2	United Kingdom	−391.6	Turkey	−462.1
India	−76.8	Greece	−299.4	India	−428.0
Italy	−73.5	Turkey	−276.2	Poland	−348.5
Other countries	−1358.1	Other countries	−3448.3	Other countries	−3678.0
The world	−4291.6	The world	−11024.8	The world	−16853.6

Source: own elaboration on the basis of [IMF, 2019a; IMF, 2017].

Even though many leading global economies during the analysed period maintained constantly negative/positive CA balances and NIIP, the changes in the values of those constantly positive/negative positions and transformations of external positions from negative/positive

into positive/negative ones occurring in other countries resulted in the changes of a break-down structure of the global imbalance. Considering the structure of global flow and stock imbalances in a simplified context of two economic regions, it is possible to conclude that prior to the outbreak of the global crisis we witnessed an improvement of external positions (CA balances and NIIP) in the group of emerging economies and the developing countries, which was accompanied by the deterioration of the position of the group of advanced economies.[1] However, in the period after the crisis outbreak, the trends were reversed (Figure 4 and 5).

An increase of the global flow imbalance during the years of 2000–2007 was predominantly a result of climbing positive CA balances in China and oil exporting countries as well as a deepening CA deficit in the United States, while its decline after the crisis outbreak – a drop of those surpluses and deficit (Figure 4) [IMF, 2019b].

Figure 4. Current account balances of the USA and China as well as of other selected counters during 2000–2017 (% global GDP)
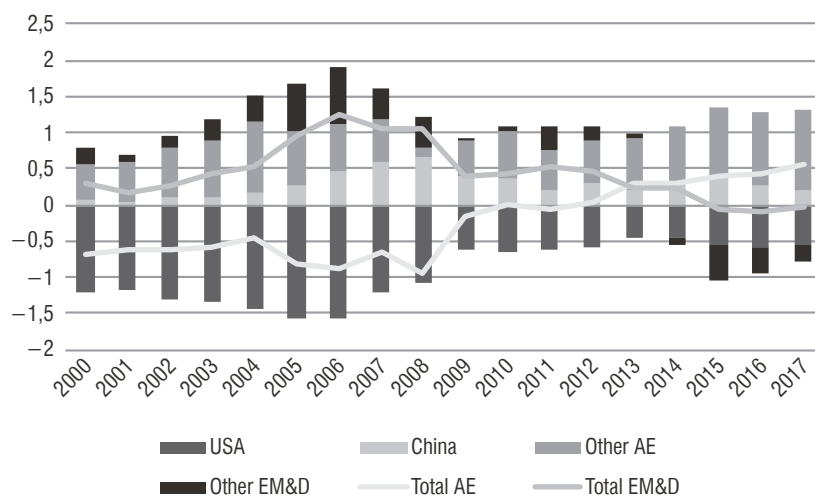
Note: EM&D = Emerging and Developing Economies; AE = Advanced Economies, Other AE = Advanced Economies without the USA; Other EM&D = Emerging and Developing Economies without China

Source: own elaboration on the basis of [IMF, 2019b; IMF, 2018a, pp. 219–221].

An increase in the global stock imbalance after 2009 was chiefly caused by the deepening of the negative NIIP in the United States as well as of a rapidly growing positive NIIP in the group of the remaining advanced economies. What is more, a rise in the negative NIIP of other emerging and developing economies has contributed to the development of a stock imbalance post-crisis, whereas the impact of the external position of China has dropped as a result of a slowdown in the rise of its positive NIIP (Figure 5).

Summing up, it can be concluded that a decrease in the global flow imbalances after the 2008–2009 crisis resulted from the changes in CA balances of both the group of emerging

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[1]   Classification of countries according to IMF WEO [IMF, 2018b].

and developing countries as well as advanced economies. In turn, the growth of the global stock imbalance was determined chiefly by the changes in the advanced economies' NIIP.

Figure 5. Net international investment position of the USA and China as well as of selected groups of countries during the years of 2000–2017 (% global GDP)
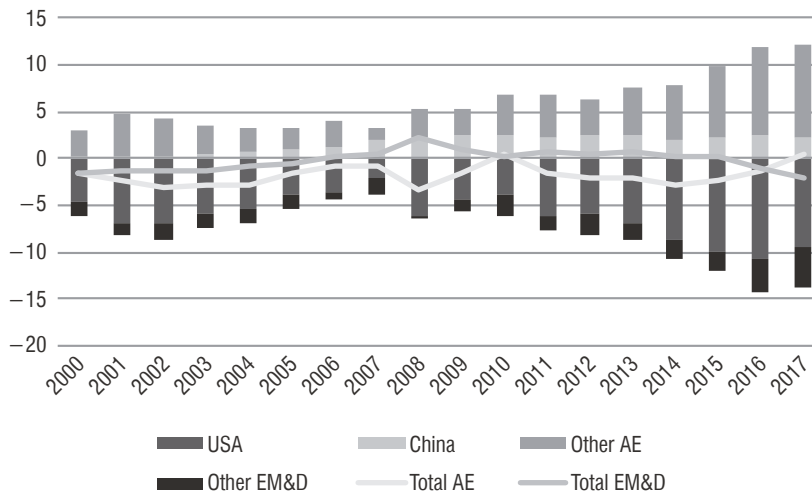
Note: EM&D = Emerging and Developing Economies AE = Advanced Economies; Other AE = Advanced Economies without the USA; Other EM&D = Emerging and Developing Economies without China

Source: own elaboration on the basis of [IMF, 2019a; IMF, 2017].

4. Causes of divergences in the changes of the global flow and stock imbalances

The occurrence after the global financial crisis of a distinct divergence in the directions of changes in the global flow imbalances and global stock imbalances occurred due to two basic reasons.

First of all, the changes in the global flow imbalance, i.e. post-crisis drops in CA balances, were too small (and often too short-lived) to result in a decrease in the NIIP of the states having large stocks of foreign assets and liabilities, accumulated in the previous years. In the opinions expressed in the literature, even greater adjustments of values of constantly positive/negative CA balances would be insufficient [IMF, 2014, pp. 129–130]. In order to stop the rise in the stock imbalances, their 'reversion' would need to occur (from negative/positive into positive/negative). Because the flow imbalance of a majority of systemically significant economies has decreased, but it has not been 'reversed' (cf. Table 1), the positions of net lenders and net borrowers (stock imbalance) have been subject to further expansion.

Secondly, the dependence of NIIP changes on the CA balances has in the last two decades decreased significantly. Along with the development of international financial integration and a rise in the amounts of countries' foreign assets and liabilities, the roles of financial

transactions in shaping countries' NIIP have diminished. In many highly developed, open economies, modified methods of evaluation currently exert a substantial influence on the changes in the balance of foreign assets and liabilities (changes in prices and foreign exchange rate differences). Consequently, changes in NIIP may substantially differ from CA balances. The scale and direction of the impact exerted by evaluation changes on NIIP depend on an opening position (negative or positive) as well as a breakdown of foreign assets and liabilities [Fidora, Schmitz, Tcheng, 2017; Knap, 2016]. Consequently, an improvement/deterioration of a current account balance need not mean a corresponding NIIP change (Figure 6). The confirmation of the phenomenon in the examined period was provided by low, and in certain countries negative correlation coefficients between NIIP changes and a CA balance (Figure 7).

Figure 6. Changes in the CA balance and NIIP of the United States and the Netherlands during the years of 2000–2017 (bn USD)

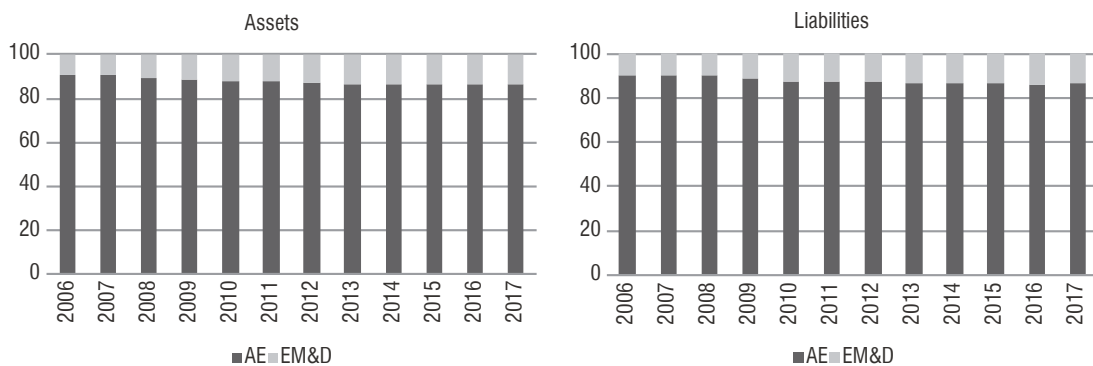Source: own elaboration on the basis of [IMF, 2019a; IMF, 2019b].

Figure 7. Correlation coefficients of NIIP and CA changes of selected countries during 2000–2017
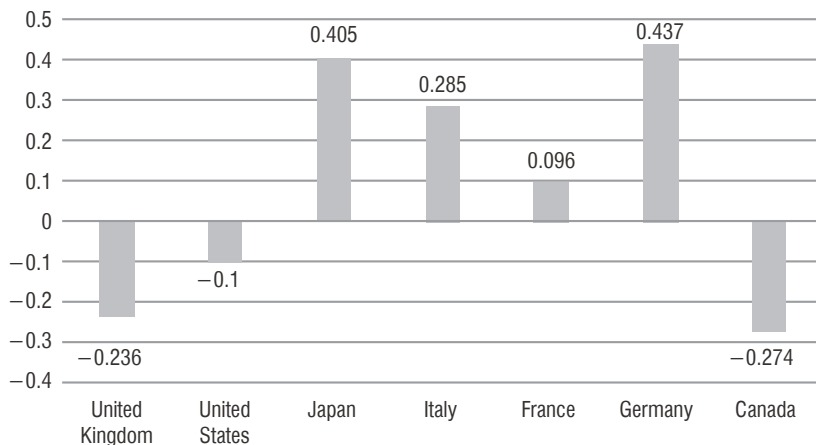
Source: own elaboration on the basis of [IMF, 2019a; IMF, 2019b].

The reasons for a significantly greater role played by the advanced economies than emerging economies and developing countries in the rising global stock imbalance can be found in the concentration of the total global foreign assets and liabilities in highly developed countries, which in 2006 constituted over 90% of world foreign financial stock (assets and liabilities). Although in the course of 2006–2017 the share of emerging and developing economies grew both in assets and liabilities, still over 86% of global foreign receivables and liabilities belonged to the advanced economies (Figure 8).

Figure 8. Structure of global foreign assets and liabilities according to economic groups of countries during 2006–2017 (%)

Note: AE = Advanced Economies; EM&D = Emerging and Developing Economies.

Source: own elaboration on the basis of [IMF, 2019a].

Summary

The cause and effect relationships between the global imbalance, growing extremely rapidly from the beginning of the 21st century, and the outbreak of the financial crisis of 2008, still remain a matter of discussions in the literature of the subject. Nevertheless, independently of the presented extreme views on the nature of those relationships, the growth of the global imbalance is rather commonly recognized as a symptom of distortions or a serious threat to the global economy. That is why at present a lot of attention is being paid to monitoring the external imbalance of key global economies.

From the conducted research it arises that significant divergences occurred between the global flow imbalance and global stock imbalance during 2000–2017. The research hypothesis formulated in the introduction, stating that after the outbreak of the financial crisis in 2008 the deacreased global flow imbalance was accompanied by a significant increase in the global stock imbalance, was sucessefuly verified. Therefore, the results of the analyses demonstrated that there exists a link between the evaluation of global imbalance and the adopted method of measurement, thereby confirming a need for conducting an analysis of the phenomena jointly from those two perspectives. A decline in the imbalance measured with current account

balances (flows) may distort the evaluation, masking a rise in the imbalance defined through international investment positions (stock), constituting a serious threat to the stability of the international financial system.

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