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Dear Readers,

We hereby commend the latest issue of Argumenta Oeconomica Cracoviensia to you. The current issue reflects the profile of the journal, which publishes original contributions in the field of economics and finance. Its main purpose is to present theoretical views as well as the results of empirical research on current issues tackled by economists. We are particularly interested in publishing views and empirical research findings on the fundamental changes in the world economy in recent decades. This is all the more important because during that period we were able to observe the detachment of economic theory from political economy and also the separation of financial theory from economic theory. The result was the biggest financial crisis since Great Depression in the first decade of this century. Economists and politicians have noticed these negative trends, and this has led to a worldwide debate on the search for a new economic paradigm. There are also other reasons why it is necessary to look at economics as it was practised in the past, namely, the intensification of globalization and integration processes, deepening income inequalities, and the digitization of the economy and finance. These recent changes have implications for the development prospects of the world economy, also in terms of the stability of the conditions under which economic entities operate both nationally and supranationally. The excessive autonomization of financial phenomena in relation to the real economy, otherwise known as financialization, is reflected in the formal, classification-oriented approach to scholarship in Poland, where, as part of the review of the taxonomy of science, the disciplines of economics and finance have been merged. Although we should not attach too much importance to the way in which phenomena are classified, this change, at least in Poland, may have beneficial effects as regards the interpenetration of these two sub-disciplines. It may therefore be assumed that research projects and publications in the field of economics that result from them will take greater account of the financial aspects of phenomena and vice versa.

This latest issue of our journal fully reflects the directions of the debate and the interest shown by economists in current challenges. Many of the papers presented in the current issue are an expression of the continuing integration of economics and finance.

Such challenges undoubtedly include issues related to the aforementioned income inequalities in various countries and internationally. The problem of income inequalities and their negative consequences for the future of the economy has already been discussed in our journal. Due to the scale and complexity of the phenomenon and its various economic, social and political aspects, each new approach is worthy of attention. For this reason, readers may be interested in Kalim Siddiqui's article entitled "The Political Economy of Global Inequality: An Economic Historical Perspective", which draws attention to the decreasing role of political economy when examining the causes of income inequality. The value of this article lies in the fact that it offers a long-term analysis of the causes of inequality from a supranational perspective. The conclusions presented by the author may inspire further research and analysis, especially as climate change may exacerbate inequalities in individual regions of the world or between countries. This may give rise to further migration of peoples due to poverty and lack of food or water.

Income inequalities are varied and complex, which is why it is difficult to identify their nature and causes more accurately. It is therefore worth taking account of any methodological proposals in this area. In their article entitled "Application of a Systems Approach to Studying Global Socio-Economic Inequality", Czesław and Lidia Mesjasz emphasize the need to consider that income inequalities arise in a specific social system. Hence, the authors propose to use the findings of academic research on complex systems, in this case social systems, to investigate the sources of social and economic inequality.

An example of the aforementioned integration of economics and finance is the article by Sławomir I. Bukowski and Łukasz J. Zięba entitled "Financial Market Development and Economic Growth. New or Old Nexus in the Euro Area?", in which the authors try to explain the relationship between the development of financial markets and economic growth. The importance of this paper lies in the fact that it asks whether monetary integration (the euro zone) has caused a new kind of dependence between the development of financial markets and economic growth. The results of this ambitious research task should be of interest to readers and encourage further research or perhaps verification of the authors' findings.

The issue of sustainable economic development has been the subject of lively debate for many decades, but politicians have not drawn any conclusions from it that are favourable to the environment. This is evidenced by the progressive degradation of the environment and the ubiquitous primacy of economic growth over the natural environment. Moreover, the experience of recent years shows that these phenomena are either denied or ignored by many countries, particularly the United States and China, which are the countries that are contributing most to the environmental damage. The European Union distances itself from such a negative approach and is determined to comply with the Paris Agreement on Climate Change, which is manifested not only in the introduction of tougher pollution standards, but also in institutional changes. These include the idea, advocated by the EU authorities, to encourage capital markets to play a greater role in the financing of environmental projects. These issues are the subject of Małgorzata Janicka's article entitled "Financing Sustainable Growth and Building the Capital Markets Union in the European Union". What is interesting about it is that although the author refers positively to the idea of reorienting EU capital markets towards sustainable economic development, she questions the sequencing of the measures (changes) planned by the EU. For these reasons, her critique may provide inspiration for specialists dealing with these issues.

The issue of the impact of economic activity on the natural environment is addressed in Barbara Wieliczko's article entitled "Challenges of European Integration – to What Extent Should the Common Agricultural Policy Stay Common?". In this case, the issue is the impact of agricultural production on the natural environment within the concept of sustainable development. The author shows that only a coordinated agricultural policy creates an opportunity to take into account the regional and local conditions of agri-food production in order to neutralize negative effects on the natural environment and to meet the challenges related to the globalization of the agricultural market.

Another example of the focus on current issues in our journal is Elżbieta Kawecka-Wyrzykowska's article entitled "EU's Multiannual Financial Framework post-2020: Brexit Implications, with a Focus on Poland". It is therefore the mission or duty of researchers to assess the impact of this event on the European Union and individual countries. Much has been written on the issues raised by the author, but this article is notable for its positive approach to the consequences of Brexit. According to the author,

Brexit will force the EU to reform its budget rules due to the loss of the budget contribution made by the United Kingdom. The potential reduction in the EU budget will in turn force a new approach to the common agricultural policy and other programmes, which may prove beneficial to the EU's functioning and development. These and other anticipated effects of Brexit undoubtedly encourage a more in-depth reading of this article.

The phenomenon of population ageing observed in highly developed countries is also beginning to be noticed in middle-income countries such as Poland. The effects of population ageing are manifested in various spheres. For an economist, however, it is important to answer the question of what is the impact of population ageing on a country's economic and capital potential. This issue is tackled in Renata Knap's article, "Population Ageing and Poland's International Investment Position". The author assesses the effects of the ageing of Polish society in a fifty year time-frame. Her results may give rise to some doubt, which is natural in the case of long-term forecasts. Nevertheless, they should serve as a warning to politicians, as the research shows that Poland's net international investment position will dramatically deteriorate and demand for foreign capital will increase as the country's population ages. The author's conclusions are therefore of great practical significance. They are generally known, but the actions of the authorities are inconsistent: on the one hand, efforts are being made to increase the birth rate, but at the same time the retirement age is being lowered and the economic activity of women is decreasing. The arguments presented by the author in favour of an effective demographic and social policy demand to be addressed and thus may inspire readers of this article.

The financial crisis that began in 2008 caused a significant capital weakening of the banking system in many countries. In response to the negative phenomena, individual countries and groupings, such as the European Union, took a number of *ad hoc* measures (bank recapitalisation, mergers) as well as institutional and prudential ones. It is interesting, therefore, to try to examine how commercial banks reacted to institutional and capital changes in their operating conditions. On the example of selected commercial banks in Poland, Piotr Karaś and Andrzej Walitza present these issues in their paper entitled "Polish Commercial Banks' Efficiency in 2009–2016 under Stress Conditions for Recapitalization".

While commending the present issue to our readers, we would also like to invite contributions in the form of original texts, information about important academic events, and reviews of outstanding books. Texts in the field of economics and finance will be treated as most relevant to the journal's profile.

Prof. Stanisław Owsiak
Editor-in-chief

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Kalim Siddiqui

THE POLITICAL ECONOMY OF GLOBAL INEQUALITY: AN ECONOMIC HISTORICAL PERSPECTIVE

Abstract

The aim of this paper is to evaluate how the economic gulf between advanced and less-developed countries might be narrowed by analysing the progress of their economies in historical perspective. It is an important question for the 21st century whether countries in Asia, Africa and Latin America are capable of economic convergence with the West. To answer this question we need an understanding of both economics and history. It has often been argued that the international distribution of wealth between the rich (industrialised) and poor (primary producing) countries will be narrowed or closed as a result of a trickle-down process from the technologically--advanced countries to the poor countries. This paper analyses this claim using a quantitative methodology built on data from international institutions such as the OECD, IMF and World Bank. It finds that during the last three decades there have been huge economic changes globally: structural arrangements and patterns of trade have changed in both advanced and developing countries. However, while some developing countries have achieved faster growth rates than the advanced economies – particularly China, India, Indonesia, and Turkey – most developing countries have not been able to catch up with the economies of the developed world.

Keywords: catching-up, convergence, neoliberalism, developed and developing countries, international trade.
JEL Classification: P45, O47.

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1. Introduction

In recent years a number of studies have been published about the shift in the balance of power from the West (US, Europe and Japan) to the East (China and India) (IMF 2016, Nayyar 2013, Jacques 2012, Rowthorn 2008). The financial crisis of 2008 uncovered inherent weaknesses in the current international monetary system that contributed to global financial instability, global economic crisis, and to a weak global economy. For developing countries, which rely heavily on international trade and foreign direct investment for growth and economic development, the failure of the global reserve system to ensure sufficient international liquidity caused them to suffer from spill-over effects of global financial instability and economic crisis.

The aim of this study is to critically examine the on-going discussions on global inequality. It concentrates on the international distribution of wealth between the "industrialised" and "primary" producing countries and the claim that the benefit of technical progress in the advanced (developed) economies would trickle down to the poor countries.

Since their independence in the 1950s and 1960s, the developing countries" share of global GDP has risen to over 44% in 2014, double that in the 1970s. The industrial sector in the developing countries is also increasing and their share of value added in global manufacturing output increased from 13% in 1970 to more than 45% by 2014. However, the region--wise increase in manufacturing output was highly unequally distributed (IMF 2016, Anievas & Nisancioglu 2015). For instance, Latin America's manufacturing share of global GDP has only marginally increased to 8% between 1970 and 2015, while for manufacturing share of Africa has remained the same, i.e. less than 3% for this period. Africa's share in manufacturing value added in 2015 was only 2%, just as it was in 1970 (UNIDO 2016).

As the Chinese and Indian economies are quickly catching-up with the advanced economies (Siddiqui 2018b), both are re-emerging as major contributors to global output growth in the 21st century. China has become the second largest economy after the US, which is a remarkable development of the 21st century (Jacques 2012, Siddiqui 2009). Moreover, the patterns of trade are changing as well. For example, the share of manufactures in developing countries' exports rose from 12% in 1980 to 64% by 2015; nearly half of this consisted of medium and high technology products. Another key development has been the rise of services in the export

components of the developing countries, such as information technology and e-commerce.

Global income inequality is measured in a number of ways: the first method of estimation adopted is inter-country inequality, which treats each country as individual and the inequality measured is that of the distribution of per capita GDP among countries. The second method is supposed to be slightly better as it takes into account the population size of a country. The third estimation method takes into account the inequality of the world income distribution by combining inequality distribution in individual countries together with per capita income.

The primary focus of this study is the causes of and trends in global economic inequality as illustrated by the date from a selected group of nations.

Section 1 presents an introduction to the topic; Section 2 discusses economic transformation in the colonies; Section 3 analyses economic convergence and divergence between the period of 1820 and 1950; Section 4 examines the issue of free trade; Section 5 analyses globalisation and economic liberalism; Section 6 looks at whether the developing world is catching-up with the developed world and finally Section 7 offers some conclusions.

2. Economic Transformation in the Colonies

There is no doubt that capitalism powered by rapid industrial growth laid the foundation for increased productivity and higher incomes in the West. However, capitalism as it is manifested in a handful of advanced economies does not provide a full picture of its impact. The Eurocentric view does not include various other factors which contributed towards the development of capitalism, such as vast capital accumulation from slavery; from the plundering of territories, and from colonisation. The British rulers of India, for instance, did not settle but were only interested in transferring wealth from India to support their own development of capitalism and industrialisation in Britain. As a result, countless Indian soldiers died to protect the British Empire's expropriation of Indian money and materials (Siddiqui 2017a). Among the most important questions about this period is the nature of the British advantage over other European countries in their quest to become the major industrial country and the foremost colonial power. That advantage was control of India, which not only provided British companies with vast markets for their finished products and raw

materials, but also provided money, resources, and soldiers. The 19th century Conservative Party Prime Minister Lord Salisbury emphasised that India was: "an English barrack in the oriental seas from which we may draw any number of troops without paying for them" (quoted in Arrighi 2007, p. 136). It was also due to Indian soldiers that Britain was able to keep a large presence in the Pacific during World War II as the campaign against Japan progressed.

The colonisation of the economies of Asia, Africa, and Latin America in the late 18th and early 19th century put a break on their internally--initiated progressive reforms and structural changes. It also imposed de-industrialisation, reoccurrences of famine, and forced integration of their economies with those of the occupying powers. To strengthen their occupation regimes various compromises were made with the established pre-capitalist and reactionary forces, and policies of "divide and rule" brought untold suffering to people in the colonies (Bagchi 1984).

Let us look at the pre-colonial economy: in 1750, prior to colonisation, India's share of the world economy was 23% of total output, but nearly two centuries after British rule, it had dropped to just 4% in 1947 (Maddison 1998). Some economic historians agree that India and China during the pre-colonial period were leading economies (Bagchi 1984, Maddison 2003). Moreover, Bairoch (1983) indicates that in 1750 income levels per capita in Europe were slightly lower than those in South Asia and China, though others have suggested that in 1750 the levels of development and per capita income in Europe and Asia were broadly similar (Parthasarathi 2011, Pomeranz 2000, pp. 36–41). It is interesting to look beyond per capita income towards other social indicators. The available evidence suggests that life expectancy and the birth rate were both similar in Europe and Asia in 1750. Life expectancy rose to 36 years in 1820, to 46 years in 1900 in Europe, while in the colonies it remained lower i.e. 24 years in 1820 and 26 years in 1900 (Bagchi 1984, Bairoch 1983).

The level of industrialisation is important because of its impact on agricultural production and employment, the development of technology, the increase in productivity, and also its spill-over effects on the rest of the economy. Therefore, it is important to analyse this issue. During the 17th and 18th centuries, the world economy was characterised by a flow of manufactured goods from China and India to Europe. These goods were paid for in silver and gold by European traders. Spices and cotton textiles from India, and tea, porcelain, and silk from China were exported to Europe (Frankopan 2015). During the 19th century the military defeat of India and

partial colonisation of China, which coincided with the industrial revolution in Britain, changed all of this.

European colonial expansion began much earlier, in the 16th century, as a result of Spain and Portugal's search for silver, spices, and slaves from Africa and Asia. Colonisation plantations and mining were established soon afterwards and encouraged as a source of profitable commodities such as sugar, cotton, maize and tobacco – all under the control of European businesses. The policy of "divide and rule" was followed and people became increasingly divided by supposed racial characteristics and colour, which inflated hatred, prejudice, and violence to a level unknown in the past. These business activities and the forcible extraction of immense quantities of silver from the Americas gave Europeans unprecedented sources of capital accumulation which were then re-invested back into Europe to pay for Chinese imports and military conflicts. Moreover, this mercantilism and expansion of trade had full state patronage. Imports of spices, textiles, tea, silk, and porcelain from India and China were paid for by silver and other precious metals looted from the Americas. In the late 16th century the Dutch defeated Spain and Portugal and then in the 18th century the British navy emerged as the strongest power in Europe. England also extended full state protection to its merchant ships (Chang 2002). During the 18th century in England a rapid economic transformation took place, i.e. the proportion of the population dependent on agriculture for their livelihood fell from 75% to 35% in a very short period and the importance of trade and manufacturing grew in terms of providing both employment and income (Parthasarathi 2011). Similar structural changes were observed in the Netherlands and Belgium, but at a much slower pace. Later a more modest decline of the agriculture sector was also observed in France, Germany, Italy, and Spain. In England this rapid structural change also meant a rise in urbanisation and the expansion of trade accompanied by an increase in literacy and further commercialisation of agriculture (Saville 1969). However, during the mid-18th century exports from China and India were rising and were very competitive because in comparison to Europe they had efficient markets and stronger property rights (Parthasarathi 2011).

There are more similarities between Asia and Western Europe in the mid-18th century than differences, when China and India together were able to contribute 50% of the world output (Anievas & Nisancioglu 2015). The question thus arises as to why Western Europe and not Asia succeeded in the industrial revolution. There are a number of reasons. The shortage of wood in England caused by deforestation compelled the

early use of coal on a large scale; state assistance was extended to spread use of technology in mining, and a number of policies were undertaken to protect infant enterprises such as the wool industry. The state protected domestic industries in their nascent and vulnerable stages (Chang 2002). These active policy measures at the domestic level coincided with military success overseas over the 1688–1780 period. Finally, in 1757, Siraj-u-Daulah, the last independent Nawab of Bengal, was defeated in the Battle of Plassey. This presented the British with a major opportunity to plunder and loot all of Bengal systematically (Siddiqui 1990).

The British ruled in India from 1757 to 1947. During this period income growth was negligible and life expectancy declined. Moreover, during the second half of the 19th century per capita income fell in India by 50% (Hyndman 1919, p. 22; Davis 2001). This was the direct result of the colonial policy of imposition of monoculture cultivation of indigo and opium for export to China, and tea, raw cotton, and wheat for export to Britain. The land tax was raised to very high levels and this led to small peasants abandoning subsistence agriculture based on rice for cultivation of indigo and opium. In wheat production market forces determined the price and India continued to export wheat to Europe even during famines (Davis 2001). The opening of the Suez Canal further reduced transport costs, which boosted wheat exports from India, especially the Punjab and Central Provinces, with the result that the export of wheat went up by 300% between 1875 and 1900 (Davis 2001, p. 299).

In fact, during the time of famines in India there was no government initiative to help to distribute food to starving people. Following laissez-faire policies the colonial government refused to provide any rescue packages, while at the same time the Indian government mobilised resources to fund war in Afghanistan. Moreover, the so-called modernisation process during the colonial regime was slow and uneven across sectors and regions (Siddiqui 1990). Despite limited economic changes the colonial regime reinforced pre-capitalist production relations in the economy, which resulted in structural retrogression whereby the dynamic potential for accumulation and development associated with capitalism in Europe was systematically undermined. The cultivation of export crops was designed with the sole aim to benefit the colonial regime and not the peasantry. The constant need for tribute and the rising cost of colonial wars required constant increases in land revenue, which in turn resulted in frequent famines and untold deaths and deprivation in India (Davis 2001, Siddiqui 2014). The land revenue demand also ceased to adjust with fluctuations in output. Therefore,

the British imposed changes in land ownership and property rights, which contributed to greater insecurity for the peasantry by exposing them to the mercy of merchants-cum-money lenders and absentee landlords. The regions in eastern India suffered the most adverse effects of colonial rule. As Bagchi (1984) argues: "India ceased to be a leading manufacturing country of the pre-capitalist era and was reduced to the position of a supplier of agricultural goods and raw materials to the industrialising economies of the West, particularly Britain (…) The long process of de-industrialisation of India started with the catastrophic disappearance of cotton manufacturing from the list of exports of India (…)" (Bagchi 1984, p. 82).

Frequent famines gave the opportunity to money lenders and landlords to uproot peasants and acquire more land. This phenomenon of absentee landowners taking over the ownership title from the peasants and converting them into debt bondage and tenancy had hitherto never been witnessed in India. As a result, a new parasitic stratum of absentee landowners grew, while the amount of rural indebtedness increased rapidly (Siddiqui 2014). As Davis (2001) argues: "the forcible incorporation of smallholder production into commodity and financial circuits controlled from overseas tended to undermine traditional food security. Recent scholarship confirms that it was subsistence adversity (high taxes, chronic indebtedness, inadequate acreage (…)), not entrepreneurial opportunity that typically promoted the turn to cash crop cultivation. Rural capital in turn tended to be parasitic rather than productive as rich landowners redeployed fortunes that they built during the export booms into usury [exorbitant rents] and crop brokerage (…) commercialization went hand in hand with pauperization without any silver lining of technical change or agrarian capitalism" (Davis 2001, pp. 289–90).

A similar situation was experienced in Egypt. For instance, during the Muhammad Ali regime, between 1820 and 1840, Egypt attempted to modernise its economy through industrialisation. To finance this the country relied on external borrowings. The areas chosen to receive state subsidies were the new strain of cotton seeds and accompanying credits to farmers who were willing to cultivate this new long strain cotton. The government was a monopoly buyer of raw cotton, which encouraged nepotism and corruption. The government also built a number of textile industries, which focused on foreign markets and exports. Britain's manufacturers saw this as a potential threat. To undermine such Egyptian policies, Britain encouraged Turkey to attack Egypt. Muhammad Ali also experienced internal challenges and opposition to his policies and as a result

Ali was weakened (Cain 2006). Finally, as Kevan Harris (2016, p. 5) argues: "[in 1840] British and Austrian navies cut off Egyptian supply lines and entered Alexandria's waters. Under duress, Ali signed series of capitulations which opened Egyptian markets, dismantled its manufacturing base and defanged its military. Egypt experienced rapid underdevelopment, becoming an exporter of raw commodities and an importer of European manufacturers for the next century". Under pressure, Ali relented and granted British manufactured products free access to Egyptian markets. Europeans were also allowed to own land and resources in Egypt. As a result, Egypt was transformed into a supplier of raw materials rather than a producer and exporter of industrial products (Siddiqui 2015b, Cain 2006). As Stavrianos (1981, p. 221) argues: "Under the protection of the capitulatory treaties [of war with Turkey and Britain] European speculators and adventurers were free to operate in Egypt outside the jurisdiction of the native courts and subject only to consular control. Many grew rich by smuggling opium and tobacco and invariably were protected by the foreign consuls (…) These foreigners, who were completely exempt from taxation, also served as agents in arranging for loans and contracts on extortionist terms. In 1873, for example, [the Egyptian government] accepted a loan at the face value of £32 million, but after heavy commissions and discounts received only £9 million".

Of the policy changes from mercantilism to overseas expansion that underlay British industrial supremacy, Engels wrote: "It was under the fostering wing of protection that the system of modern industry – production by steam-moved machinery – was hatched and developed in England during the last third of the 18th century. And, as if tariff protection as not sufficient, the wars against the French Revolution helped to secure England the monopoly of new industrial methods. For more than 20 years, English men-of-war [fighting ships] cut off the industrial rivals of England from their respective colonial markets, while they forcibly opened these markets to English commerce. The secession of the South American colonies from the rule of their European mother countries, the conquest by England of all French and Dutch colonies worth having, the progressive subjugation of India turned the people of all these immense territories into customer of English goods. England thus supplemented the protection she practised at home by free trade she forced upon her possible customers abroad; and thanks to this happy mixture of both systems, at the end of the war, in 1815, she found herself, (…) in possession of virtual monopoly of the trade of the world" (Engels 1990, p. 522).

In Britain the government fully supported the policies of modernisation and expansion of industries by promoting technology, raising productivity, and by encouraging the efficient use of production during the early phase of industrialisation. Similar polices of active state support were applied later on in Germany and France to industrialise their countries. In all of the Western European countries and later on in the US, Japan, and South Korea the process of industrialisation was fully supported by the state through tariff protection and through active industrial policies (List 1966, Amsden 2001). In contrast to this, in colonial India no such policies were adopted, and no efforts were made to protect domestic industries. As a result, we found a steady productivity decline with de-industrialisation and de-urbanisation in India and in other major Asian countries, which took place in the 18th and 19th centuries (Siddiqui 1996, Baran 1957).

3. Decline or Economic Convergence between 1820 and 1950?

The question arises as to why the developing countries' economies began to decline in the early 19th century. It is widely accepted that the manufacturing sector plays an important role in raising overall productivity. Therefore, we need to examine the developing countries' share of manufacturing output in the global economy in the first quarter in the 19th century. How did this share change during the colonial period? In the 1820s Asia produced more than half of the world's output when regional economies were not yet fully colonised by the European powers. Thereafter, the industrial revolution and colonialism created an imbalanced and unequal world.

Asia had dominated in terms of GDP as late as 1800 largely because of two populous countries, China and India. These together accounted for 50% of the world population and 50% of world GDP. Europe, Russia, and Japan were far less important economically and their share in world output was far from being dominant. In 1820 the South (developing countries) accounted for 60% of global GDP and 74% of the world's population. The per capita income of these countries was 85% of the global average of US$ 666 (in 1990 prices). China and India, the two largest economies, together accounted for nearly 50% global of GDP and nearly 57% of the world's population (Maddison 2003).

However, by the 1820s, while the Asian population remained the same, its share in world GDP declined modestly. However, for the same period, the European and Japanese share in world GDP increased. Maddison's

estimates on population and output indicate that between 1820 and 1950 the "West" share in the world population increased from one-fourth to one-third, while its share in world output doubled from 37% to 73%, which was a game changer, and its consequences became far longer than initially envisaged (Maddison 2003). For the same period (i.e. from 1820 to 1950) the "South" share in the world population declined from three-fourths to two-thirds, but its share in world output declined sharply from 63% to 27%. This transformation of the world economy happened in a short period of just 130 years. As a result this sharp decline, which led to the creation of a new international division of labour, the South was economically marginalised and the West established a dominant position (Anievas & Nisancioglu 2015).

Maddison (2003, 1998) has estimated the long term changes in the world population and world income for selected years. His estimates are based on a specific method where international prices have been calculated to facilitate cross-country comparisons. Maddison's method is widely used and seems to provide a comprehensive source of historical statistics.

Table 1, derived from Maddison's data on GDP, provides evidence on the distribution of population and output in the world economy for selected years. Among the Asian countries, China and India were prominent economies; the share of the GDP of Western Offshoots includes the US, Canada, Australia and New Zealand, and the former USSR (ex-Soviet Union). As indicated in Table 1, the share of China and India together in world output was nearly 50% in 1820, declining sharply to 8.8% in 1950. In contrast to this, the share of Western Europe and Western Offshoots together in world output rose dramatically from 24.8% in 1820 to 56.9% in 1950.

Maddison's (2003) estimates are also broadly supported by others. For example, Bairoch (1983) estimated GNP for selected years in the 1750–1950 period and divided the countries into two groups – the first group included Asia, Africa, and Latin America, and the second group included Europe, Japan, and North America. His estimates are based in 1960 US$ prices and adjusted for differences in PPP. Bairoch found that the share of the former group in world GDP was 69% in 1830, and came down to 57.4% in 1860, which is higher than Maddison's estimate of 63% in 1820 and 42.6% in 1870. Bairoch (1983, 1993) estimates that the share of the developing countries further dropped to 38.3% in 1900 and 33.5% in 1913. This figure is closer to Maddison's 32.6% in 1900 and 29.6% in 1913. Their share declined further to 30.2% in 1928 and 27.5% in 1950. This figure is very close to Maddison's estimate of 29% in 1940 and 27.1% in 1950 (Maddison 2003).

Table 1. Distribution of Population and GDP in the World Economy, 1600–1950 (in %)

Specification	World population					World GDP				
	1600	1700	1820	1900	1950	1600	1700	1820	1900	1950
China	28.8	22.9	36.6	25.6	21.6	29.0	22.3	33.0	11.1	4.6
India	24.3	27.3	20.1	18.2	14.2	22.4	24.5	16.1	8.6	4.2
Africa	9.9	10.1	7.1	7.0	9.0	7.0	6.9	4.5	3.4	3.8
Latin America	1.5	2.0	2.1	4.1	6.5	1.1	1.7	2.2	3.6	7.8
Western Europe	13.3	13.5	12.8	14.9	12.1	19.8	21.8	22.9	34.2	26.2
Western Offshoots	3.0	3.1	3.5	5.5	7.0	0.3	0.2	1.9	17.6	30.7
Eastern Europe	3.3	3.1	3.5	4.5	3.5	2.8	3.1	3.6	5.2	3.5
Former USSR	3.7	4.4	5.3	8.0	7.1	3.4	4.4	5.4	7.8	9.6
Japan	3.3	4.5	3.0	2.8	3.3	2.9	4.1	3.0	2.6	3.0
Total	100	100	100	100	100	100	100	100	100	100

Source: Maddison (2003, 1998), Nayyar (2013, pp. 13–15).

In short, the differences widened between the developing and advanced economies from 1820 to 1950. The developing countries' share in the world population declined from 65% to 52%, while their share in world GDP fell very substantially from 57% to merely 16% for the same period (Maddison 2003). This was largely due to a decline in the economies of China and India. Both countries' share in the world population fell from 56.7% to 35.8%, while their share in world output fell dramatically from 49.1% to only 8.8% between 1820 and 1950 (see Table 1). This was catastrophic for both countries as these were the periods when they suffered European aggression, colonialism, and famines.

Japan's share of the world economy remained stable at 3–4%, and with the Meiji Restoration in 1868 the country was able to improve its economic and political positions in Asia. At the beginning of the 20th century Japan emerged as a regional power in Asia. The country escaped from colonisation in the 19th century and was thus able to chart out independent economic policies as a sovereign country (Siddiqui 2015a).

However, some studies have argued that Western Europe was already economically advanced and rich compared to Asia even before the industrial revolution, primarily due to technological progress (Landes 1969).

Contrary to these claims, Bairoch (1983) estimated the manufacturing sector in selected countries from 1750 to 1953. His work shows that in 1750 the South (i.e. developing countries – he described them as the "Third World") accounted for nearly three-fourths of the world's industrial output. Their share declined to two-thirds in 1800 and three-fifths in 1830. However, the drastic fall of the developing countries from 60.5% in 1830 to 20.9% in 1880 and a further decline to 7.5% in 1913 was noted, while the advanced economies' (Bairoch included Europe, North America, and Japan) share in world industrial output increased from 39.5% in 1830 to 79.1% in 1880 and 92.5% in 1913. Bairoch's study took into account levels of industrialisation in terms of volume of manufacturing production per capita. He found that the ratio of manufacturing production per capita in the South fell from 7:8 in 1750 to 3:4 in 1800, 1:4 in 1860, 1:8 in 1880, 1:17.5 in 1900, and 1:27.5 in 1930 (Bairoch 1993, p. 91).

Table 2 shows the GDP growth rates and also GDP per capita for the 1820 to 1950 period. These figures are based on Maddison's estimates of GDP growth and GDP per capita in 1990 US dollars by regions and countries for selected years. For Western Europe the growth rate in 1820–1870 was 1.68% annually, which rose to 2.2% then fell to 1.19% annually. Japan managed to raise GDP growth from 0.4% in 1820–1870 to 2.21% in 1913–1950, as shown in Table 2. However, a sharp decline was seen in the share of Asia in world GDP for the same period. The growth performance of China and India in the 1820–1870 and 1913–1950 periods was worse compared to other regions, as shown in Table 2. The share of Africa in the world growth rate was slightly higher for the later period. Growth performance within the South group of countries was not all similar. For example, in contrast to Asia, the share of Latin America in world GDP growth from 1870 to 1950 had witnessed higher growth rates than even Western Europe. This is because these countries were free and independently charted out their economic policies.

In Western Europe the spread of the industrial revolution also led to growing demand for capitalist forms of organisation, of production in factories employing workers, and the constant drive to raise productivity through the division of labour and technology.

To understand levels of economic integration of the South with the North, we have to look at trade and investment. The data shows that exports from the South rose from $1.7 billion in 1900 to $7.9 billion in 1928 and again to $15.4 billion in 1948, while at the same time imports also rose from $1.5 billion to $6.5 billion and $14.9 billion, respectively. Measures to liberalise

trade in the colonies led to the rapid growth of their trade (i.e. both exports and imports) between 1870 and 1913 (Bagchi 1984).

Table 2. Growth Rates in the World Economy by Region, 1820–1950 (in % per annum)

Specification	GDP			GDP per capita		
	1820–1870	1870–1913	1913–1950	1820–1870	1870–1913	1913–1950
The West						
Western Europe	1.68	2.12	1.19	0.99	1.34	0.76
Western Offshoots	4.31	3.92	2.83	1.41	1.81	1.56
Eastern Europe	1.41	2.33	0.86	0.63	1.39	0.60
Former USSR	1.61	2.40	2.15	0.63	1.06	1.76
Japan	0.41	0.44	2.21	0.19	1.48	0.88
The South						
China	–0.37	0.56	0.04	–0.25	0.10	–0.56
India	0.38	0.97	0.23	0.00	0.54	–0.22
Africa	0.75	1.32	2.56	0.35	0.57	0.90
Latin America	1.22	3.52	3.39	–0.04	1.86	1.41

Source: Nayyar (2013, p. 22), Maddison (2003, 1998).

Moreover, a large proportion of trade from the colonies consisted of inter-sectoral trade, where primary commodities were exchanged for manufactured goods. Britain, being highly advanced in manufactured goods and technology, exported finished goods i.e. high value products, while it imported raw materials i.e. low value commodities, from its colonies in Asia and Africa. Another key element of the first period of globalisation is foreign capital investment. Here we find that the stock of foreign capital inflows into Asia, Africa, and Latin America rose from $5.3 billion in 1870 to $11.3 billion in 1900, to $22.7 billion in 1914, and again to $24.7 billion in 1928 (Maddison 2003).

Both patterns of trade and capital investment show that from the second half of the 19th century the colonies were integrated as suppliers of raw materials and markets for finished goods from Britain. Finally, the destruction of manufacturing sectors in Asia paved the way for the expansion of markets for British finished goods in Asia. As Nayyar (2013, p. 32) summarised it: "Between 1830 and 1913, the share of Asia, Africa, and Latin America in the world of manufacturing production, attributable mostly to Asia, in particular China and India, collapsed from 60% to 7.5%,

while the share of Europe, North America, and Japan rose from 40% to 92.5%, to stay at these levels until 1950. The industrialisation of Western Europe and the de-industrialisation of Asia during the 19th century were two sides of the same coin. It led to the Great Specialisation, which meant that Western Europe, followed by the United States, produced goods while Asia and Latin America produced primary commodities".

There was no reason why industrialisation and the development of capitalism would not have taken place in a country like India if it had not been colonised by Britain. For instance, the two most important industries responsible for industrial development in the 19th century – which took place with the discovery of steam – were railways and shipping. Prior to the colonisation of the Indian economy we find not only textile industries were adversely affected, but also the shipyards in Bombay. These shipyards were strangled by the British Registry Act of 1786, which placed severe limitations on Indian shipping. There were no shortages of Indian technicians who would have learned the necessary skills at work and thus would have successfully improved their traditional skills. Karl Marx hoped that with the introduction of railways in India, they would become "truly the forerunner of modern industry". His optimism was based on the belief that trains could not operate "without introducing all those industrial processes necessary to meet the immediate and current wants of the railway locomotive" (Baran 1957). As Paul Baran (1957) pointed out the imperial powers did not encourage comprehensive industrialisation in their colonies and it was contrary to their economic and strategic interest to do so. Therefore, according to him, political and economic factors dictated by colonialism and imperialism led to the creation of an unequal world.

4. The Issue of Free Trade

Neoclassical economists have emphasised that free trade is the only option through which global poverty and inequality between countries can be removed. Trade and economic liberalisation have become a new mantra of the 21st century (Girdner & Siddiqui 2008). The success of the East Asian economies and more recently the Chinese upsurge in economic growth are said to be largely due to export-led policies and market reform measures taken initially in 1978 (Siddiqui 2009). A number of economists have disagreed with such propositions, however, arguing that both liberalisation of the economy and state intervention to promote domestic businesses created the Chinese miracle (Siddiqui 2016a, Rodrik 2011).

Economic historians have concluded that free trade imposed by Europeans in the colonies has brought dramatic socio-economic changes at both the national and international levels and facilitated a new form of international division of labour. The nationalists' argument is that in Asian and African countries the imperatives of "free trade", whether imposed on China by gun boat or, as in the case of India, by outright occupation, had a devastating effect. Long standing Chinese business clans were as important in spreading trade across South East Asia as bourgeois capitalists in Hamburg, London, and New York. European domination over the world's economy and people became obvious by the end of the 19th century, at which time a large part of the South and of humanity had been converted into long term losers in the scramble for resources and dignity (Cain 2006). However, to understand the whole truth of "free trade", we must analyse the experiences of the developing countries, especially in the 19th and first-half of the 20th century, when the present developing countries were European colonies and semi-colonies and "free trade" policy was imposed on them (Siddiqui 2018a).

Britain imposed tariff duties into its domestic markets on imports of textiles cloths from India, while no such protection was provided to Indian textiles producers in India in the early 19th century. As a result, manufacturing collapsed and the urban population fell in India. For example, the population of Dacca, which was once a great centre of muslin production, fell by 90% within a very short period. Therefore, instead of being an exporter of textiles and other industrial products, India began importing British textiles, and India's export share of world markets fell from 27% in 1815 to 2% in 1840 (Maddison 1998).

Indian manufacturing in the early 19th century had the capability of successfully challenging British textiles, which were then the leading sector of the British economy's leap into industrialisation (Siddiqui 1990). The British government thus extended protection to their textile producers against imported textiles from India. For example, by 1814, Britain placed tariffs of 70% to 80% on all imported textiles from India, and as a result Indian textiles became un-competitive price-wise in the British market i.e. became very expensive and therefore unattractive to the consumer. At the same time, the colonial government did not introduce any tariffs to protect Indian textiles, leading to the flooding of British textiles into Indian markets. Because there were no tariffs against the export of raw cotton from India, there was a dramatic rise of such exports. The traders of the East India Company (i.e. the company that was exclusively owned by British

shareholders) simply switched from buying Indian textiles to buying raw cotton to sell into British markets. Despite having locally available raw materials such as cotton, long experience, and cheap labour, India no longer produced cotton textile products, but rather exported raw cotton and imported cotton textiles from Britain. The cotton products imported from Britain increased from just 1 million yards in 1814 to 53 million yards in 1844. And also the number of Indian textile workers (spinners and weavers) fell from 6.3 million to only 2.4 million between 1800 and 1911 (Bagchi 1984).

Those countries that were able to escape direct colonisation were still not protected from the adverse effects of free trade treaties. In fact, such treaties then encouraged and made it profitable for them to produce and export raw materials. Low tariffs along with falls in shipping costs undermined the development of indigenous industries in Asia and Latin America capable of competing with Britain. For example, Egypt and Turkey, both under British pressure, drastically reduced import restrictions. As a result, Turkey's textile imports rose dramatically after Britain signed a treaty with Turkey in 1838, according to which the country was forced to open up its economy and keep import duties to a maximum of 5% (Rodrik 2011).

It is assumed that trade liberalisation will lead to income convergence between countries. Garima Siwach (2016) studied the effect of liberalisation on the per capita income of 19 developing countries that opened up their economies in the 1980s and 1990s. The study compared the trade effects on convergence rates by looking at patterns of pre- and post-liberalisation. Such studies of growth and convergence can have a significant impact on long-term growth policies of an economy by illustrating the implications for poverty, which is the most important policy area the countries of the developing are seeking to address. Siwach (2016, p. 118) concludes that "there is no significant change in convergence that can be attributed to trade liberalisation. Through a first difference analysis that estimates convergence rates between trade groups before and after liberalisation, we find no significant change in convergence for developing countries towards their major partners of trade. The results are robust when large country biases are taken care of as well". Moreover, the convergence theory also emphasises the flow of technology from the rich to the poor countries. There is no doubt that open trade leads to increased knowledge dissemination, but this process needs to be accompanied by domestic polices on infrastructure, education, and institutional settings. As a number of studies have pointed out, trade liberalisation fosters spill-over effects and raises productivity and income

convergence in those countries that had invested in human capital, including higher levels of literacy rates (Stiglitz & Charlton 2006, Siddiqui 2016b).

It is said that developing countries have an advantage because they can exploit existing technology without bearing the cost of research and development. It is also claimed that diminishing returns to factor inputs mean that capital returns are higher in the developing countries and there is a larger number of rural workers who are engaged in the low productivity agriculture sector that could be moved to higher productivity manufacturing and service sectors. Neo-classical economists place emphasis on trade relationships and on the assumption that each participant in a market has sufficient resources to withdraw from the market if they do not agree on the prices. However, in this case, indebted peasantry had no such options i.e. they were unable to withdraw from the colonial system (Siddiqui 1990).

Karl Marx came to the conclusion that without protective tariffs against England there could be no economic development of Ireland. His earlier views on the role of "free trade" changed, as he wrote, "The system of protection was an artificial means of manufacturing manufacturers, of expropriating independent labourers, of capitalising the natural means of production and subsistence, of forcibly abbreviating the transition from the medieval to modern mode of production" (Marx 1992, p. 708). In the late 1600s, Ireland, a British colony, was about to develop woollen industries. This was due to a number of factors including a flow of skilled Catholic immigrants from the Continent and the availability of raw materials. However, English woollen producers saw this as a threat to their own woollen industry and they successfully petitioned the English king to prohibit all exports of woollen textiles from Ireland in the Wool Act of 1699.

Economic development seems to have a strong association with industrialisation i.e. with increasing the share of a country's output and labour force involved in industrial sectors. Wages also seem to be higher in the industrial sector than in the agriculture sector because the application of technology is greater in the former and therefore productivity gains are often easier to achieve. It is assumed that with the expansion of the industrial sector, the contribution of the agriculture sector to the GDP both in terms of its share output and employment declines. It is also said that surplus labour from agriculture can then move to the higher productivity industrial sector. As Amsden (2001, p. 2) argues, "economic development is a process of moving from a set of assets based on primary products, exploited by unskilled labour, to a set of assets based on knowledge, exploited by skilled labour". Also, the experience of the successful East Asian economies

tells us that industrialisation has played an important role in reducing the burden of productivity from agriculture to changes in the patterns of trade (Siddiqui 2012b). A modernised economy with an expanding industrial sector is expected to increase the proportion of exports of manufacturing goods, while at the same time reducing the exports of primary commodities as a proportion of total exports. Primary commodities will be replaced through greater diversification of the economy and exports will include a higher proportion of manufacturing goods and services. This would also mean exports will consist of an increased proportion of higher value products.

This is achieved, in part, by consistent government efforts to increase investment in education, skills, and training of the labour force along with increased investment in infrastructure such as roads and ports. In other words, changes in social and economic policies are also needed. Barriers to change in both internal and external environments must be dealt with so that targeted polices can be achieved (Stiglitz & Charlton 2006). And also the gains in recent decades by the developing countries are taking place due to the outsourcing of industrial production by multi-national corporations (MNCs) aimed at exploiting low wages in these countries.

The shift of manufacturing industries in recent decades from the advanced economies to the developing countries has made a huge impact and a structural change in the economies of especially some East Asian countries. Despite the shift of industry to the developing countries, the global MNCs of the developed world continue to hold almost a monopoly in the development of the most advanced technologies and new products. This is manifested in the inability of developing countries, except China, to catch up economically with the advanced economies. For example, from 1970 to 1989, the average annual per capita GDP of the developing countries, excluding China, was only 6% of the per capita GDP of the G7 countries (US, Japan, Germany, UK, France, Canada, and Italy). Further, for the 1990 to 2013 period, this slightly declined to 5.6%. Moreover, for the forty-eight least advanced economies, average annual per capita GDP as a share of that of the G7 declined during the same period from 1.5% to only 1.1% (UNIDO 2016).

In the 1980s the developing countries' share of world industrial employment was 52%, which had risen to 83% by 2013. The share of worldwide inflows of foreign capital (i.e. FDI) into the developing countries also increased from 33% in 2000 to 51% in 2010 and further to 61% by 2014 (IMF 2016). However, if China is included in the developing countries, the average annual per capita income of developing countries as a percentage

of that of the G7 rises from 4.7% in 1970–1989 to 5.5% in 1990–2014 (IMF 2016).

The eras of capitalism since the mid-20th century could be categorised as follows: the golden age of capitalism (1948–73); transition (1973–80); and neoliberalism (1980–?). Capitalism at this stage of development requires (a) the further integration of global markets and production activities to increase accumulation and (b) the exploitation of those regions that are either less advanced and / or not currently within its domain. Globalisation appears to be the process of a greater degree of integration of economic activities among countries (Siddiqui 1998). This includes increased levels of goods and capital movement via international flows. It also means the greater openness of national markets and a reliance on trade to achieve economic prosperity. The attempts that were made to integrate economies can be divided into three periods, as explained below.

The first period (1870–1914) saw tariffs lowered among countries as a result of colonisation and a reduction in transport costs. During this period the rapid expansion of railways and telegraphs took place. This period also witnessed an average increase in GDP growth of only 0.5% per annum. This was driven under the leadership and control of European countries and their businesses as they increased their ownership of resources and influence to a very high degree compared to the past. During the first phase of globalisation, only a few European, North American and "New World" (white settlement colonies such as Argentina, Canada, Australia, and New Zealand) countries showed convergence among themselves, while the income differences between them and the rest of the developing countries widened sharply. The most important thing that occurred in this period was the international division of labour, where colonial powers became exporters of capital and technology, while the colonised countries became specialised in the production and supply of primary commodities.

During this first period both public and private investment was meagre in the colonies, especially in agricultural sectors such as irrigation and in the technological progress needed to raise yields and to raise land productivity. In India, for example, Sivasubramonian (1960) and Blyn (1966) have both found that the rate of increase of total agricultural output for the first half the 20th century was negligible. India had carried out three distinct policy measures to maintain income deflation on the Indian population. The first policy imposed was very high land rent charges, which led to the phenomenon of so-called "drain surplus". The second was a deliberate attempt to undermine Indian manufacturing, i.e. the destruction

of handicraft production, which is known as the de-industrialisation of the Indian economy. The third was the import of industrial goods from Britain (Siddiqui 1996).

The second period (1945–1980) witnessed a further decline in transport costs and increases in productivity in the West. International trade rose as the Western economies were progressively opened for trade and capital investment. We also find that the colonies became independent and assigned a greater role to the state in managing the economy. They undertook a policy of domestic industrialisation, with little attention paid to the sources of financing. As a result economic growth increased, but there was a financial crisis, while at the same time the population was rising at higher rate than in the pre-colonial period due to the greater availability of medicine and food. Agricultural output increased much faster compared to the pre--independence period. The state undertook a number of measures to protect farmers, such as protecting them from global price fluctuations, providing subsidies for electricity, fertilizers, credits, public funds for research into the development of new seeds, and also assured remunerative prices through the public procurement of certain crops.

The third period (1980–) witnessed the increasing integration of the global economy, not only among the Western countries but also developing countries joining in through increased trade and foreign capital investment. However, in the 1980s and 1990s most of the developing countries had to adopt neoliberal reforms imposed by international financial institutions such as the World Bank and the IMF, known as "structural adjustment programmes" (SAP), due to their heavy borrowings in the 1980s and subsequently their inability to repay loans, which resulted in debt crises and macroeconomic imbalances. The adoption of SAPs also included the opening up their domestic markets to foreign goods, technology, and capital. Some of the developing countries saw rapid structural change in their economies and increased production and export of manufacturing goods, especially the East Asian countries. However, for most of the developing countries, neoliberalism, which SAP is a part of, "has a strong family resemblance to dependency theory in identifying the logic of unequal power relations, blocked development and adverse incorporation in the global economy. Firstly, the very nature and dynamics of structural adjustment and conditionality-based development aid reflects and reproduces the deeply unequal and coercive relationship between rich and poor countries. Secondly, it requires poor countries to implement self-destructive economic policies, including open door trade and investment regimes that result in

de-industrialization and vulnerability to speculative financial flows. Thirdly, it pushes developing countries backwards in development to a colonial-era structure of primary commodity exports, locking them into a vulnerable and dependent position of enduring weakness" (Venugopal 2015, p. 176).

5. Globalisation and Economic Liberalism

The neoliberal policy stance is characterised by the hegemony of international financial capital, where the state acts as an entity that stands almost exclusively with the interests of the corporate sector. Globalisation and neoliberalism limit the developmental policy options of the developing countries, which are pushed aggressively by the WTO and fully backed by the advanced economies. The Trade-Related Aspects of Intellectual Property Rights (TRIPS) agreement has been in force since 1995 and imposes a global standard for protecting and enforcing all forms of intellectual property rights (IPR), including those for patents. The TRIPS Agreement requires WTO Members to provide protection for a minimum term of 20 years for any invention of a product or process. Prior to TRIPS, countries provided only process and not product patents. Product patents provide for absolute protection of the product, whereas process patents provide protection in respect of the technology and the process or method of manufacture.

The Uruguay Round negotiations in 1994 produced the Agreement on Trade-Related Investment Measures (TRIMs). This aims to bring down investment barriers. The agreement is supposed to ensure national treatment by removing domestic content provisions. The General Agreement on Trade in Services (GATS) was signed in 1994. This agreement intends to remove any restrictions and internal government regulations in the areas of service delivery that are considered "barriers to trade". The strategy, for instance, is to transform education into a tradable commodity. The GATS educational agenda has the potential for further privatization to a higher level in education and also opens the door for international competition. The developing countries will be adversely affected in terms of their sovereignty on cultural policy and the quality and accessibility of their public education systems in general (Stiglitz & Charlton 2006).

These three policy measures on intellectual property rights (TRIPS), on investment measures (TRIMS), and trade in services (GATS) limit the authority of governments in the developing countries. In fact, these regulations expand the options of global companies operating in the

developing countries. Most of the global companies originate from the advanced economies and will benefit from global market-opening by technology rent-seeking. A structural change in the advanced economies of the last three decades, in which services have become dominant, has inspired the West to seek protection for these interests. The multilateral agreements pushed by the Uruguay Round prevent the developing countries from pursuing any kind of industrialisation or economic diversification policies as adopted by the East Asian countries (Siddiqui 2015b). It is clear that in the global political economy where bargains and deals are struck, developed and developing sides are not equally strong.

The advanced economies are the net producers of patentable knowledge, while developing countries are a net consumer, meaning that rent will flow from developing countries to the advanced economies. The proponents of TRIPS argue that higher profits acquired by the companies will lead to more investment in technology and innovation and ultimately consumers in the developing countries will benefit. However, such arguments ignore the fact that investment and innovation depend on many factors, including competitive environments and profits. Past experiences show that this is not always the case. Despite the fact that some assurances have been given to address humanitarian concerns in health areas, no firm commitments on technology transfer and industrialisation have been made to the developing countries. The GATS emphasis is on trade in services, including banks, public utilities such as drinking water, sanitation, education, and so on. The GATS require "national treatment", meaning all service companies must be treated as domestic companies. This means that developing countries will not be able to protect their domestic companies against well-resourced global companies.

It appears that in recent years the imposition of neoliberal economic reforms in the developing countries, especially in highly indebted ones, means that the effective withdrawal of the state from domestic policy will make agriculture an economically unviable occupation for a large number of farmers – a situation very different from the immediate post-colonial policies.

As a result of two centuries of European control and domination of the developing countries, by 1950 their total GDP share had shrunk to only 27%, while they still accounted for more than two-thirds of the world's population. In the 1950s, China and India together produced only 9% of global GDP, with more than two-thirds of the world's population. For instance, at the time of independence in 1947, Indian manufacturing accounted for only 7% of its GDP and only 2% of the labour force was employed in industries.

In contrast, the advanced economies' share of global GDP rose sharply by 1950, more than doubling to nearly 70%, with a share of the world's population of less than 28% (Siddiqui 2010).

The question arises: did trade liberalisation play a role in reducing inter--country and international inequality? To understand this, we must look to what extent trade performance is linked to growth performance. If we assume that growth in world trade is an important determinant of trade performance, then there is a need to analyse the cross-country patterns of trade performance in order to understand fully the linkage to changes in inter-country and international inequality.

Multilateral institutions such as IMF, World Bank, and WTO have claimed that trade stimulates growth. Such conventional wisdom finds support among neoclassical economists, who argue that trade promotes specialisation and allows for economies of scale due to increasing market size and facilitates the global diffusion of technology.

A more comprehensive way to look at the trade-GDP ratio is that an increase in this ratio is interpreted as improvement in trade performance and vice versa. Then the question arises: should we look at the growth of GDP or the growth of per capita GDP? The standard textbook approach would be that trade affects changes in per capita GDP. Increased trade raises factor productivity and standard trade theory assumes full employment, so that a rise in trade can affect growth only through factor reallocation. However, full employment does not exist in the developing countries. Once we abandon this assumption, then increased trade will lead to increased investment as openness encourages capital flows. But this does not necessarily mean that all capital will be invested: some might be used in speculation and can encourage capital flight, which could have an adverse effect on domestic investment.

As regards analysis of the effect of trade liberalisation on trade performance, Ghose (2004, pp. 240–41) concluded that "we should need to construct a measure of change in openness over the period for each of the countries and then study the relationship between this change and the change in trade performance (…) however, construction of appropriate indices of openness has proved extremely difficult, and much research is required (…) [in] the mid-1980s virtually all countries of the world implemented trade liberalisation policies. However, neither the initial trade regime nor the liberalisation policies were the same across countries (…) The effect of liberalisation on trade performance has been quite varied

across countries (…) trade liberalisation had a more favourable effect on the growth performance of populous countries than on that of small countries".

6. Convergence or "Catching Up"?

In the mid-19th century when Britain's manufacturers faced stiff competition from the then established companies of Holland, Friedrich List observed: "It is very clever common device that when anyone has attained the submit of greatness, he kicks away the ladder by which he has climbed up, in order to deprive others of the means of climbing up after him (…) Any nation which by means of protective duties and restrictions on navigation has raised her manufacturing power (…) can do nothing wiser than to throw away ladders of her greatness, to preach to other nations the benefits of free trade (…)" (List 1966, p. 368).

GDP per capita in developing countries rose from $209 in 1970 to $3715 in 2014, while in the West, as a proportion of GDP per capita, it decreased from 7.3% in 1970 to 4.9% in 1990, but increased to 9.4% in 2014. In fact, in the last four decades, GDP per capita in the developing countries as a ratio of that in industrialised countries rose from 1:13.6 in 1970 to 1:10.6 in 2014. The population of the developing countries more than doubled – from 2.7 billion in 1970 to 5.7 billion in 2014 (IMF 2016, Siddiqui 2016c).

Between 2002 and 2007 the growth rates of both advanced and developing economies accelerated, but then growth sharply declined after the global financial crisis of 2008. Thereafter, the economies of both groups rose briefly in 2010, but soon witnessed a slow-down again. In the early 2000s the US economy experienced rapid growth, which was driven by the availability of consumer debt, primarily housing markets and other consumer durables. It was driven by a finance bubble after the government relaxed bank regulation, thus encouraging banks to be innovative. The US economic boom in the early 2000s boosted demand for goods and capital from abroad. However, such a situation could not continue forever. The boom of the mid-2000s initiated by innovation in finance was able only to build an unsustainable bubble, while at the same time wages stagnated and inequality widened. This led to a reconsideration of what Keynes called "lack of aggregate demand" (Siddiqui 2017b).

After the global financial crisis most of the advanced economies followed expansionary fiscal policies, but these were discarded as soon as the economies began to pick up and the crisis was thought to have been managed. Once again the advanced economies reverted to the neoliberal

dogma that monetary policy was the preferred instrument and the reduction in interest rates was expected to restore confidence in the economy and encourage investment and growth. Moreover, monetary policy tends to be rather limited, especially when focused only on "quantitative easing" and cheap credit through zero interest rates. At the same time, the purchasing power of those people whose marginal propensity to consume is known to be higher suffered through welfare cuts and wage stagnation. In developing countries the credit bubbles were created in response to the 2008 crisis and declining demand for their exports. The credit to GDP ratio and non-performing loans have risen sharply since 2010 (Siddiqui 2012a).

Tables 3 and 4 show the per capita GDP growth of the developed and developing economies from 1978 to 2015. Here again we find China at the top of the list with an average annual growth of 7.4%, and this growth compared to the US is estimated to be 461%.

Table 3. Per Capita GDP – Fastest Growing Economies from 1978 to 2015*

Rank	Country	Total increase (%)	Average annual growth (%)	Growth compared to United States (%)
1	China	1,396	7.4	461
2	Myanmar	660	5.2	326
3	South Korea	632	5.1	319
4	Taiwan	566	4.8	299
5	Vietnam	484	4.4	272
6	Thailand	443	4.1	256
7	India	431	4.0	251
8	Sri Lanka	430	4.0	251
9	Singapore	418	3.9	246
10	Cambodia	394	3.8	235
11	Hong Kong	382	3.7	230
12	Malaysia	369	3.6	224
13	Indonesia	346	3.4	213
14	Chile	330	3.3	204
15	Mozambique	293	2.9	184
For comparison				
39	United States	180	1.6	100

* Calculated in PPP of 2011 converted to 2014 prices.

Source: calculated from the Conference Board Total Economy Database 2015; World Bank (2016).

Table 4. Total Per Capita GDP Growth in Advanced Economies, 1978–2015*

Country	Total growth 1978–2015 (%)	Annual average growth (%)	Growth rate as % of China	1978 – per capita GDP as % of China	2015 – per capita GDP as % of China
Japan	182	1.6	22	2,078	275
Germany	177	1.6	21	2,625	340
UK	189	1.7	23	2,123	298
France	156	1.2	16	2,465	286
US	180	1.6	22	3,010	404
China	1,396	7.4	–	–	–

* Calculated in PPP of 2011 converted to 2014 prices.

Source: Calculated from the Conference Board Total Economy Database 2015; World Bank (2016).

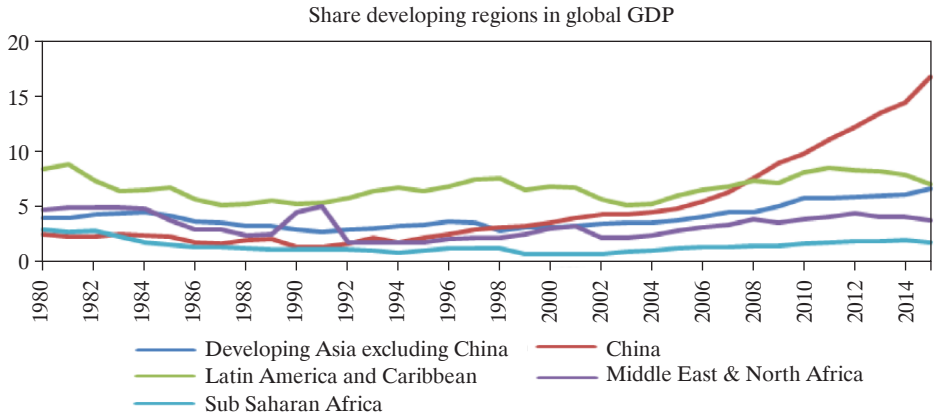

Fig. 1. Share of Developing Regions in Global GDP (Current US$ Prices at Market Exchange Rates)

Source: IMF (2016), IMF database (accessed: 22 June 2017).

Figure 1 shows the changing share of GDP of the major developing regions. Here China is plotted separately to show its growing economic share. China's share in global GDP rose from 3% to 15% between 2005 and 2016. This was a time when China's share of global GDP at the market exchange rate rose rapidly to ten percentage points. In fact, such a rapid change in China's share alone explains 87% of the entire decline of the advanced economies for the period of the last thirty-five years. Figure 1 indicates the changes in share of the largest Asian developing economies excluding China. We find that India's share in global GDP has been the largest and its share

increased from 1.8% in 2005 to 3% in 2015. However, it is much less than China, whose share is three times India's aggregate share. Indonesia and South Korea's share in global GDP has increased (Siddiqui 2014).

However, if we exclude China, then the share change of other regions paints a different picture. For example, the Latin American region in the 1980s had experienced a decline, which is also known as "the lost decade". The regions' economies recovered in the 1990s and early 2000s. Their share in global GDP rose by 5% in 2003 to 8% in 2011, but thereafter began to decline. The Middle East countries had experienced a rise in the share due largely to high oil prices, but for the last 2 years – due to a collapse in oil prices – their share in global GDP has fallen. Sub-Saharan Africa had a long period of stagnation and economic decline i.e. from 1980 to 2002 and since then its share in global GDP has gone up slightly from 1.1% in 2002 to 2% in 2015. However, its share in global GDP is still below its 1980s share of 3%. In short, among the developing regions, only Asia's share in global GDP is rising. Due to the ongoing global recession in the advanced economies, the BRICS countries are also facing slowing economic growth rates and declining export markets (Siddiqui 2016c).

Soon after independence the developing countries saw that industrialisation was imperative to the removal of "backwardness" by increasing productivity and diversifying the economy. To this end nearly all the developing countries adopted import substitution policies in the manufacturing sector. International trade increased after the 1950s in the developing countries.

Exports from the developing countries rose from $20 billion in 1950 to $600 in 1980 and nearly $6400 billion in 2010, but imports rose rapidly as well. The developing countries' share in world exports was 34% in 1950, 19% in 1970, 24.2% in 1990, 31.9% in 2000, and 42% in 2010, while their share of imports in the world economy was 29.6%, 18.5%, 23.1%, 28.8% and 38.9%, respectively. The sharp rise since 2000 appears to be due to China's growing trade (UNCTAD 2016).

The volume of international trade in goods has increased sharply over the last 10 years (Figure 2a). The developing countries as a group have almost doubled the volume of trade in goods since 2009. But import volumes have been growing relatively more than export volumes for developing countries. However, the opposite has happened in regard to developed countries. The relatively larger increase in the volume of imports can be explained by the increase in consumer demand in developing countries. Growth in trade volumes has slowed down substantially in the last few years, especially in regard to developing countries. In 2015, volume growth

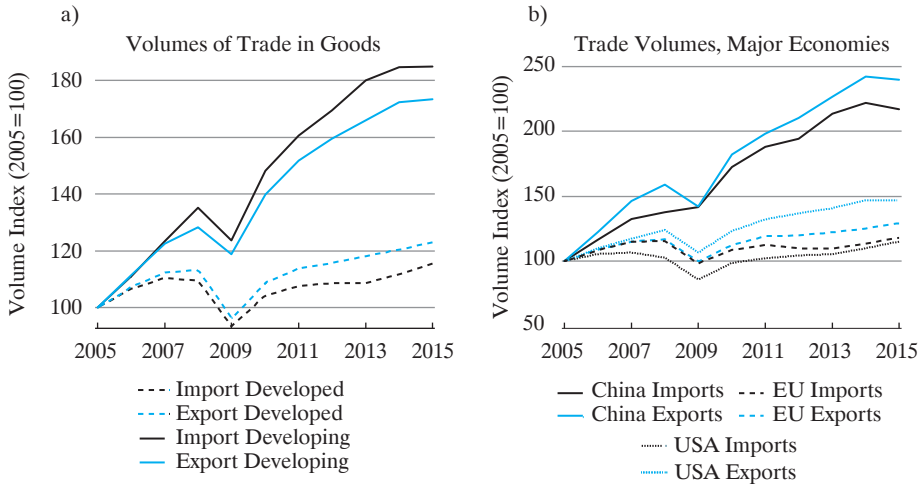

Fig. 2. Volumes of International Trade in Goods

Source: UNCTAD (2016).

was negative in the case of China, both in relation to imports and exports (Figure 2b).

Developed countries' relative importance as suppliers in international markets has declined, but they still account for about half of the value of exports of goods and about two thirds of exports of services. In 2015 developed countries' export of goods was about US $8 trillion, while that of services was about $3 trillion. In 2015 developing countries' trade came to about US$ 8 trillion in regard to goods and about US$ 2 trillion in regard to services. In 2015 the BRICS exported about US$ 3 trillion in goods and about US$ 500 billion in services. Less developed countries' contribution to world trade remains minimal, although some increases in the exports and imports of these countries have been recorded over the past decade (UNCTAD 2016).

7. Concluding Remarks

During the last three decades there have been huge economic changes globally, and structural changes and changes in patterns of trade have also occurred both in advanced and developing countries. However, some developing countries have achieved faster growth rates than the advanced economies, particularly China, India, Indonesia, and Turkey. These countries constitute a small minority among the developing countries, but

account for a large proportion of their population. Since independence, in the 1950s and 1960s, the developing countries' share of global GDP has risen and by 2010 their total share was over 42%, double that in the 1970s. The industrial sector in the developing countries has also grown and their share of value added in global manufacturing output increased from 13% in 1970 to more than 40% by 2010. Moreover, the share of manufactures in developing countries' exports rose from 12% in 1980 to 63% by 2010, nearly half of this consisting of medium and high technology products.

As the Chinese and Indian economies are "catching up" fast, both are re-emerging as the most rapidly growing economies and also as major contributors to overall global output growth in the 21st century. In the recent past the two countries were known as marginal economies, but now China has become the second largest economy after the US, which is a remarkable development of the 21st century. However, the global GDP share of Latin America marginally increased to 8% between 1970 and 2010, while the share for Africa remained the same i.e. less than 3% for this period. Africa's share in manufacturing value added in 2011 was only 2%, the same as in 1970.

This paper contributes both theoretical and empirical insights into important issues such as trends in global inequality and in the political economy of developed and less-developed countries (Siddiqui 2019). Theoretically, this study has analysed a number of views of both proponents and opponents on the subject of global inequality. Empirically, the study has examined the existing data to establish the outcomes of neoliberal policies which were initiated four decades ago in most countries. Finally, this article proposes that if we exclude China and India, then global inequality between developed and less developed nations has widened.

The study concludes that colonisation had an enormous negative impact not just on the economies but also on the social and political systems of colonised countries. As a result, their economies fell well behind until the mid-20th century. After independence, their economies began to witness higher growth rates than in previous decades. However, most developing countries have not been able to converge with the economies of the West, with the notable exception of the two largest, most powerful and most resistant to the neoliberal policies of global institutions – China and India.

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Abstract

Polityka gospodarcza a globalne nierówności – perspektywa historyczna

Celem artykułu jest zbadanie możliwości zmniejszenia przepaści ekonomicznej między krajami zaawansowanymi a słabiej rozwiniętymi. Aby to osiągnąć, autor przeanalizował postępy ich gospodarek w ujęciu historycznym. Ważnym pytaniem w XXI w. jest to, czy kraje Azji, Afryki i Ameryki Łacińskiej są zdolne do konwergencji gospodarczej z Zachodem. Aby odpowiedzieć na to pytanie, musimy spojrzeć na ekonomię z perspektywy historycznej. W literaturze często twierdzono, że różnica w podziale bogactwa między krajami bogatymi (uprzemysłowionymi) a biednymi (będącymi pierwotnymi producentami) może zostać zmniejszona lub zlikwidowana w wyniku transferu zaawansowanych technologii z krajów bogatych do krajów biednych. W artykule przeanalizowano to twierdzenie z zastosowaniem metodologii ilościowej opartej na danych pochodzących z międzynarodowych instytucji, takich jak OECD, MFW i Bank Światowy. Okazuje się, że w ciągu ostatnich trzech dekad nastąpiły ogromne zmiany gospodarcze na całym świecie: ustalenia strukturalne i wzorce handlowe zmieniły się zarówno w krajach zaawansowanych, jak i rozwijających się. Mimo że niektóre kraje rozwijające się – szczególnie Chiny, Indie, Indonezja i Turcja – osiągnęły szybsze tempo wzrostu niż gospodarki rozwinięte, większości krajów rozwijających się nie udało się dogonić gospodarek rozwiniętego świata.

Słowa kluczowe: nadrabianie zaległości, konwergencja, neoliberalizm, kraje rozwinięte i rozwijające się, handel międzynarodowy.

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APPLICATION OF A SYSTEMS APPROACH TO STUDYING GLOBAL SOCIO-ECONOMIC INEQUALITY

Abstract

Ideas drawn from broadly-defined systems thinking, including complex systems studies, have already been used to describe and explain social and economic inequality at various levels of the societal hierarchy, beginning with individuals and ending on the global scale. Bearing in mind the studies on economic and social inequality, the following research question can be asked: What are the universal, systemic characteristics of socio-economic inequality on the global scale? How could a systems approach, including complex systems studies, be helpful in studying socio-economic inequality on the global scale? As a point of departure in the literature survey, two conjectures are formulated and discussed. First, socio-economic inequality constitutes an inherent part of developed societies on the global scale and affects regions, countries, social groups, and individuals. Second, a systems approach, and complex systems studies in particular, can be helpful in analyses of socio-economic inequality

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by helping to identify causal relations. This concerns, in particular, the theory of hierarchical systems and the Power Law.

Keywords: complex systems, inequality, systems approach, Power Law, scale-free networks.
JEL Classification: C54, D31, D63, F60, I30.

1. Introduction

Several works on social and economic inequality were published in the late 20th and early 21st centuries (Sen 1995, Milanovic 2005, Stiglitz 2012). An important contribution to the discussion was made by Piketty (Piketty 2014, Piketty & Saez 2014). These publications were supplemented by other works (Stiglitz 2015, Milanovic 2016). Theoretical considerations have been accompanied by more or less "shocking" reports and numerous empirical research papers illustrating the dramatic discrepancies in the distribution of income and wealth on the global scale.

Ideas drawn from broadly-defined systems thinking, including complex systems studies, have already been used directly and indirectly to describe and explain social and economic inequality (Barabási 2003, Yakovenko & Rosser 2009, Chatterjee et al. 2015, Krauss 2015). Bearing in mind the above-mentioned works on economic and social inequality, the following research question can be asked: What are the universal, systemic characteristics of socio-economic inequality on the global scale?

As a point of departure in the literature survey, two conjectures are formulated. First, socio-economic inequality constitutes an inherent part of developed societies on the global scale and affects regions, countries, social groups, and individuals. Second, a systems approach, and complex systems studies in particular, can be helpful in analyses of socio-economic inequality by helping to identify the causal relations determined by hierarchical structures and the consequences of the Power Law. The main method applied in this paper is a literature survey that includes both theoretical considerations and – for reasons of space – a survey of selected information sources, especially reports published by various public and private international institutions.

2. Interpretations of Socio-economic Inequality on the Global Scale

When discussing inequalities in society, it is important to make two distinctions. The first is the difference between the unequal distribution of desirable life outcomes, such as health, happiness, educational success and

material possessions, and the unequal distribution of opportunities, such as access to power and life chances that facilitate the achievement of desirable outcomes. The second is the distinction between the unequal distribution of opportunities and outcomes among individuals and between groups (Carter & Reardon 2014, p. 3). On the global scale, inequality between countries and regions also has to be taken into account.

Two interpretations of inequality are distinguished – social and economic. Social inequality exists when resources and rights in a society are distributed unevenly, typically through norms of allocation that result from differences in the individual social roles of socially defined types of individuals. They are differentiated according to power, religion, kinship, prestige, race, ethnicity, gender, age, and class. Social rights include the labour market, source of income, health care, freedom of speech, education, political representation, and participation. Socio-economic inequality can lead to conflicts, wars, crises, oppression, criminal activity, political unrest and instability, and indirectly affects economic growth. Specific links exist between three measures of economic inequality ("A Three-headed Hydra" 2014). Income inequality is the most commonly cited measure, primarily because the data on it is the most comprehensive. However, for the purpose of measuring how inequality affects a community, it is also probably the least valuable measure. Consumption inequality, though more difficult to measure, is a better representation of social welfare because people's living standards depend on the number of goods and services they consume. Wealth is also an important metric since it can be inherited, unlike income. Milanovic (2005, pp. 7–11) has proposed three concepts of global inequality. First, unweighted international inequality – the inequality in per capita incomes among the countries in the world. Second, population-weighted international inequality or between-country inequality, which measures inequality among persons by assigning everybody the per capita income of his place of residence. It thus ignores any within-country inequality. Third, global interpersonal inequality, which captures the inequality of individual incomes.

Economic inequality is not necessarily associated with the allocation of broadly defined resources. According to A. Sen, equalizing income should not be the goal, because not all people convert income into well--being and freedom in the same way. What is more, this relationship seems highly dependent on "contingent circumstances, both personal and social" (Sen 1999, p. 70) that include the individual's age, gender, family background, and disability. It also depends on climatic conditions, societal conditions

(health care, education systems, the prevalence of crime, community relationships), customs and conventions, and other factors. Hence, what should be equalized is not the means of living, but the actual opportunities of living that give people the freedom to pursue a life of their own choosing.

3. The Idea of Complex Systems

In his search to explain the meaning of complexity, Lloyd (2001) identified 45 interpretations. Studies of complexity are rooted in cybernetics and systems thinking[1]: Weaver (1948) – disorganized complexity and organized complexity, Simon (1962) – The Architecture of Complexity, and Ashby (1963) – the Law of Requisite Variety. A picture of the intricacy of the field of complexity science can be found in the scheme proposed by Castellani (2018). In other writings numerous definitions of complexity have been formulated and scrutinized – Prigogine and Stengers (1984), Waldrop (1992), Kauffman (1995), Holland (1995), Bar-Yam (1997), Biggiero (2001), Andriani and McKelvey (2009), and Mesjasz (2010).

An unequivocal distinction of complex systems from "classical" systems is not possible. In the works defining "first-order cybernetics" (Wiener 1961, Ashby 1963) and in the fundamental book on systems thinking (Bertalanffy 1968) in which the role of observer was not considered, complexity was treated as one of the important systemic features. In those works, the first systemic/cybernetic characteristics of systems were enumerated: system, element, relation, subsystem, environment, input, output, feedback, black box, equilibrium, stability, synergy, and turbulence.

In a preliminary interpretation, the complexity of systems derives from the number of elements and the number of their interactions. Furthermore, it can be also characterized by a multitude of such traits as adaptability, adaptation, attractor, *autopoiesis*, chaos, bifurcations, butterfly effect, closed system, coevolution, complex adaptive systems, dynamical systems, edge of chaos, emerging properties, far-from-equilibrium states, fitness landscape, fractals, nonlinearity, open system, path dependence, power law, reflexivity, scale-free networks, self-organization, self-organized criticality, self--reflexivity, synergy, synergetics, and turbulence.

Two problems of complex systems studies demand further clarification. First, in the mathematical models applied in complexity studies, intricate

[1] Relations between those two areas of knowledge require further elucidation. Due to the many interpretations of their relations, in this paper systems thinking is regarded as the most general category.

behaviour results from simple patterns. This means that in order to understand complex dynamics, identification of simple rules could be sufficient, e.g. the Power Law reflected also in the Pareto Law (Andriani & McKelvey 2009). Second, complex systems exhibit non-linear behaviour that is referred to as positive feedback where internal or external changes to a system produce amplifying effects. Non-linear systems can generate a specific temporal behaviour which is called chaos. During unstable periods, such as chaos, non-linear systems are susceptible to shocks (sometimes very small). This phenomenon, called "sensitivity to initial conditions" and popularized as Lorenz's "butterfly effect", exemplifies cases where a small change may generate a disproportionate change (Gleick 1987). Ideas that originated in systems thinking and complexity studies are used in social sciences as models, analogies, and metaphors. According to this distinction, the term "model" is narrowed only for mathematical structures. Therefore, the role of analogies and metaphors taken from complexity studies must be taken into account (Lakoff & Johnson 1995). While the above ideas refer to several classes of mathematical models, a qualitative approach to the complexity of social systems has been developed by N. Luhmann (1995, 1997) and P. Cilliers (1998).

4. Systemic Internal Hierarchies and Inequality

A hierarchical structure occurs in all interpretations of systems and their complexity. In addition, the increasing complexity of social systems is reflected in various types of internal hierarchy and inequality. According to studies of society, hierarchical structures emerged as a consequence of the increasing complexity of decision-making processes within the primitive tribes, since complex decisions could not be made by consensus[2]. Various types of hierarchies in social systems can emerge. A hierarchy of power and of resource allocation may be also imposed. When discussing processes of differentiation in social systems, their "holonic" character has to be taken into consideration. Therefore, three terms have to be scrutinized: hierarchy, heterarchy, and holarchy.

Although numerous works on systems hierarchy have been written, the universal ideas introduced by Simon (1962, 1995) and Bertalanffy (1968) remain relevant. In the simplest sense, hierarchy is a relation of

[2] The links between the development of societies and the evolution of social hierarchies have been studied by Turchin and Gavrilets (2009).

subordination. In social systems the following types of the hierarchy may be distinguished:

1) Power hierarchy.

2) Functional hierarchy.

3) Nested, a recursive (fractal) hierarchy which can be illustrated with the Russian doll ("matrioshka"), where the hierarchical elements are self--similar.

4) Containment hierarchy, which is a nested hierarchy in which the subsets must be different.

5) Subsumptive containment hierarchy, which is a classification of object classes.

6) Compositional containment hierarchy, which is an ordering of the parts that make up a system – the system is "composed" of these parts. Most engineered structures, whether natural or artificial, can be broken down in this manner. What is also important in this type of hierarchy is that new properties are emerging, i.e. it is not possible to predict the behaviour of a higher-level system by observing systems at a lower level of the hierarchy.

Another type of internal ordering of systems is heterarchy, which can be defined as a synthesis of any type of hierarchical ordering with elements of the same rank. Similarly to hierarchical structures, heterarchy may have a recursive character. The last type of ordering needed to better understand the internal differentiation in society is holarchy. The concepts of holon and holarchy were introduced by Koestler (1967). Holon is an element of the entity that is similar to the entity (sub-entity). In other words, holons treated as elements of systems include information about the entire system. An analogy with social systems is obvious. In Complex Adaptive Systems (CAS), elements have only simple algorithms of behaviour, e.g. bees in the beehive or simple models of human behaviour[3]. If such elements are given cognitive capabilities and memories they become to be similar to social systems[4].

The hierarchical structure of complex systems was studied in detail by Simon (1962, 1995). He distinguished between subjective hierarchy deriving from cognitive limitations and physical hierarchy, and concluded that hierarchical structure is an objective feature of any system (Simon 1962). Each level of hierarchy has its specific characteristics. One of them, which may seem important from the point of view of socio-economic inequality and stratification, is termed near decomposability by Simon (1995).

[3] A description of complex adaptive systems (CAS) and their applications can be found in Holland (1985), Waldrop (1992), and Shan & Yang (2008).

[4] Holarchy can be also viewed as a fractal structure (Warnecke 1993).

According to Simon, all systems – physical, social, biological, and artificial – share the property of having a near decomposable architecture. They are organized into hierarchical layers of parts, parts of parts, parts of parts of parts and so on, in such a way that interactions among elements belonging to the same parts are much more than interactions among elements belonging to different parts. "Intense" interaction is understood to mean that the behaviour of one component depends more closely on the behaviour of other components belonging to the same part than on components belonging to other parts (i.e. the cross-derivatives are larger within a part). This kind of architecture can be found in all social systems, including companies, where the division of labour, divisionalization, and hierarchical decomposition of tasks are all elements which define a near decomposable system: individuals within a hierarchical subunit have closer, more widespread, more intense, and more frequent interactions than individuals belonging to different subunits. This property shows that elements at the same level of the hierarchy are in a natural manner connected by stronger ties. This allows systemic hierarchy models to be used in the study of the theory of social and economic inequality.

4. Complexity and Systemic Inequality in Society: Examples

4.1. Assumptions behind the Selection of Examples

Two examples presented below illustrate the application of complex systems studies when analyzing various aspects of socio-economic inequality. In sub-chapter 4.2 the applications of the Power Law (Pareto distribution/ Lorenz curve/Zipf's Law – a special case) in modelling socio-economic inequality are presented, including scale-free networks. Sub-chapter 4.3 includes the results of measurement of inequality on the global scale which indirectly illustrate changes in modern society where economic activities are decoupled from financial activities.

4.2. Power Law and Socio-economic Inequality

Empirical observations concerning wealth allocation were advanced by Pareto in a more universal framework of the 80–20 rule already in the early 20th century. It is sufficient to recall here that this involved not only methods of measurement and interpretation, as for example, the Gini coefficient, but also models allowing for the identification of causal links and for prediction. The rising interest in socio-economic inequality in the 1970s and 1980s

coincided with the development of complexity studies, in which the Power Law is one of the main ideas.

Cumulative distributions with a power-law form are sometimes said to follow Zipf's Law or the Pareto distribution, after two early researchers who championed their study. Since Power Law cumulative distributions imply a Power Law form for $p(x)$, "Zipf's Law" and the "Pareto distribution" are effectively synonymous with the "Power Law distribution" (Zipf's Law and the Pareto distribution differ from one another in the way the cumulative distribution is plotted – Zipf made his plots with x on the horizontal axis and $p(x)$ on the vertical one; Pareto did it the other way around). This causes much confusion in the literature, but the data depicted in the plots are of course identical (Newman 2006, p. 4). A very general interpretation of the Power Law is presented in Figure 1.

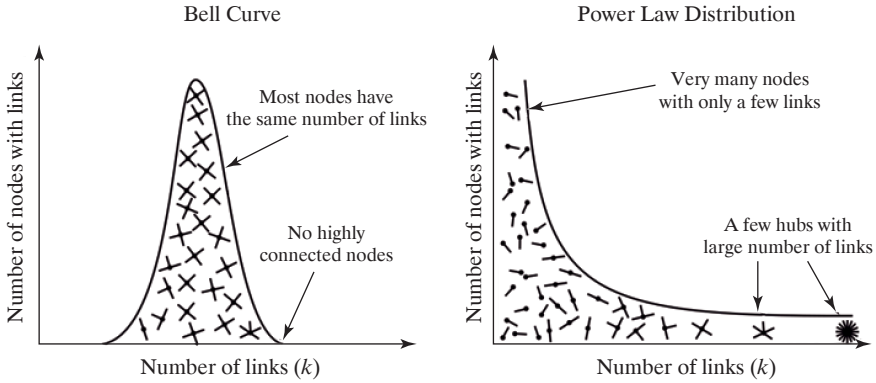

Fig. 1. Comparison of the Gauss Distribution with the Power Law with Reference to Scale-free Networks

Source: Barabási (2003, p. 71).

The Power Law has multiple applications in modelling various phenomena in physics, biology, society, linguistics, urban studies, etc. It has become both a fundamental model of socio-economic inequality as well as a source of metaphors and analogies. The most significant aspect of the Power Law is that to some extent it reflects the situation in society in which privileged groups receive the majority of resources. The Power Law distribution is not ubiquitous in any relation of socio-economic inequality. Empirical studies have found Power Law behaviour in the distribution of income in Australia, Germany, India, Italy, Japan, the UK, and the USA.

Another group of studies has discovered a Power Law structure of the upper tail of modern wealth distributions in China, France, India, Sweden, the UK, and the USA (Brzeziński 2013, p. 2). However, as was exposed by this author, detecting the Power Law distribution in the empirical data on inequality is not simple. Therefore, a complete empirical analysis would require conducting a statistical comparison of the Power Law model with some other distributions. Brzeziński (2013) has found that top wealth values follow Power Law behaviour in only 35% of the analyzed cases. The recently published study by Broido and Clauset (2018) confirms that scale-free networks are not too frequent either in nature or in social systems, and new studies are required.

Applications of the Power Law distribution in the study of inequality have become an important part of econophysics research (Yakovenko & Rosser 2009)[5]. In addition to the use of the above models, the following models of wealth inequality are applied: chemical kinetics-motivated Lotka-Volterra models, polymer physics-inspired models and, most importantly, models inspired by the kinetic theory of gases (Chatterjee et al. 2015). Those applications have some merit, but they should not be seen as more "scientific" proof of the theses concerning the inequality of wealth distribution.

One of the most influential ideas of complex research applied in studies of socio-economic inequality is the scale-free networks elaborated by Barabási and Albert (Barabási & Albert 1999, Barabási 2003). After finding that various networks, including some social and biological networks, had heavy-tailed degree distributions, Barabási and his collaborators coined the term "scale-free network" to describe the class of networks that exhibit a Power Law degree distribution, which they presumed to describe all real--world networks of interest. They have been extensively applied in studying the topology of the internet, social networks, and in all cases where relations between actors may have a network-like character. One of characteristics of scale-free networks is "preferential attachment". This means that those elements of the network are gaining even more links since they have already gained more links. In reference to socio-economic inequality, this may mean that a kind of "*eigendynamik*" of inequality stems from the fact that those who are more privileged more frequently enter into relations among themselves. Buchanan (2002) calls the random networks "egalitarian" and

[5] Econophysics is a new branch of physics which focuses on studying economic and social phenomena with ideas and methods drawn from physics. The most important concepts of econophysics are models deriving from "complexity theory" and "chaos theory" (Mesjasz 2010).

the scale-free networks "aristocratic" (2002, p. 119). Here appears the "rich get richer" phenomenon that is supposed to be valid for all networks in nature, including the economy and the wider society (Barabási 2003, pp. 79–92; Buchanan 2002, pp. 106–120, 192–195). The positions of actors in scale-free networks are not equal and hubs (most often selected nodes) are the "spiders in the net" (van Dijk 2005, pp. 150, 151).

4.3. Inequality on the Global Scale

In spite of doubts concerning the relevance of the Power Law to present-day inequality, it may be stated that there exists a striking coincidence between this law and global disparity in wealth and income disparity. In addition to showing inequality on the global scale, studies based on the third definition proposed by Milanovic (2005, pp. 7–11) also indirectly illustrate the Power Law-like character of inequality in modern society. Those studies are widely described in literature (Milanovic 2005, 2016, Lakner & Milanovic 2013, 2015[6], Alvaredo et al. 2017, World Inequality Report 2018). A study of the dynamics of global income interpersonal inequality in the years 1988–2008 was conducted by Lakner and Milanovic (2013, 2015) – Figure 2.

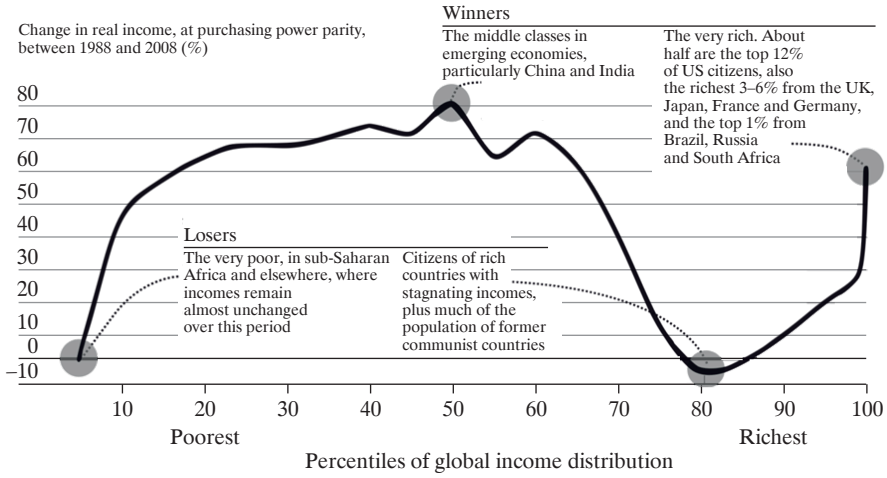

Fig. 2. Global Income Growth and Participation in That Growth, 1988–2008 (Incidence Curve)

Source: Lakner & Milanovic (2013, 2015), van der Bosch (2017).

[6] In the paper, two texts by Lakner and Milanovic are referred to (2013, 2015). They concern the same topic but differ in content and size.

The authors and their supporting team performed very advanced data gathering, processing, and analysis aimed at investigating changes in inequality worldwide during the 1988–2008 period by assessing the distribution of global growth of individual income across various social groups. Their first finding was that inequality in the global income distribution, as measured by the Gini index, did not change very much over this period and remained at the level of 70%, which is a higher value than that obtained in other studies. More advanced data searches for household income and deeper research allowed new phenomena in the global income distribution to be discovered.

The results of their research were presented on a graph in which the *X* axis depicts the percentiles of the global income distribution among the deciles of the population. The *Y* axis reflects the cumulative growth rate in real income measured by purchasing power parity in the 1988–2008 period. Due to its shape, the graph has become popularly known as the "Elephant Curve" ("Elephant Chart"). The graph has received multiple interpretations, which expose such phenomena as diminishing income inequality in the world but only slightly rising standards of living in poor countries (Freund 2016).

The most important result of this study is the disproportion in income distribution between the broadly defined "middle class" and the richest group in the world (decile 90). An increase in the share of income growth by the middle class was observed mainly in China and India (deciles 40–60). On the other hand, the middle class in rich countries, such as the US and Germany as well as post-Soviet economies, experienced sluggish growth or no growth at all. The tip of the elephant's trunk, on the far right (decile 90), shows that the world's super-rich mostly from developed countries such as the USA, UK, Japan, and Germany, and with a smaller proportion the richest individuals from developing countries such as Brazil, Russia, and South Africa, have the largest share in the growth of income in that period.

A similar study covering the 1988–2016 period was performed by F. Alvaredo, L. Chancel, T. Piketty, E. Saez, and G. Zucman (World Inequality Report 2018). Studies of the links between the information society and inequality suggest taking a look at the right corner of the graph in order to assess who are the richest groups receiving the highest proportion of the global income's growth. This phenomenon is analyzed in the report and mirrored in another "Elephant Curve". The explosion of top incomes on the far right of the graph now dwarfs the whole picture and it looks more

like a brontosaurus, or alternatively "Nessie", Disney's version of the Loch Ness monster, than an elephant (Sandefur 2018), Figure 3.

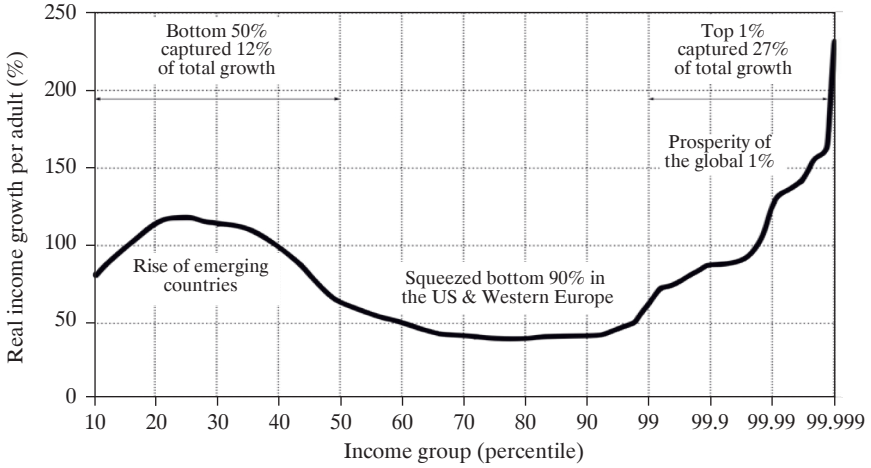

Fig. 3. Global Inequality and Growth 1980–2016

Source: World Inequality Report 2018 (2018, p. 13).

The graph can be explained as follows. On the horizontal axis, the world population is divided into a hundred groups of equal population size and sorted in ascending order from left to right, according to each group's income level. The top 1% group is divided into ten groups, the richest of these groups is also divided into ten groups, and the very top group is again divided into ten groups of equal population size. The vertical axis shows the total income growth of an average individual in each group between 1980 and 2016. For percentile group p99p99.1 (the poorest 10% among the world's richest 1%), growth was 74% between 1980 and 2016. The top 1% captured 27% of total growth over this period. Income estimates account for differences in the cost of living between countries. Values are net of inflation.

According to the WIR (2018, p. 9), inequality within world regions varies greatly. In 2016 the share of total national income accounted for by just the top 10% of earners (top 10% income share) was 37% in Europe, 41% in China, 46% in Russia, 47% in US–Canada, and around 55% in Sub--Saharan Africa, Brazil, and India. In the Middle East, the world's most unequal region, the top 10% capture 61% of national income. The essential arguments for the conjectures linking socio-economic inequality with

ideas deriving from complex systems studies (Power Law) are synthetically presented in the tables below.

Table 1. Global Income Growth ind Inequality, 1980–2016

Income group	Total cumulative real growth per adult (%)					
	China	Europe	India	Russia	USA–Canada	World
Full population	831	40	223	34	63	60
Bottom 50%	417	26	107	–26	5	94
Middle 40%	785	34	112	5	44	43
Top 10%	1316	58	469	190	123	70
Top 1%	1920	72	857	686	206	101
Top 0.1%	2421	76	1295	2562	320	133
Top 0.01%	3112	87	2078	8239	452	185
Top 0.001%	3752	120	3083	25,269	629	235

Source: World Inequality Report 2018 (2018, p. 45).

Table 2. Share of Global Growth (%) Captured by Income Groups, 1980–2016

Income group	China	Europe	India	Russia	USA–Canada	World
Full population	100	100	100	100	100	100
Bottom 50%	13	14	11	–24	2	12
Middle 40%	43	38	23	7	32	31
Top 10%	43	48	66	117	67	57
Top 1%	15	18	28	69	35	27
Top 0.1%	7	7	12	41	18	13
Top 0.01%	4	3	5	20	9	7
Top 0.001%	2	1	3	10	4	4

Source: World Inequality Report 2018 (2018, p. 46).

Using the theoretical assumptions presented in the paper, a preliminary confirmation of the conjectures can be presented. First, in spite of doubts concerning the occurrence of the Power Law, its presence is partly proved in the wealth distribution and its dynamics in all the major regions of the world. Second, referring to various interpretations of social hierarchy, it may be emphasized that in highly developed societies in which material needs

are fulfilled, the income and wealth hierarchy and inequalities occur in the symbolic sphere.

The classical hierarchies depicted earlier had significant physical features – levels of energy, potential, as well as the number, time, and frequency of interactions. In the Information Society hierarchies are becoming symbolic. This observation can also be supported by theories of money as a social construct (Barkin 2003). Consequently, inequality, both social and economic, is "played" in the symbolic sphere. In this case, all considerations about the dynamics of inequality, its consequences, and its future require not only more advanced data searches and econometric and / or ideological considerations but also comprehensive discussion based on studies of the complexity of social systems.

5. Conclusions

Theoretical concepts and factual illustrations allow us to put forward the following conclusions concerning the links between inequality on the global scale and a systems approach. First, complex systems studies provide additional evidence allowing for identification and a deeper understanding of the mechanisms leading to various types of inequality in social systems. The explanations are not sufficiently specific and unequivocal, but at the same time they are not too general, obvious, and intuitive. Second, the hierarchical structure of societies is a natural vehicle for differentiation in access to resources, both physical and intangible. This also concerns opportunities. It is not an ethical or ideological problem, but results from the "*eigendynamik*" of complex social systems.

Future research should include the broader application of inter-disciplinary complex systems models in all areas of research on socio--economic inequality. This is almost self-evident, of course, but in practical terms it means that inter-disciplinarity should be the backbone of research. Two directions are of a special importance. First, studies of socio-economic inequality should be supported by theoretical considerations based on various ideas drawn from complex studies – hierarchical control systems, emergence, network theories, and simulation modelling. Second, these studies should include simulation models based on data already gathered by specialized research institutions.

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Abstract

Zastosowanie podejścia systemowego w badaniu globalnych nierówności społeczno-ekonomicznych

Koncepcje zaczerpnięte z podejścia systemowego, a w szczególności studia nad systemami złożonymi, były już wykorzystywane do opisu i wyjaśnienia przyczyn narastania nierówności na różnych poziomach hierarchii systemów społecznych, od jednostek po nierówności w skali globalnej. Biorąc pod uwagę wyniki badań nad nierównością społeczną i ekonomiczną, można zadać następujące pytanie: w jaki sposób podejście systemowe, obejmujące studia nad systemami złożonymi może być pomocne w badaniu nierówności społecznych i ekonomicznych w skali globalnej? Jako punkt wyjścia badań zostały przedstawione dwa przypuszczenia. Po pierwsze, nierówności społeczno-ekonomiczne w skali globalnej stanowią nieodłączną cechę współczesnego globalnego społeczeństwa i dotyczą regionów, krajów, grup społecznych i jednostek. Po drugie, podejście systemowe, w tym w szczególności badania systemów złożonych, mogą być wykorzystane w badaniu tych nierówności. Dotyczy to zwłaszcza wykorzystania systemów hierarchicznych oraz prawa potęgowego (prawa skalowania).

Słowa kluczowe: systemy złożone, nierówności, podejście systemowe, prawo potęgowe, sieci bezskalowe.

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FINANCIAL MARKET DEVELOPMENT AND ECONOMIC GROWTH. NEW OR OLD NEXUS IN THE EURO AREA?

Abstract

The problems of the nexus of financial development, financial market development, and economic growth have so far been controversial. Some authors have questioned the linearity of that nexus or the general idea of nexus. In recent literature devoted to those problems, authors emphasise the changes in the link between financial development and economic growth. The consequences of financialization and the last financial crisis have become the premises for a new hypothesis concerning the nonlinearity of the financial development and economic growth nexus. Some authors indicate that this nexus probably has the shape of inverted letter U. When financialization measured by the relation of financial assets to GDP reaches too high a level, the impact of financial development on economic growth will be negative (after reaching the inflection point on the U curve). There are a number of arguments that indicate that the use of quadratic terms leads to statistical illusions, which are connected with specific mathematical and statistical features of the quadratic function form. Therefore, the authors have implemented the traditional method of the dynamic panel data model, which is unbalanced (because some of the data is not available).

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The aim of our research is to answer the question: does the nexus of financial market development and economic growth exist?

Thus our hypothesis is as follows: financial market development influences economic growth in the euro area in an economically and statistically significant way.

We investigate this phenomenon based on the euro area countries and implemented panel data models (unbalanced), and use annual data concerning main financial market development and macroeconomic control variables.

Keywords: financial development, economic growth, financial market, dynamic panel model.
JEL Classification: G10, G15, G44.

1. Introduction

The beginnings of research on the importance of financial development for economic growth, and in particular the importance of financial markets, should be sought in the works of J. Schumpeter (1960), which pointed to the functions of financial intermediation and financial markets as essentials for economic growth and development.

It should also be noted that despite scientific theories and empirical research recognizing the impact of financial development on economic growth, economists have for a long time had different perspectives on the development of financial intermediation institutions and development and their positive impact on economic growth. However, this dependence, both from a theoretical point of view and from the point of view of empirical research using various econometric methods, is not explicit. For example, R. Lucas (1988) believed that the importance of finance in scientific and unscientific discussions is exaggerated. For Nobel Prize winner M. Miller (1998), "that financial markets contribute to economic growth is a proposition almost too obvious for serious discussion".

Hence, the variety of studies on financial development and economic growth is presented in this paper.

The definition of financial development according to N. Roubini and X. Sala-i-Martin (1992) is based on the theory of transaction costs. They identify financial development as a reduction in the transaction costs of replacing illiquid assets with liquid assets. They claim that an increase in the volume of transactions is necessary to reduce transaction costs, because then the benefits will be available to both the lender and the borrower. This is due to the balance model of demand and supply functions. Only then do sellers benefit when the price falls and buyers gain when the price increases.

J. D. Von Pischke (1991), in turn, defines financial development as an increase in the set of financial instruments, while it is necessary to maintain a balance between risk and the rate of return for individual instruments.

Referring to the Schumpeter's theory, R. Levine (2004) defined financial development as a phenomenon increasing the effectiveness of information, reducing transaction costs and disciplining financial market participants. He has attributed an important role to financial markets, financial intermediaries and financial instruments that may positively affect (but not necessarily eliminate) the effectiveness of information, discipline and the transaction costs. Activities relate to qualitative changes and, in the long run, lead to an increase in capital accumulation. Thus, financial development affects savings and investment decisions and, consequently, economic growth.

The aim of our research, the results of which we present in this article, is to answer the following question: does financial market development influence economic growth in the euro area?

We have formulated the following hypothesis: financial market development influences economic growth in an economically and statistically significant way.

To verify the above hypothesis, we critically analyzed the results of previous studies by different authors and implemented our econometric dynamic panel data model (unbalanced). Of course there are many voices in the literature concerning this subject, which criticizes the traditional approach to the connection between financial development and economic growth. Some authors emphasize that the connections are nonlinear. We agree with them, of course. The problem is as follows: how to encapsulate that nonlinearity in econometric models. Some trials with nonlinear or quasi-nonlinear models ended unsucessfully. The most popular method is to add quadratic terms for variables to test a second order effect of the impact of finance on growth (Carré & L'œillet 2018). The authors who implemented this method received a negative sign associated with the quadratic term and they concluded that the relationship between financial development and economic growth is decreasing, but many other authors argued that this is merely a statistical illusion, because in convergence--type econometric modelling, the coefficient of the explanatory variable is usually negative. W. Cline (2015) argued that implementation of quadratic terms in the regression equation leads to a false sign and false results. We received too much finance, too many telephones, and too many doctors in relation to economic growth (measured by GDP per capita) (Cline 2015).

We believe that, to date, modern methods – based on the linearity assumption – of specifying the model's equation and estimation as a dynamic panel data model have produced valid results. Thus, we implemented dynamic panel data models to research the connections between financial market development and economic growth in the euro area. Philosophically, all of our models in different disciplines are only a proxy of reality. In the economics and finance especially, people have a tendency to reshape all connections which are nonlinear to linear by using logarithms. But so far that method has been efficient. Of course, we are not against econometric and statistical experiments. On the contrary, we support new methods of economic investigation. But in this article, like the many authors we cite, we adopt a traditional approach.

2. Literature Review

The analysis of the relationship between financial development and economic growth has been the subject of empirical research for many years. R. W. Goldsmith (1969) presented ground-breaking research on this subject, analyzing and comparing empirical data from 35 countries. Based on this data, he stated that there is a positive relationship between finance and economic growth. However, based on the variables used and the limited number of countries, it was impossible to determine whether this relationship was accidental or not. In addition, limitations in the availability of statistical data forced him to focus on a comparative analysis of Germany and the United Kingdom.

This, in turn, prompted more researchers to conduct further research. In their research, they used other, increasingly complex econometric models. They broadened the range of control variables taken into account and used longer time series. Also, the fact that the research was carried out in later years allowed subsequent researchers to access more data. Below we present an overview of selected studies on the relationship between broadly--understood financial development and economic growth.

R. G. King and R. Levine (1993) referred in their research to the work of R. W. Goldsmith. They added more control variables to the applied regression model and applied a data set covering a larger group of countries. Cross-sectional regression equations were performed for 77 countries in the 1960–1989 period, and the model was supplemented with additional factors influencing economic growth. These included the volume of trade, expenditure on education and political stability.

G. M. Caporale, P. G. Howells and A. M. Soliman (2005) provide evidence that investment productivity is the channel through which stock market development enhances economic growth in the long run, especially in less-developed countries. Well-functioning stock markets can properly fulfil its allocative function, lower the cost of capital, improve allocation of investment resources and, in turn, enhance economic growth.

In their research, R. Levine and S. Zervos (1998) supplemented the regression model in use with measures regarding the securities market and factors determining the development of the banking sector. These factors fulfilled the role of variables affecting long-term economic growth. The results of the study showed that the liquidity of the securities market and the development of the banking sector allow economic growth to be predicted.

T. Beck and R. Levine (2001, 2004) came to the conclusion that securities markets and the banking sector exert a positive impact on economic growth as well. In their analysis, the authors used a generalized method of moments for dynamic panels and the data was averaged for a 5-year period. The study concerned 40 countries in the years 1976 to 1998.

As indicated by the study by G. M. Caporale, P. G. Howels and A. M. Soliman (2004) on the relationship between stock exchanges, investment, and economic growth, investment efficiency is the channel through which stock exchanges contribute to the long-term rate of growth. The development of stock exchanges contributes to economic growth due to the impact that stock exchanges have on investment performance in the long run and by the ever-increasing importance of the allocation function of stock exchanges. The study referred to 4 countries (Chile, South Korea, Malaysia and the Philippines) in the 1979–1998 period (quarterly data).

S. Bukowski (2013) analyzes financial markets in the Czech Republic, Slovakia, Slovenia and Hungary. The tests cover the 1995–2010 period. In the first part, the analysis of the relationship between selected indicators of the development of financial markets and economic growth gives a positive answer – the development of financial markets is important for economic growth. However, the author himself stresses that the strength of the impact of individual segments of the financial market on economic growth is diversified. The results of research regarding the stock exchange market and the importance of stock exchanges in the process of capital accumulation and financing of innovation seem to be unambiguous. They confirm the importance of financial development and the impact of financial market integration on economic growth in the selected countries.

M. Próchniak and K. Wasiak's (2016) study of 26 EU countries in the 1993–2013 period shows that domestic credit and the market capitalization of listed companies both have a nonlinear impact on economic growth reflected by a downward sloping parabola. At the same time, non-performing loans have a clear negative influence on GDP dynamics.

The findings of a study of the Polish financial market by Gurgul and Lach (2012) were based on quarterly data for the 2000 Q1–2011 Q4 period. Five independent variables were used in the econometric models: the ratio of bank claims on the private sector to nominal GDP, the ratio of bank deposits to nominal GDP, the ratio of Warsaw Stock Exchange (WSE) turnover to nominal GDP, the reserve bank discount rate, and the interbank offer rate. The authors applied the econometric method of the vector error correction model (VECM). They examined financial development for the full period and for the 2008 pre-crisis subsample (2000 Q1–2008 Q3). The empirical research performed in two variants (bank- and stock market-oriented approaches) shows that there is a causality between stock market development and economic growth and between economic growth and banking sector development. The results also indicate that the development of the Warsaw Stock Exchange (WSE) had a strong impact on economic growth before the 2008 crisis, and the banking sector had a significant impact on economic growth during the 2008 crisis. The authors conclude that stock market development was a factor in the development of the banking sector in Poland during the analyzed period.

In his research on financial development and the impact of the development of the stock exchange sector on economic growth, S. Bukowski (2009) conducted a study on Poland, Greece, Italy and Ireland in the 1994–2007 period. Based on the indicators used, he showed that the impact of financial development on economic growth was statistically significant in Poland, Italy and Ireland, and weaker in Greece.

At the same time, the analysis of the impact of the development of the treasury bond market indicates a strong and negative impact on economic growth. The increase in capitalization on the treasury bond market in Poland and Ireland in 1994–2007 shows the negative impact of physical capital on the growth rate in these countries, which seems to confirm the negative impact of the crowding out effect on economic growth (Bukowski 2010).

Table 1. Selected Studies on the Financial Development – Economic Growth Nexus

Research	Independent variables	Sample, period	Estimation method	Results
King and Levine (1993)	Secondary school enrolment, government consumption/GDP, inflation rate, trade value/GDP, growth rate of capital stock per capita, investment/GDP, liquid liabilities/GDP, deposit money bank domestic credit/deposit money bank plus central bank domestic credit, initial ratio of claims on the nonfinancial private sector to domestic credit, initial ratio of claims on the nonfinancial private sector/GDP	Annual dataset, 77 countries, 1960–1989	Ordinary Least Squares (OLS)	Strong causality between financial development and growth
Levine and Zervos (1996)	Market capitalization/GDP, total value of trades/GDP, total value of equity transactions/GDP, stock market integration measured by International Arbitrage Pricing Model (IAPT), liquid liabilities/GDP	Data on stock market size and liquidity for 41 exchanges, 1976-1993. IAPM data covers 24 countries, 1976-1993. First observation: 1976–1985. Second observation: 1986–1993	Cross-country regressions	Stock market development is positively associated with economic growth

Table 1 cnt'd

Research	Independent variables	Sample, period	Estimation method	Results
Levine, Loayza and Beck (2000)	30 variables, including: government size, growth rate of terms of trade, inflation rate, population growth rate, liquid liabilities, private credit, bank assets, legal origin, accounting rule, law, bureaucratic efficiency, corruption, property rights	Annual panel dataset, 71 countries, 1960–1995	Cross sectional instrumental variable regression, Generalized Method of Moments (GMM)	Financial intermediary development positively associated with growth. Substantial factors are: organization of the legal system, differences in standards and accounting systems
Rousseau and Wachtel (2000)	M3/GDP, market capitalization/GDP, value traded/GDP	Annual data, 47 countries, 1980–1995	Vector Auto Regression (VAR), short 5-year time series	Strong impact on the growth of liquidity on stock exchanges and increased market activity of financial intermediaries and on economic growth
Beck and Levine (2001, 2004)	Turnover ratio, bank credit/GDP	Annual data. Data averaged for 5-year period, 40 countries, 1976–1998	GMM	Positive impact of securities markets and the banking sector on economic growth
Rousseau and Wachtel (2002)	Standard financial development, inflation and growth indicators	Annual data, 84 countries, 1960–1995	Rolling panel regressions	The process of disinflation has a positive effect on the level of financial depth and economic growth. Inflation threshold, the achievement of which results in the discontinuation of the finance-growth relationship is in the

				13–25% range and seem to be more typical for countries with lower income and less developed financial markets
Caporale, Howells and Soliman (2004)	Market capitalization/GDP, total value of shares traded on stock exchange/GDP, bank deposit/GDP and ratio of bank claims on the private sector/GDP	Argentina, Chile, Greece, Korea, Malaysia, Philippines and Portugal, 1977 Q1–1998 Q4, quarterly data	VAR and VAR causality tests	Well developed stock markets can foster economic growth in the long run
Guiso, Jappelli, Padula and Pagano (2004)	Stock market capitalization/GDP, value of claims of banks and other financial institutions/GDP, and an indicator of accounting standards. Measure of creditor rights, two indicators of the quality of private and public enforcement, duration of the judicial process, a measure of the cost efficiency of the judiciary, and an indicator of the rule of law. Firm--level data for employees, sales, and value added	Industry-level data: annual frequency, 1981–1995, 61 countries, 36 branches of industry, 2,196 observations per year. Firm-level data: panel data, 1981–2001, 70,679 firms. The maximum interval for which data are observed for a firm is 1996–2001	OLS	Financial development can still affect growth. The results vary when looking at countries, sectors and size of the firm

Table 1 cnt'd

Research	Independent variables	Sample, period	Estimation method	Results
Eschenbach and François (2005)	20 variables describing financial sector, including: M3/GDP, commercial banks' domestic assets, credit to the non-financial private sector/GDP, stock market turnover ratio, stock market value traded/GDP	130 countries (including 26 transition economies), 1990–1999	OLS	Links between financial development, banking sector competition and growth. Institutional services tend to be significantly associated with growth, but capital account openness is not
Coricelli, Masten, and Masten (2008)	Human capital measured by level of educational attainment, institutional factors (protection of property rights, administrative barriers, etc.), international financial integration, inflation rate and share of market capitalization/GDP, domestic credit provided by the banking sector/GDP and domestic credit/GDP	Annual data. Country level data: 31 European countries (EU27, Croatia, Ukraine, Russian Federation, Iceland and Norway), 1996–2004. Industry-level data: 30 European countries (EU 25 countries plus Iceland, Norway, Croatia, Russian Federation and Ukraine), 26 manufacturing industries, 1996–2003	GMM	Significant non-linear effects, with less developed European countries gaining more from financial development. At higher levels of financial development financial integration benefits tend to be more significant.
Cappiello, Lo Duca and Maddaloni (2008)	Compounded returns on stock indices (calculated as the difference between returns on each portfolio and the risk free rate), long-term 10-year bond indices (calculated as the long-term government bond index minus the 3-month Euro deposit rate)	Cross country and industry level study – France, Germany, Italy the Netherlands, Spain plus 6 equity industry portfolios in each country, weekly data from April 1991 to December 2007	Multivariate GARCH, Kalman filter, ICAPM	Markets were integrated in the studied period of 1991 Q2–2007 Q4 and market premium was the main determinant of total premium

Bukowski (2010)	Stock exchange market capitalization of shares/GDP, stock exchange bond market capitalization/GDP	Annual data, Poland: 1994–2007, Ireland: 1996–2007	Double Ordinary Least Squares (2OLS)	Positive and statistically significant relationship between stock market capitalization and the growth rate of real physical capital per capita in both countries
Gurgul and Lach (2012)	Ratio of bank claims on the private sector to nominal GDP, ratio of bank deposits liability to nominal GDP, ratio of Warsaw Stock Exchange (WSE) turnover to nominal GDP, reserve bank discount rate, and interbank offer rate	Poland, quarterly data, 2000 Q1–2011 Q4	Vector error correction model (VECM).	Causality between stock market development and economic growth and between economic growth and banking sector development
Kendall (2012)	Credits and deposits of commercial banks	209 Indian districts across 9 Indian states, 1991–2001	Regression analysis	Banking sector development was positively linked with economic growth
Arcand, Berkes and Panizza (2012)	16 variables, including: accumulation of human capital, trade openness, inflation, government expenditure/GDP, credit to private sector/GDP, liquid liabilities/GDP	Annual data, 42 countries. Number of countries varies across calculations due to data unavailability, 1960–2010 and sub-periods	GMM, OLS	When the level of finance measured by private sector credit reaches 80–100% of GDP it starts to have a negative effect on output growth

Table 1 cnt'd

Research	Independent variables	Sample, period	Estimation method	Results
Bukowski (2012)	Stock exchange market capitalization of shares/ GDP, stock exchange bond market capitalization/ GDP, credit to private sector/GDP	Annual data, EA-12 countries, 1991–2009	OLS	A statistically significant relationship between the development of financial markets and economic growth, especially in the corporate bonds segment
Doumbia (2016)	M3/GDP, domestic credit to private sector/GDP, domestic credit provided by financial sector/GDP	43 advanced and developing economies, 1975–2009	Panel Smooth Transition Regression (PSTR), System GMM	Financial development supports economic growth in low income and lower middle income countries by enhancing saving and investment behaviour
Próchniak and Wasiak (2016)	domestic credit to private sector/GDP, ratio of non-performing loans, market capitalization/ GDP, number of listed companies per million residents	Annual data, 26 EU countries without Malta and Cyprus, 1993–2013	Fixed effects regression equation. Estimations calculated for 3 groups of countries: full group (EU26), 15 countries of Western Europe (UE15) and 11 countries of Central and East Europe (New Member States – CEE11). Paper also uses 5-year overlapping periods analysis (rolling panel – 1994–1998, 1995–1999, …, 2008–2012, 2009–2013)	Domestic credit and market capitalization of listed companies both have a nonlinear impact on economic growth reflected by a downward sloping parabola. Non-performing loans have a clear negative influence on GDP dynamics

Source: authors' own compilation.

3. Data and Model

We have used data from the following databases: EUROSTAT, AMECO online Financial Structure Dataset, the Warsaw Stock Exchange, and the World Trade Organization. The data cover the 1999–2017 period and 19 member countries of the Economic and Monetary Union. We constructed panel data, but this panel was unbalanced, because part of the data was not available. All the data used in the investigation were in the constant prices (the year 2000).

In our research we implemented a dynamic panel model with not only an endogenous variable lagged by one period, but also lagged exogenous variables. Our research with econometric modelling concerned the direct impact of financial market indicators on GDP per capita and also on the one of the main factors of economic growth – net capital per capita.

The form of these models is as follows:

$$GDPc_{i,t} = a_{01} GDPc_{i,t-1} + \sum_{n=0}^{3} a_{1n} STOCK_{i.t-n} + \sum_{n=0}^{3} a_{2n} CBOND_{i.t-n} + \\ + \sum_{n=0}^{3} a_{3n} TBOND_{i.t-n} + \sum_{n=0}^{3} a_{4n} CREDIT_{i.t-n} + \sum_{n=0}^{3} a_{5n} DB_{i.t-n} + \\ + \sum_{n=0}^{3} a_{6n} I_{i.t-n} + \sum_{n=0}^{3} a_{7n} DFL_{i.t-n} + \sum_{n=0}^{3} a_{8n} OP_{i.t-n} + a_1 + u_{i,t}$$

$$NCc_{i,t} = a_{01} NCc_{i,t-1} + \sum_{n=0}^{3} a_{1n} STOCK_{i.t-n} + \sum_{n=0}^{3} a_{2n} CBOND_{i.t-n} + \\ + \sum_{n=0}^{3} a_{3n} TBOND_{i.t-n} + \sum_{n=0}^{3} a_{4n} CREDIT_{i.t-n} + \sum_{n=0}^{3} a_{5n} DB_{i.t-n} + \\ + \sum_{n=0}^{3} a_{6n} I_{i.t-n} + \sum_{n=0}^{3} a_{7n} DFL_{i.t-n} + a_1 + u_{i,t},$$

where:

GDPc – natural logarithm of real GDP per capita,

I – natural logarithm of net investment to GDP,

NCc – natural logarithm of net capital to GDP,

STOCK – natural logarithm of stock exchange equity market capitalization to GDP,

CBOND – natural logarithm of stock exchange corporate bond market capitalization to GDP,

TBOND – natural logarithm of stock exchange treasury bond market capitalization to GDP,

CREDIT – natural logarithm of credit to households and companies to GDP,

DFL – natural logarithm of the GDP deflator as a measure of the rate of inflation,

OP – natural logarithm openness as a relation of foreign trade turnover to GDP,

DB – natural logarithm of public debt to GDP.

4. Results of the Model Estimations

The results of the first model estimation are presented in Tables 2 and 3.

The AR test indicates that there are no autocorrelations. The results of the Sargan over-identification test indicate that all instruments are valid. The signs associated with the variables are valid from the theoretical point of view. Of course, it is controversial that the CREDIT variable has a negative sign. But we can explain that: massive credit for companies and households in the current period, as an expenditure decreasing economic growth rate, but if we take into account the lagged CREDIT variable (by one period), we can observe that the sign is positive, because it is a proxy of the lagged influence of the economic growth rate. The negative sign in the case of the main financial development indicators is statistically significant and influences economic growth. Bank credit influences economic growth the strongest followed by stock market exchange capitalization to GDP (STOCK). But it must be emphasised that the same is true in the case of CREDIT lagged by one period.

In this model too, as in the case of the previous model, the AR test indicates that there are no autocorrelations. The results of the Sargan over-identification test indicate that all instruments are valid. The signs associated with the variables are valid from the theoretical point of view. The STOCK and CREDIT variables are economically and statistically significant, but the CREDIT variable influences the NCc variable stronger than the STOCK variable.

5. Concluding Remarks

The results of our investigation confirm the results achieved by many other authors, among them: G. M. Caporale, P. G. Howells, A. M. Soliman (2005), J. Kendall (2012), R. Levine (2004), T. Beck and R. Levine (2004).

Table 2. 1-step Dynamic Panel, Using 111 Observations Including 15 Cross-sectional Units. Time-series Length: Minimum 3, Maximum 9. H-matrix as per Ox/DPD. Dependent Variable: I_GDPc. Asymptotic Standard Errors

Specification	Coefficient	Std. Error	*z*	*p*-value	Statistical significance of variables
l_GDPc(-1)	0.621742	0.113334	5.486	< 0.0001	***
const	0.00954873	0.00443806	2.152	0.0314	**
l_STOCK	0.0573689	0.0155474	3.690	0.0002	***
l_STOCK_1	–0.00831872	0.0191884	–0.4335	0.6646	
l_STOCK_2	–0.0189053	0.0193882	–0.9751	0.3295	
l_STOCK_3	0.0292603	0.0155240	1.885	0.0595	*
l_CBOND	0.0146658	0.0158455	0.9255	0.3547	
l_CBOND_1	–0.00632958	0.0225111	–0.2812	0.7786	
l_CBOND_2	0.0261195	0.0225873	1.156	0.2475	
l_CBOND_3	–0.0295854	0.0127409	–2.322	0.0202	**
l_TBOND	–0.0299689	0.0359527	–0.8336	0.4045	
l_TBOND_1	–0.0147838	0.0529799	–0.2790	0.7802	
l_TBOND_2	0.0315489	0.0546176	0.5776	0.5635	
l_TBOND_3	–0.0201608	0.0347838	–0.5796	0.5622	
l_CREDIT	–0.142609	0.0653971	–2.181	0.0292	**
l_CREDIT_1	0.229270	0.0908189	2.524	0.0116	**
l_CREDIT_2	–0.0925905	0.0599861	–1.544	0.1227	
l_CREDIT_3	0.0224445	0.0426610	0.5261	0.5988	
l_DB	0.0541753	0.0335340	1.616	0.1062	
l_DB_1	–0.0794368	0.0351171	–2.262	0.0237	**
l_DB_2	0.0379147	0.0396979	0.9551	0.3395	
l_DB_3	–0.0170340	0.0345638	–0.4928	0.6221	
l_I	0.247264	0.0617005	4.007	< 0.0001	***
l_I_1	–0.0722439	0.0679322	–1.063	0.2876	
l_I_2	–0.0594295	0.0639108	–0.9299	0.3524	
l_I_3	–0.0485692	0.0447027	–1.086	0.2773	
l_DFL	–0.469006	0.331250	–1.416	0.1568	
l_DFL_1	0.232293	0.415780	0.5587	0.5764	
l_DFL_2	–0.0948342	0.265124	–0.3577	0.7206	
l_DFL_3	–0.118206	0.185359	–0.6377	0.5237	
l_OP	0.150614	0.0421610	3.572	0.0004	***
l_OP_1	–0.0383622	0.0479577	–0.7999	0.4238	

Table 2 cnt'd

Specification	Coefficient	Std. Error	*z*	*p*-value	Statistical significance of variables
l_OP_2	–0.00358199	0.0359503	–0.09964	0.9206	
l_OP_3	–0.0153214	0.0435009	–0.3522	0.7247	
Sum squaredresid 0.047590			S.E. of regression 0.024861		
Number of instruments = 97					
Test for AR(1) errors: $z = -4.7684$ [0.0000]					
Test for AR(2) errors: $z = 2.19182$ [0.0284]					
Sargan over-identification test: Chi-square(63) = 64.9483 [0.4086]					
Wald (joint) test: Chi-square(33) = 652.951 [0.0000]					

Source: authors' own calculations using GRETL.

Table 3. 1-step Dynamic Panel, Using 111 Observations Including 15 Cross-sectional Units. Time-series Length: Minimum 3, Maximum 9. H-Matrix as per Ox/DPD. Dependent Variable: I_NCc. Asymptotic Standard Errors

Specification	Coefficient	Std. Error	*z*	*p*-value	Statistical significance of variables
l_NCc(-1)	0.610065	0.112437	5.426	< 0.0001	***
const	0.00833953	0.00297353	2.805	0.0050	***
l_STOCK	0.0209688	0.0103044	2.035	0.0419	**
l_STOCK_1	–0.00559511	0.0126607	–0.4419	0.6585	
l_STOCK_2	0.0139086	0.0131807	1.055	0.2913	
l_STOCK_3	–0.00807971	0.0106132	–0.7613	0.4465	
l_CBOND	0.00642868	0.0122561	0.5245	0.5999	
l_CBOND_1	–0.00723133	0.0170991	–0.4229	0.6724	
l_CBOND_2	0.00678812	0.0164684	0.4122	0.6802	
l_CBOND_3	–0.00445618	0.00961173	–0.4636	0.6429	
l_TBOND	–0.0306030	0.0273105	–1.121	0.2625	
l_TBOND_1	0.0220074	0.0395961	0.5558	0.5784	
l_TBOND_2	0.00213423	0.0407287	0.05240	0.9582	
l_TBOND_3	0.0143859	0.0266505	0.5398	0.5893	
l_CREDIT	0.0178617	0.0546452	0.3269	0.7438	
l_CREDIT_1	0.0123348	0.0713997	0.1728	0.8628	
l_CREDIT_2	–0.0185846	0.0440323	–0.4221	0.6730	
l_CREDIT_3	0.0669688	0.0334020	2.005	0.0450	**

Table 3 cnt'd

Specification	Coefficient	Std. Error	*z*	*p*-value	Statistical significance of variables
l_I	0.133921	0.0431415	3.104	0.0019	***
l_I_1	–0.0381509	0.0426689	–0.8941	0.3713	
l_I_2	–0.0486718	0.0456214	–1.067	0.2860	
l_I_3	0.0445552	0.0353181	1.262	0.2071	
l_DFL	–0.188772	0.242101	–0.7797	0.4356	
l_DFL_1	–0.134527	0.302979	–0.4440	0.6570	
l_DFL_2	0.173486	0.198176	0.8754	0.3813	
l_DFL_3	–0.0220039	0.133954	–0.1643	0.8695	
l_OP	–0.0148927	0.0330028	–0.4513	0.6518	
l_DB	0.0139598	0.0233189	0.5986	0.5494	
l_DB_1	–0.0187115	0.0263473	–0.7102	0.4776	
l_DB_2	0.00701257	0.0286401	0.2449	0.8066	
l_DB_3	–0.0296347	0.0270261	–1.097	0.2728	
Sum squaredresid 0.028349			S.E. of regression 0.018824		
Number of instruments = 94					
Test for AR(1) errors: $z = -4.38219$ [0.0000]					
Test for AR(2) errors: $z = 2.52741$ [0.0115]					
Sargan over-identification test: Chi-square(63) = 61.1553 [0.5424]					
Wald (joint) test: Chi-square(30) = 405.93 [0.0000]					

Source: authors' own calculations using GRETL.

Our investigation allows us to formulate following conclusion:

– There exists an economically and statistically significant connection between financial market development and economic growth in the euro area countries.

– Credit for households and companies positively influences economic growth in euro area countries but with a one-year delay.

– Current stock exchange equity capitalization and three-year delay influence economic growth in the euro area positively.

– The impact of credit for households and companies on economic growth in the euro area is much stronger than the impact of stock exchange equity capitalization on economic growth.

– The impact of treasury bond market capitalization and corporate bond market capitalization on economic growth in the euro area is statistically insignificant.

– There exists an economically and statistically significant connection between financial market development and the growth of net capital per capita in the euro area, wherein credit for households and companies influences the growth of net capital stronger than stock exchange capitalization influences the equity market.

– In the case of the model with net capital per capita growth as an explained variable, treasury bond market capitalization and corporate bond market capitalization are statistically insignificant variables.

The economies of the euro area are bank-oriented. This is the reason why bank credit in the economy plays a much more important role than the stock exchange market.

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Abstract

Rozwój rynku finansowego a wzrost gospodarczy. Stary czy nowy związek w obszarze euro?

Problemy związku między rozwojem finansowym, rozwojem rynków finansowych i wzrostem gospodarczym są do chwili obecnej kontrowersyjne. Niektórzy autorzy kwestionują liniowość tego związku lub też samą jego ideę. W literaturze zwracają uwagę na modyfikacje dotyczące wpływu rozwoju finansowego na wzrost gospodarczy wywołane finansjalizacją oraz ostatnim kryzysem finansowym. Niektórzy autorzy wskazują, że zależność między rozwojem finansowym a wzrostem gospodarczym ma charakter odwróconej litery U, a zatem jest nieliniowa. Próbują oni również zastosować w badaniach naukowych w modelowaniu ekonometrycznym równania regresji z wykorzystaniem funkcji kwadratowej. Inni wskazują zaś, że prowadzi to do iluzji statystycznej. Autorzy niniejszego artykułu zastosowali w swoich badaniach dynamiczny model panelowy.

Celem artykułu jest odpowiedź na pytanie: czy istnieje związek między rozwojem rynków finansowych a wzrostem gospodarczym? Sformułowano następującą hipotezę: rozwój rynków finansowych wpływa na wzrost gospodarczy, co ma uzasadnienie teoretyczne i z punktu widzenia badań empirycznych wpływ zmiennych charakteryzujących ten rozwój na zmienną niezależną „wzrost gospodarczy" jest statystycznie istotny. Badania przeprowadzono na podstawie danych dotyczących rynków finansowych krajów obszaru euro.

Słowa kluczowe: rozwój finansowy, wzrost gospodarczy, rynek finansowy, dynamiczny model panelowy.

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Małgorzata Janicka

FINANCING SUSTAINABLE GROWTH AND BUILDING THE CAPITAL MARKETS UNION IN THE EUROPEAN UNION

Abstract

The European Union is trying to make environmental, social and corporate governance (ESG) central to its financial system. Investments, which flow through the capital market, should favour sustainable development. The closing of the investment gap in sustainable investment is one of the priorities on the way to the sustainable growth of the EU economy. Very unfortunately, sustainable finance has been made part of the plan to build the capital markets union. In my opinion, including sustainable finance in this process is a misguided solution. The aim of this article is to analyse the conditions of including sustainable finance in the process of building the capital markets union. Since the subject discussed in the article is completely new, the author did not consult any academic studies that could have acted as a point of reference in the conducted analyses. The article can be seen as a pioneering study intended to contribute to fill the gap in this area.

Keywords: sustainable finances, sustainable investments, sustainable development, capital markets union, European Union.
JEL Classification: F36, G15, Q56.

1. Introduction

World economies compete to achieve the highest growth dynamics possible, and higher GDP per capita is usually equated with increased

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citizens' welfare. Every year we have rankings showing which countries are the top competitors. Unfortunately, there are no rankings that would tell us what environmental and social cost of acceleration in economic growth is borne by the individual countries. Currently, the European Union has launched, for the first time on such a scale, an action plan on funding sustainable growth. The move is unprecedented because the plan is a response to another European initiative: creation of the capital markets union. Free movement of capital is usually seen in light of its optimal allocation understood as the potentially highest rate of return achievable at a certain assumed level of investment risk. According to common belief, financial markets are driven by greed. This belief is fully justified if we look at the causes, scale and depth of the global financial crisis of 2008+. By incorporating goals connected with financing the sustainable growth of EU Member States into the plan of building the capital markets union, the EU has sent a remarkable signal about how it perceives the role of the capital market in the economy. Nowadays, the market has acquired a new mission that previously was not defined so explicitly. The EU wants environmental, social and governance issues (ESG) to become central elements of the financial system. The EU economy is expected to develop into an environmentally-friendly and resilient circular ecosystem. Investments which flow through capital markets should favour sustainable growth, which means that investors should consider ESG aspects such as greenhouse gas emissions, depletion of natural resources, and working conditions in their decision-making. This recommendation is addressed especially to institutional investors who should inform their clients how the above-mentioned aspects are considered in their decisions. The closing of the investment gap in sustainable investment is one of the priorities that must be accomplished on the way to the sustainable growth of the EU economy. The problem is that, very unfortunately, sustainable finance has been made part of the plan to build the capital markets union, starting from the assumption that boosting the dynamics of capital market development and the resultant volume of investment resources obtained through them will also help to increase the volume of funds for sustainable investment.

The aim of this article is to analyse the conditions of including sustainable finance in the process of building the capital markets union. Since the subject discussed in the article is completely new (there are no similar cases in other countries), the author did not consult any academic studies that could have acted as a point of reference in the conducted analyses. The article is intended to help fill the gap in this area. Qualitative research

methods have been used – a review and analysis of the available sources (legal acts, reports, articles and other documents) related to sustainable finance and the capital markets union in the European Union.

2. Free Movement of Capital and the Capital Markets Union

Legally free movement of capital within the EU was put in place in May 1994 when Greece abolished the remaining restrictions. We need to stress that although the elimination of legal barriers to the free movement of capital is a precondition for deepening the integration of capital markets, it is not enough. If it were enough, subsequent activities undertaken by the EU in this area since 1999 would have been redundant (for more, see: Janicka 2018, pp. 195–206). Nowadays, whenever a new country joins the EU, it must abolish all restrictions to the free movement of capital (with the exception of jointly agreed exemptions maintained throughout the transition period), meaning that formal barriers are no longer obstacles to the deepening of *de facto* integration. However, another plan in this area – the building of the capital markets union – proves that the EU is not satisfied with the existing level of integration. "Despite significant progress in recent decades to develop a single market for capital, there are still many long-standing and deep-rooted obstacles that stand in the way of cross-border investments. These range from obstacles that have their origins in national law – insolvency, collateral and securities law – to obstacles in terms of market infrastructure, tax barriers and changes in the regulatory environment that undermine the predictability of rules for direct investments" (European Commission 2015a, p. 23).

At the same time, in accordance with earlier commitments (Council Directive 88/361 of 24 June 1988 for the implementation of Art. 67 of the Treaty; Treaty on the European Union, signed on 7 February 1992 and ratified on November 1993, OJ C 191 of 29.07.1992), the EU Member States opened themselves up to flows of capital with third countries. Unlike liberalisation of the flow of goods, where both parties are expected to facilitate access to their respective markets, for capital flows the EU Member States did not demand the principle of mutuality to be met. The early 1990s were a period when developed countries had no reason to fear for their position in the global economy. They had the most developed and rich financial markets and no developing economy could undermine their dominance in this field. Under such circumstances, not only did this one-sided opening to capital flows entail no risk to the EU, but it could also

produce concrete benefits resulting from a more liberal approach on the part of third countries to the inflow of funds from the EU. The situation changed in recent decades when developing countries, in particular China, became the principal sources of capital in the global economy. Chinese capital stock is largely controlled by the central government (FX reserves), while Chinese investments are not always guided by the criterion of optimal allocation of capital. By maintaining barriers to entry into their market and taking advantage of the opening of the EU, China started to invest in the EU economies, including in sectors that these countries perceive as sensitive (Popławski 2017). As a result, the EU Member States had to review their policy of openness to capital flows from the external environment and undertake measures in the internal market to foster the position and role of capital markets in their respective economies. The effects of the opening, hitherto unknown to developed countries (and not always favourable for capital recipients), provoked the need to reconsider EU policy vis-à-vis the inflow of investment/capital.

3. Financing Sustainable Growth

The EU's action plan to build the capital markets union only marginally addresses the issue of financing sustainable growth. It only states that "efficient financial markets can help investors to make well informed investment decisions, and analyse and price long term risks and opportunities arising from the move towards a sustainable and climate friendly economy. This shift in investment can contribute towards delivering the 2030 climate and energy policy objectives and the EU's commitments on the Sustainable Development Goals" (European Commission 2015a, p. 17). In September 2016 the Commission presented another document "Capital Markets Union – Accelerating Reform", in which it once again only briefly referred to the financing of sustainable growth: "Reforms for sustainable finance are necessary to support investment in clean technologies and their deployment, ensure that the financial system can finance growth in a sustainable manner over the long term, and contribute to the creation of a low-carbon, climate resilient economy. Such reforms are essential to meet our climate and environment objectives and international commitments (…)" (European Commission 2016, pp. 5–6).

The key document on financing sustainable growth, which resulted from earlier identified goals connected with the building of the capital markets union, was published in March 2018 under the title "Commission Action

Plan on Financing Sustainable Growth" (SF) (European Commission 2018a). To start with, we need to focus on the term "sustainable finance". In accordance with the definition included in the document, "sustainable finance generally refers to the process of taking due account of environmental and social considerations in investment decision--making, leading to increased investments in longer-term and sustainable activities" (European Commission 2018a). In other words it is about Socially Responsible Investment (SRI), a term already present in the subject literature, which nowadays is being replaced with: sustainable investment or responsible investment or the broadest term – "sustainable finance" (*Sustainable Finance Glossary* 2018). The term "sustainable finance", if not explained properly, may be misleading, especially when rendered in other languages, as it may be understood as a way of financing an investment, e.g. the relationship between own and external capital in the project in question. A similar mental shortcut is also used in relation to, e.g. the terms "sustainable capital market" or "sustainable financial market". These terms may be interpreted contrary to the intentions of those who have coined them. Sustainable market, i.e. a market which is balanced, which develops harmoniously without serious tensions, can be presented in picturesque terms as a flattened financial cycle. Such an interpretation fundamentally differs from seeing a sustainable capital market as a market which acts as a broker in transferring funds for ESG investment. Yet the detailed goals of SF leave no room for doubt as to what planned activities refer to (European Commission 2018a, p. 2).

One of the key terms that crops up many times in the plan is the so-called circular economy. In accordance with the interpretation of the European Commission (European Commission 2015b), the circular economy is a production and consumption model, which consists in sharing, borrowing, reuse, repairing, refurbishing and recycling materials and products as long as it is possible and expanding the product lifecycle. When a product lifecycle is coming to an end, raw materials and waste from this product should remain in the economy, as they can be reused easily, which in practice may mean reducing waste to a minimum. Such approach contrasts with a traditional, linear economic model based on the "take – make – use – dispose" model and large quantities of cheap and easily available materials and energy. So-called "planned obsolescence", i.e. designing products which do not work beyond a specific time horizon, is an element of the model (*Gospodarka o obiegu zamkniętym* 2018). Transforming the current economic model, which aims at increasing consumption, into a model of

limited consumption adapted to one's needs and at the same time extending the product lifecycle are surely justified postulates. However, there is serious doubt as to whether under the current model of how economies and societies operate, particularly in developed countries, these postulates can really be accomplished. The extension of the product lifecycle means the need to restrict the production of consumer goods because they are used/work longer (especially electronic and electrical equipment); moreover, it means a change in the approach to how they are constructed: instead of closed models, which must be replaced as units, we need individual components, which can be replaced to repair products, which not long ago we would have thrown away. Nowadays, many products are replaced not because they have really got physically worn out, but because of their moral wear and tear. Under the above circumstances, the following question arises: what arguments can convince companies to choose this business model? Smaller sales and production not only mean potentially smaller employment but also smaller profits and income of company owners (including shareholders). If we agree that the capital market informs us about a company's current value, e.g. by revealing its financial performance, one can easily imagine a situation in which shareholders who declare that SRI and CSR are ideas relevant to them, in reality dispose of a company's shares when they cannot secure a satisfactory rate of return. If a company's output and profits are decreasing, the situation can be reversed either by increasing the number of customers who buy its products or by increasing prices. Both possibilities are strongly limited – the first by natural conditions, the second by competition in the market. Low quality goods are still being bought by many purchasers with limited financial resources, for whom price is the main selection criterion. In the market, we can find products that comply with the CSR idea: environmentally-friendly food, clothes and cars. The market for these goods exists and is on the rise although it still represents a small chunk of the traditional market and the main barrier is the price, which is higher than the market average. In capital markets, specifically in the stock market, we have indices that include companies that meet CSR requirements (e.g. the Dow Jones Sustainability Index series, Calvert Social Index, Johannesburg Stock Exchange Socially Responsible Index, Sao Paolo Stock Exchange Corporate Sustainability Index, KLD Global Sustainability Index Series, and Respect Index). However, the vast majority of investors continue to focus on traditional stock indices. The "critical mass" of CSR companies has not been exceeded yet in the capital markets.

Careful examination of the action plan for sustainable finance also encourages reflection to the effect that it clearly addresses to an insufficient degree an issue that is crucial from the point of view of sustainable finance: the strategy of influencing consumers' and investors' choices. The choices made by these two groups, which often intertwine, will be decisive for the success of the plan. I do not share the optimism which permeates the "Final Report 2018 by the High-Level Expert Group on Sustainable Finance", according to which: "There is strong evidence that Europe's citizens overwhelmingly believe that social and environmental objectives are important for their savings and investments" (*Financing a Sustainable European Economy* 2018). This conclusion was drawn from analyses of CSR and SRI carried out by a variety of institutions. One of these analyses can be found in the *Mind Shift* study (2017) prepared by NATIXIS, one of the world's largest asset management firms. According to the study, individual investors are very much interested in SRI, but unfortunately it does not tell us which countries these investors come from. The are most probably not only from European countries because the research was conducted on a global scale: "Among the 7,100 individuals from 22 countries who were included in our 2016 Global Survey of Individual Investors, we find a consistent belief that it is important to address ESG factors in their investments" (*Mind Shift*…, p. 7). It is a pity that detailed information about the research sample (broken down only by generation and gender) was not provided directly in the study as it may be vital for final conclusions. If the sample had included mainly respondents from developed countries with relatively high income and education, such answers would come as no surprise, especially that the given study covered active investors. From the point of view of successful delivery of the plan, the key lies in bringing the message to the biggest group of the youngest recipients: education for the future is in this case the key challenge. Future consumers and investors must realise the close relationship between the choices they make and how their environment works at the social and environmental levels. To most, the ESG criteria are important. Nevertheless, the question arises as to how many consumers and investors are guided by them when making purchasing decisions and investing their money. Environmentally-friendly purchases will eliminate non environmentally-friendly manufacturers, while SRI forces companies to observe ESG standards. Yet one may get the impression that the SF plan focuses on the final element of the investment process – the company which receives capital. By the same token, the assumption is made that the main problem of insufficient financing for ESG companies lies in

clogged investment flow channels rather than in investors' lack of interest in increasing its volume. It is an optimistic assumption.

An important aspect which the SF action plan draws attention to is so-called "greenwashing", i.e. using marketing to present the products, activities or strategies of an organisation as environmentally-friendly when in reality they are not. This issue is very much relevant to combining financial markets with sustainable growth financing. In May 2018 the draft of the Regulation on the Establishment of a Framework to Facilitate Sustainable Investment (European Commission 2018b) was put on the table. As one can read in this proposal, its goal is to eliminate divergences in the existing national taxonomies and address market-based initiatives at the national level to reduce the risk of "greenwashing", make it easier for economic operators to raise funds for environmentally-sustainable activities across borders, and to establish a level playing field for all market participants. Financial market participants who offer financial products labelled as environmentally-sustainable investments or investment products exhibiting similar characteristics will have to make it clear to investors why these products can be considered environmentally sustainable based on uniform criteria established at the EU level (European Commission 2018b, pp. 5–6). This Regulation is fundamental for sustainable finance; the absence of clear-cut definitions and criteria for companies that meet ESG requirements results in the discretionary interpretation of terms from the realm of sustainable development and their unauthorised use in order to promote business.

Summing up: the emerging capital markets union should help to increase the volume of investment earmarked for developing undertakings within the sustainable finance framework, which will help to implement the idea of transforming the European Union economy from the linear to the circular model.

4. Sustainable Finance and the Capital Market: Potential Problems and Ramifications

Although the expected increase in the volume of investments meeting ESG criteria is a fully justified objective, combining the two plans – building the capital markets union and developing sustainable finance – should be considered a rather risky initiative. In accordance with the traditional approach, investors ready to accept low risk choose bank products while those prepared to accept higher risk choose capital market instruments. Since

it is believed that the efficiency of the transmission of investment resources in a market economy is lower for the banking sector compared to the capital market, it is no wonder that the EU wishes to change the model of the financial system from bank-oriented to market-oriented similarly to the United States. The EU is still dominated by the continental banking system; it is not the first attempt made by the EU to change the model and so far it has not been very successful. Surprisingly, successive plans to deepen capital market integration lack references to one of the fundamental issues: the readiness of capital providers from the EU to accept higher levels of investment risk, as is the case in the United States. In accordance with the maxim "there is no such thing as a free lunch" – I expect more but I risk more. The building of the capital markets union is expected to provide the framework that will facilitate flows of investment capital within the EU as much as possible; investors will have more options to select investments with diverse profit/risk parameters and a different time horizon. The interweaving of sustainable finance into the process makes these parameters less transparent. The plan for sustainable finance reads: "Investment decisions are typically based on several factors, but those related to environmental and social considerations are often not sufficiently taken into account, since such risks are likely to materialise over a longer time horizon. It is important to recognise that taking longer-term sustainability interests into account makes economic sense and does not necessarily lead to lower returns for investors" (European Commission 2018a p. 2). The lack of clarity in this paragraph is to a large extent the consequence of combining terms such as investor interest, interest of the economy, capital market, and sustainable finance. Environmental projects often require long--term engagement, and the investment outlays involved in environmentally--friendly companies may be higher than in businesses which do not apply such solutions. However, such investments are justified by the economic and social interests of the country. Investors who expect a particular rate of return over a specific, not necessarily long-term time horizon will most probably not be interested in them, which is why environmentally-friendly investments are often financed from public funds. The statement that they "will not necessarily lead to lower returns for investors" is unclear. They do not have to lead to such consequences but they may. A new category has emerged in financial markets, which is more complex than the simple but legible category of profit: profit/environmental costs of generating profit (Janicka 2016, p. 7). Nevertheless, it is difficult to find analyses that would take it into account. The credibility of the operator and project predictability are key elements of each investment decision. Private capital should be attracted to SRI after

all the ramifications/risks connected with such investments have been made clear, and reference should be made to values other than the rate of return. In order for SRI not to remain only a side stream of investments targeting eccentric or socially responsible investors, it is crucial to introduce the ESG requirements into the economy universally and monitor their implementation. Cases of inhuman working conditions approved by international holdings in developing countries or exceeded safe limits of harmful substances in fuel gases hidden by corporations have undermined trust in the implementation of CSR principles by the companies which declare such efforts. "Just recently, the governor of the Bank of England, Mark Carney, called for the financial system to adapt quickly, smoothly and effectively to social needs and particularly to climate-change issues. The Banque de France, which has just announced a responsible investment charter, is committed to taking things even further than supporting green assets to actually penalising climate-damaging ones ('brown assets')" (Revelli 2018). If companies are supposed to modify their operating model and switch to a system compliant with ESG requirements, appealing for change is not enough. The market, also the financial market, must clearly formulate its expectations and then enforce them completely.

Affluent investors in developed countries (but surely also in some developing ones) are certainly willing to allocate some of their resources to sustainable investment if they feel that they are delivering a mission and that they are part of a bigger group that understands this mission and approves of it. Yet, as *The Economist* rightly observes: "But the more fundamental question is the trickiest to solve, because it boils down to ethics rather than finance. How can the relative value of, say, educating a girl in the developing world be compared with preventing a tonne of air pollution? In the end, investors' choices among the different variants of sustainable investments will be driven by their own personal interests, rather than just by financial calculations" (*What Is Sustainable Finance?* 2018).

I would like to stress that building the capital market union does not exclude sustainable finance. However, if the EU wants to develop its capital markets, it should first focus on this task to avoid a situation in which the implementation of two diverse objectives leads to failure. In the context of these considerations, it is worth quoting the most puzzling excerpt from the SF plan: "Despite the efforts made by several European companies, undue short-term market pressures may make it difficult to lengthen the time horizon in corporate decision-making. Corporate managers may become overly focused on short-term financial performance and

disregard opportunities and risks stemming from environmental and social sustainability considerations. As a consequence, the interactions between capital market pressures and corporate incentives may lead to unnecessary exposure in the long-term to sustainability risks. The Commission will engage with all relevant stakeholders to analyse this issue more closely" (European Commission 2018a, p. 13). This paragraph shows that the authors of the plan have probably not fully grasped the operating principles of capital markets. Short-term investments/transactions are inherent components of these markets as they generate market liquidity. If investors invested their financial resources only for the long-term, trading on the markets would die out completely and then the capital market would fail to deliver its primary functions: mobilisation, evaluation and transformation of capital. The freedom of market participants to operate is fundamental to the growth of the capital market: no one can deprive them of the right to withdraw from an investment at any time, and similarly no one can restrict the time horizon of an investment, since it is subject to agreement between the capital recipient and the capital provider. Under these circumstances we can clearly see that, for the purposes of sustainable growth, banking sector financing is a far better option because it sees long-term investment projects as a standard solution and loan agreements are different by nature from capital market instruments. The question is why combine sustainable finance with the capital market, which is ruthless and very dynamic and which holds corporate boards accountable for, among others, failed short- or long-term decisions? The investigation into the content of the plan suggests that perhaps the point is to develop the market of investment funds working towards the accomplishment of sustainable investment principles and ideas that should increasingly replace the financing of ESG projects from public funds[1] with private investment, especially in the face of the deepening investment gap[2]. In fact, investment funds are capital market operators, but there is no coincidence between their operations and the "undue short--term pressure from capital markets" (European Commission 2018a, p. 3). We should not equate all capital market activities with sustainable finance.

[1] "The EFSI has proven to be instrumental in crowding in private investment for strategic projects across the EU, mobilising almost EUR 265 billion in total investments. Following its successful first years of operation, the EFSI has been recently extended until 2020 (EFSI 2.0) and its investment target has been raised to half a trillion euros" (European Commission 2018a, p. 7).

[2] "Europe has to close a yearly investment gap of almost EUR 180 billion to achieve EU climate and energy targets by 2030. According to estimates from the European Investment Bank (EIB), the overall investment gap in transport, energy and resource management infrastructure has reached an astounding yearly figure of EUR 270 billion" (European Commission 2018a, p. 3).

The growth in sustainable investment and the increasing share of its volume should follow evolutionary rather than revolutionary patterns. The trend is reflected in the data (see Table 1). A clear rising trend is observed for the absolute value of assets of the European Responsible Investment Funds and for the share of this market in the total European market of investment funds. It is not a quantum leap, but the change is indicative of the growing importance of SRI among classical investment solutions.

Table 1. The Investment Funds Market in Europe, 2010, 2012, 2014 and 2016

Specification	2010	2012	2014	2016
Net Assets of European Investment Funds (billion EUR)	8 573	9 468	12 030	14 142
Net Assets of European Responsible Investment Funds (billion EUR)	251	287	376	476
Percentage of Net Assets of European Responsible Investment Funds in Net Assets of European Investment Funds	2.9	3.0	3.1	3.6

Source: author's own calculations based on data from Delbecque & Carroll (2017, p. 3) and *European Responsible Investing…* (2017, p. 6).

The sustainable investment segment is one of elements of a broadly understood investment pool flowing through the capital market. For the time being it is rather a marginal, and not a dominant, part of capital market operations.

When it comes to the short-term driven approach exhibited by capital markets, in Action 10 we read: "The Commission invites the European Supervisory Authorities (ESAs) to collect evidence of undue short-term pressure from capital markets on corporations and consider, if necessary, further steps based on such evidence by Q1 2019. More specifically the Commission invites ESMA to collect information on undue short-termism in capital markets, including: (i) portfolio turnover and equity holding periods by asset managers; (ii) whether there are any practices in capital markets that generate undue short-term pressure in the real economy" (European Commission 2018a, p. 14). Since no ESMA report has been published in this field yet, it is hard to predict what evidence of practices exercised in the capital markets and leading to undue short-term pressure in the real economy will be collected. However, our observations of capital market operations in the real economy within the EU, including mainly the stock markets, suggest that it will not be difficult to collect such evidence.

This is because, usually, whenever investors learn about poor the financial performance of companies they rapidly dispose of their assets; negative stock market indices reduce interest in investing in these markets, etc.; and all of this happens rapidly and within very short time spans. It would be interesting to know what measures will be put in place based on the collected evidence and how coherent they will be with the building of capital the markets union. In 2019 the Commission is due to release a report on the implementation of the SF Action Plan. In light of the above-presented doubts the report will make a very interesting contribution, especially its part dealing with the capital market. It is not clear to me:

– whether allegations of undue short-term pressure exerted by the capital market concern only sustainable investment or all investment,

– how entities that manage the assets will be held accountable for the period for which investments are made,

– whether there will be any regulations that restrict the freedom of financial market operators to choose the investment time horizon.

These and many other questions that arise from the analysis of the SF Action Plan are not just rhetorical. The answers to them are linked to the key EU initiative designed to shift the channel through which investment assets flow in the European economy, i.e. to the building of the capital markets union, which is expected to change the model by which the European financial system operates.

5. Conclusions

Harmful and highly alarming changes in the natural environment resulting from economic activity pursued by humans have become a challenge that must be faced by today's generations if we want future generations to live normally on our planet. Economic growth still takes precedence over caring for the natural environment, as is clearly demonstrated by the withdrawal of the United States from the so called the Paris Agreement on climate change in 2017. According to what we can read in the Agreement, the United States' share in global greenhouse gas emissions is approximately 18%, putting it in second place in the ranking. China, with its approximately 21% share, is in first place (the EU as a whole generates approximately 12% of global emissions). Contrary to the decision of the United States, the EU has declared that it will be sticking to the Paris Agreement and is undertaking concrete steps to make the idea of sustainable growth a reality. One initiative that is part of this idea

is the EU action plan for financing sustainable development. Undoubtedly, closing the investment gap in sustainable investment is one of the priorities that must be accomplished on the way to sustainable growth. The problem, however, is that the Commission has decided, very unfortunately, to include sustainable finance in the building of the capital markets union in the hope that by making capital market growth more dynamic and by increasing the volume of investment resources it will increase the volume of funds available for sustainable investment. Risk, profit and investment horizon are the principal categories considered by investors. The analysis of the Action Plan in the field of financing sustainable growth shows that sustainable investment may entail higher risk, lower potential profit, and a time horizon longer than for traditional investment projects. The authors of the plan would not only like investors to approve these changed parameters and shift resources to investments meeting ESG criteria, but would also like capital markets to stop exerting short-term pressure on the economy, whatever this postulate means. Challenging the operating principles of capital markets, which so far have not been restricted with any requirements as to the time horizon of transactions, questions the successful accomplishment of the building of capital markets union *per se*.

I believe that including sustainable finance in the process of building the capital markets union is not a good idea, especially in view of the conflicting messages about the role of capital markets that appear in both plans. In my opinion, the first best solution is the sequential implementation of the plans: first the completion of the capital markets union and then the implementation of sustainable finance ideas. The second best solution is the parallel, unconnected implementation of both plans.

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Abstract

Finansowanie zrównoważonego rozwoju wobec budowy unii rynków kapitałowych w Unii Europejskiej

Unia Europejska zmierza do tego, by uczynić kwestie z zakresu ochrony środowiska, polityki społecznej i ładu korporacyjnego (e*nvironmental, social and governance*, ESG) centralnymi elementami systemu finansowego. Likwidacja luki inwestycyjnej odnoszącej się do zrównoważonych inwestycji jest jednym z priorytetów na drodze prowadzącej do zrównoważonego rozwoju gospodarki UE. Niefortunnie postanowiono jednak włączyć kwestie zrównoważonych finansów (*sustainable finance*) w proces pogłębiania integracji rynków kapitałowych w Unii Europejskiej. Zdaniem autorki artykułu nie jest to dobre rozwiązanie. Celem publikacji jest analiza uwarunkowań i zasadności włączania *sustainable finance* w proces budowy unii rynków kapitałowych. Ponieważ podjęty w artykule temat jest zupełnie nowy, brakuje opracowań i artykułów naukowych, które mogłyby stanowić odniesienie dla prowadzonych w niniejszym artykule analiz. Publikacja ta ma przyczynić się do wypełnienia istniejącej w tym zakresie luki.

Słowa kluczowe: zrównoważone finanse, zrównoważone inwestycje, zrównoważony rozwój, unia rynków kapitałowych, Unia Europejska.

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Barbara Wieliczko

CHALLENGES OF EUROPEAN INTEGRATION – TO WHAT EXTENT SHOULD THE COMMON AGRICULTURAL POLICY STAY COMMON?

Abstract

The common agricultural policy (CAP) is considered to be the oldest EU policy and one that covers such a vast range of issues that it leaves almost no room for Member States' policy in this field. Yet the recent consecutive reforms which base their rationale on the common truth that "one-size-does-not-fit all" give more and more room for Member States to make their own choices. Thus, both a theoretical and an empirical question can be posed: what is the optimal solution for the EU and its citizens (acting both as consumers and taxpayers) when it comes to shaping agricultural policy? Should it be an EU policy or should it be left to Member States or even to their regions?

This paper presents an answer to the question posed in the title. The answer is based on the theory of fiscal federalism and environmental federalism as well as practical issues relating to the functioning of EU agriculture based on a literature review.

The results show that there is room for activity by both the EU and the Member States when it comes to agricultural policy. The optimal division of tasks between the EU and Member States, based on the subsidiarity principle, shows that EU policy should focus on safeguarding the competitiveness of EU agriculture and fair competition on the EU common market, while Member States should concentrate on fine-tuning EU policy instruments to the specific needs of their agriculture.

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1. Introduction

The Common Agricultural Policy (CAP) was foreseen by the Treaty of Rome (1957). Yet it was only launched five years later – in 1962. Thus, it has over 55 years of history. It has been changing and evolving ever since its establishment to cater for the evolving needs of the EU[1] agricultural sector. However, its treaty objectives have remained the same. They include (Consolidated Version of the Treaty on the Functioning of the European Union 2008, art. 39):

– increasing agricultural productivity by promoting technical progress and by ensuring the rational development of agricultural production and the optimum utilization of the factors of production, in particular labour;

– ensuring a fair standard of living for the agricultural community, in particular by increasing the individual earnings of persons engaged in agriculture;

– stabilizing markets;

– assuring the availability of supplies;

– ensuring that supplies reach consumers at reasonable prices.

In the 1970s and 1980s, CAP was focused on supply management. In this period, farms became so productive that they were producing more food than was needed. This was a result of the high prices offered to farmers, which led to surpluses that were stored as "food mountains".

Excessive supply forced the EU to reshape the CAP in 1992. The price support was almost fully replaced by a system of direct payments. It was supposed to be a temporary compensation for abolishing the price support. Yet it is still in place today.

In the 1990s, the so-called second pillar of the CAP was developed to its current scale and form[2]. It is also called the EU rural development policy, although it focuses predominantly on the agricultural sector. Among the new policy measures introduced in the 1990s were instruments aimed at supporting farm investment, training, improved processing and marketing of agricultural products, and organic farming.

[1] For simplification, only the current name of the European Union and its abbreviation are used in this paper.

[2] Each programming period brings some modifications and alterations to the set of measures and the way they are implemented, but the general concept remains the same.

Due to the EU's WTO obligations, in 2003 the CAP underwent another reform. This concerned cutting the link between subsidies and production. Therefore, the support was not based on the scale of production but on the area under farming and was conditional on respecting strict food safety, environmental, and animal welfare obligations and standards (GAEC). It must be stated, however, that all the CAP reforms from the 1990s until 2008 were to a large extent motivated by international trade negotiations and it is even argued that this resulted in the internationalization of agricultural policy (Daugbjerg 2017).

In 2015 another reform of the system of direct payments was implemented. It introduced several new payment categories, among which the most important were payments for agricultural practices beneficial for the climate and the environment, the so-called greening of direct payments. These payments are conditional on fulfilling certain obligations related to agricultural practices that should have a positive impact on the environment. Greening of direct payments is supposed to serve as a justification for supporting farmers as suppliers of environmental public goods.

The plans for the CAP 2020+ go even further in the direction of justifying the CAP's support to farmers and focus on transforming the CAP into an evidence-based policy. At the same time, the European Commission wants to transfer even more power to Member States so that they have a bigger say in designing the shape of the CAP in their respective countries.

Although the CAP's priorities stipulated in the Treaty of Rome have remained unchanged, each programming period has to be in line with the key growth and development priorities of the EU. In the 2014–2020 programming period, the CAP priorities are (Regulation (EU) No 1305/2013, art. 4):

a) "fostering the competitiveness of agriculture;

b) ensuring the sustainable management of natural resources, and climate action;

c) achieving a balanced territorial development of rural economies and communities, including the creation and maintenance of employment".

For the next programming period, the European Commission (EC) has proposed following specific objectives (European Commission 2018b, p. 11):

– "support viable farm income and resilience across the EU territory to enhance food security;

– enhance market orientation and increase competitiveness, including greater focus on research, technology, and digitalization;

– improve farmers' position in the value chain;

– contribute to climate change mitigation and adaptation, as well as sustainable energy;

– foster sustainable development and efficient management of natural resources such as water, soil, and air;

– contribute to the protection of biodiversity, enhance ecosystem services, and preserve habitats and landscapes;

– attract young farmers and facilitate business development in rural areas;

– promote employment, growth, social inclusion, and local development in rural areas, including bio-economy and sustainable forestry;

– improve the response of EU agriculture to societal demands on food and health, including safe, nutritious, and sustainable food, as well as animal welfare".

It has been considered the most common EU policy. This is related to the fact that it is a complex policy that applies to all farmers. It also leaves little room for state or regional policy instruments.

The EU treaty clearly states the division of competences related to policy-making in the EU. There are policy areas that are a sole responsibility of the EU (such as trade policy), ones that are shared (such as agriculture and the environment), and ones that are decided exclusively by the Member States. Yet, in a globalizing world with increasing interrelations between companies and citizens, the division of competences may be questioned.

This paper presents an answer to the question posed in the title. The answer is based on the theory of fiscal federalism as well as practical issues relating to the functioning of EU agriculture based on a literature review. Given the specificity of the topic, the theoretical part of the paper is combined with a description of the methodology, that is, a presentation of the key characteristics of the theories of fiscal and environmental federalism.

2. Fiscal and Environmental Federalism

The theory of fiscal federalism has been developing since the middle of the 20th century, with key inputs to its development contributed by Musgrave and Oates. Fiscal federalism is concerned with the problem of the most efficient division of tasks among different levels of government. Already from the beginning this theory's development, a normative framework defining the division of tasks between the central (federal) and regional authorities was created. It was pointed out that central government should be responsible for macroeconomic stabilization of the whole country

and redistribution of income to the poorest regions (Oates 1999, p. 1121). It must be stated that the concept of fiscal federalism has both advantages and disadvantages. According to its proponents, the main advantage is greater efficiency when spending funds (Oates 1999, p. 1122), while the main disadvantage relates to the lack of economies of scale, which can make the task of, for example, tax collection more costly and difficult.

Boadway and Tremblay (2012, p. 1065) mention two key approaches to fiscal federalism. The first of these is the approach inspired by Tiebout. It assumes that the role of regions is to provide public goods of a regional nature in accordance with the preferences of its residents. Central government, on the other hand, deals with the stabilization of the macroeconomic situation. This approach also presents the so-called "decentralization theorem" proposed by Oates.

The second approach emphasizes the heterogeneity of the regions' fiscal possibilities. In addition, it is states that the regions provide not only public goods, but also individual services. Researchers advocating this approach include Musgrave, Scott, and Flatters.

Environmental federalism is related to the problem of fiscal federalism. Moreover, it seeks "ways to reduce the economic and environmental losses associated with the common pool" (Costello & Kaffine 2018, p. 119). In the case of environmental federalism, the rationale for a centrally conducted policy is clearer given the fact that environmental issues cannot be internalized within the administrative borders of a given state. For environmental federalism, dynamic, interactive or dialogic federalism are advocated. These models of federalism envisage the regulatory jurisdiction of either states or the federal government, "depending upon the multiple dimensions of the problem itself" (Engel & Rogers 2015, p. 2).

3. European Agriculture and the CAP

European agriculture is an important part of global food production. It provides raw material for the EU food industry, which exports products worth over EUR 130 billion outside the EU every year (European Commission 2018a). EU agriculture includes almost 11 million farms. Most of the farms are very small both in terms of land and the economic scale of their activity. A growing problem is the ageing of farmers, with approximately 30% of them being over 64 years old. Moreover, the number of farms has been decreasing in recent years (Table 1).

Table 1. Structure of the EU Agricultural Sector

Holdings		2007		2010		2013	
		total	%	total	%	total	%
By UAA (ha)	< 5	9,711,890	70.3	8,490,110	69.3	7,184,430	66.3
	⟨5–10)	1,584,060	11.5	1,337,660	10.9	1,277,230	11.8
	⟨10–20)	1,003,220	7.3	916,570	7.5	888,540	8.2
	⟨20–30)	402,680	2.9	382,560	3.1	374,870	3.5
	⟨30–50)	406,750	2.9	399,160	3.3	387,730	3.6
	⟨50–100)	394,120	2.9	393,890	3.2	388,680	3.6
	≥ 100	305,820	2.2	325,860	2.7	336,740	3.1
By economic size (EUR)	< 4,000	8,682,770	62.9	7,398,530	60.4	6,031,640	55.7
	4,000–7,999	1,773,720	12.8	1,528,830	12.5	1,454,940	13.4
	8,000–14,999	1,051,000	7.6	981,790	8.0	970,810	9.0
	15,000–24,999	622,920	4.5	602,070	4.9	595,430	5.5
	25,000–49,999	623,050	4.5	627,140	5.1	634,520	5.9
	50,000–99,999	465,870	3.4	466,510	3.8	470,670	4.3
	100,000–249,999	390,060	2.8	411,810	3.4	417,470	3.9
	250,000–499,999	131,840	1.0	148,600	1.2	166,880	1.5
	≥ 500,000	67,340	0.5	80,610	0.7	95,950	0.9
By age (years)	< 35	860,620	6.2	912,850	7.5	651,540	6.0
	35–44	2,133,890	15.5	2,031,220	16.6	1,652,510	15.2
	45–54	3,154,630	22.8	2,788,500	22.8	2,486,970	22.9
	55–64	3,131,950	22.7	2,882,260	23.5	2,681,560	24.7
	> 64	4,527,440	32.8	3,631,020	29.7	3,365,690	31.1
Total number of farms		13,808,480	×	12,245,700	×	10,838,290	×
Total UAA		173,376,390	×	175,815,160	×	174,613,900	×
Average farm size (ha)		12.6	×	14.4	×	16.1	×

Source: author's own elaboration based on Eurostat data.

However, EU agriculture is far from homogenous. It is characterized by huge diversity given different climatic conditions and historical development. Its diversity is not limited to differences among the EU Member States but also within their national borders. Yet, even an analysis of the key indicators for an average farm shows that there is hardly any similarity among farms in different Member States (Table 2).

Table 2. Key Characteristics of an Average Farm in the EU Member States (in 2016)

Member State	Farm size (ha)	Standard output (EUR)	Employment
Austria	20.1	46,351	1.3
Belgium	36.7	217,891	0.7
Bulgaria	22.0	18,957	0.8
Croatia	11.6	15,134	0.8
Cyprus	3.2	17,650	2.1
Czechia	130.2	191,555	0.3
Denmark	74.6	287,088	0.7
Estonia	59.6	47,997	0.8
Finland	44.9	70,702	0.6
France	60.9	134,371	0.6
Germany	60.5	178,361	0.6
Greece	6.6	11,059	1.5
Hungary	10.9	15,192	1.1
Ireland	35.5	45,979	0.9
Italy	11.0	45,115	1.3
Latvia	27.6	17,465	0.9
Lithuania	19.5	14,810	1.0
Luxembourg	66.3	185,283	0.6
Malta	1.2	10,642	1.8
Netherlands	32.3	414,638	0.4
Poland	10.2	17,726	0.9
Portugal	14.1	19,863	0.8
Romania	3.7	3,538	2.2
Slovakia	73.6	75,270	0.5
Slovenia	7.0	16,578	0.9
Spain	24.6	40,598	1.2
Sweden	47.9	81,962	1.1
United Kingdom	90.1	137,271	0.6
EU	16.6	34,785	1.1

Source: author's own elaboration based on Eurostat data.

The European Commission strongly advocates the need for a common agricultural policy, stating that "European Union (EU) objectives are better

achieved by one common policy for the whole EU. Firstly, a common policy makes sure that there is a level playing field and fair competition between farmers. Secondly, environmental problems and climate change do not stop at national borders. Thirdly, a common policy allows for Member States and regions to learn from each other. This is particularly important when it comes to developing the potential of rural areas" (European Commission 2019, p. 7).

4. What Does the Theory of Fiscal Federalism Say about the Need for a Common Agricultural Policy?

The question is what level of authority is right for supporting agriculture and rural development issues that are the responsibility of the CAP in the EU. However, it must be borne in mind that, despite the CAP, each EU Member State has its own policy instruments targeted at agriculture and rural areas. In many cases, regions also have their own policy instruments for agricultural and rural development. Therefore, it is worth analysing the division of responsibilities concerning support for agriculture and rural areas.

The EU established a strict set of rules regarding the granting of state aid to farmers. These rules limit the scale and types of public support offered to the agricultural sector. The Member States make different use of this possibility (Table 3).

In the case of the EU, an important legal instrument has been introduced to control the division of powers and responsibilities between the EU and the Member States. This is the subsidiarity principle. It is part of the Treaty on the Functioning of European Union. In the case of agriculture, the responsibility is shared between the EU and the Member States. The delivery of CAP instruments is described in detail in the EU regulations in order to clearly define the division of powers and to ensure that EU public funds are not subject to fraud or other financial misconduct.

When preparing new regulations, the European Commission is obliged to analyse whether the subsidiarity principle has not been breached. The same applies to national parliaments of the Member States, which scrutinise whether or not the EC has changed the balance of power with its proposed regulations.

Yet it is difficult to access where the division of powers should be made. Together with the single market and the process of globalization, the common rules facilitate trade among the EU Member States and the export of EU products to third countries. Therefore, new common rules keep being proposed in order to homogenize the conditions under which farms operate.

Table 3. State Aid for Agriculture in the EU Member States in 2016*

Member State	As % of GDP	In EUR million	As % of EU state aid for agriculture	Member State	As % of GDP	In EUR million	As % of EU state aid for agriculture
Austria	0.04	150.6	2.76	Italy	0.04	679.0	12.43
Belgium	0.01	40	0.73	Latvia	0.08	18.7	0.34
Bulgaria	0.13	63.5	1.16	Lithuania	0.03	12.8	0.23
Croatia	0.20	90.0	1.65	Luxembourg	0	1.8	0.03
Cyprus	0.05	8.8	0.16	Netherlands	0.08	537.0	9.83
Czechia	0.14	240.0	4.39	Poland	0.06	273	5.00
Denmark	0.03	93.0	1.70	Portugal	0.03	49.5	0.91
Estonia	0.05	9.8	0.18	Romania	0	4.4	0.08
Finland	0.16	351.7	6.44	Slovakia	0.03	24.4	0.45
France	0.02	513.1	9.39	Slovenia	0.01	5.5	0.10
Germany	0.04	1,113.8	20.38	Spain	0.05	515.3	9.43
Greece	0.05	79.7	1.46	Sweden	0	18.8	0.34
Hungary	0.16	177.9	3.26	UK	0.01	247.5	4.53
Ireland	0.05	145.1	2.66	EU	0.04	5,464.7	100.00

* Author's own elaboration based on DG competition data. In the case of Malta there is currently no state aid for agriculture.

Source: Wieliczko (2018, p. 64).

An important issue to be considered when dealing with the question of the need for a common EU agricultural policy is the other side to the budgetary policy, that is, taxation policy towards the sector. "It is surprising that given the strong emphasis on common conditions for competing in the agricultural sector no country or lobby group has ever mentioned the need for homogenous taxes in the agricultural sector" (Wieliczko 2012, p. 156).

In the case of EU agriculture, there are certain pros and cons of having a common policy towards the agricultural sector. The reasons for generally include the existence of common challenges, such as globalization, climate change, and ageing of EU farmers. Moreover, the EU single market requires a level playing field for all economic entities. Therefore, a common agricultural policy can serve as means of ensuring similar operating conditions for all EU farmers. Yet there are also arguments in favour of a more decentralized agricultural policy. These include differences in the economic and environmental conditions under which farmers conduct their economic activity.

As regards the functioning of the CAP in the 2021–2027 programming period, the European Commission has proposed greater powers for the Member States. In the introduction to one of the proposals concerning the future CAP, the EC states that "in the Union's highly diversified farming and climatic environment, however, neither top-down nor one-size-fits--all approaches are suitable to delivering the desired results and EU added value" (European Commission 2018b, p. 3). The EC expects that greater powers for Member States in shaping the CAP will enable support for farms to be tailored to local conditions and needs. The role of the EC will be focused on controlling EU-wide policy objectives.

However, the proposed changes do not explicitly state how the EC will ensure that common objectives are met. Moreover, it is not certain that Member States will be given real power in shaping CAP design and delivery, since the EC will have the final say on whether to accept the Member States' proposals. Therefore, at this stage of preparing future CAP reform, it is not clear whether the changes will result in an actual modification in the division of responsibilities between the EC and Member States and whether these changes will improve the effectiveness and efficiency of the CAP.

The problem of effective and efficient division of responsibilities in the field of agricultural policy is a question that should be periodically reconsidered to embrace the new problems and challenges facing the sector. Nevertheless, it is certain that "in the long run, there is no substitute for centralized standards; they represent the most important mechanism

of policy diffusion" (Vogel *et al.* 2010, p. 38). As the experience of environmental federalism in the USA shows, the practice does not follow any theoretical model. It is dependent on the specific issue, hence this model may be called a dynamic one (Engel & Rogers 2015, p. 12).

5. Conclusions

Fiscal and environmental federalism are issues debated both in economics and legal science. An important issue when determining the allocation of power is the question of knowledge of local needs. This is especially important in the case of environmental federalism, where it is even more essential to balance the generation of environmental public goods with other dimensions of socio-economic life at the local level. Yet cooperation is also an important issue as regards delivering effective environmental protection and climate change mitigation and adaptation. The dynamic model for shaping the distribution of competences for agricultural policy in the EU seems to be the right option to balance the need to safeguard the proper functioning of the EU single market with the differences in the situation of the agricultural sector and environmental needs at the regional and local level.

The need for a common EU agricultural policy can be also influenced by the external forces of global trade relations. As Wieliczko states, given the slowdown in globalisation, the impact of this process on reducing the negative impact of the CAP on world trade will be halted and the indirect impact of international factors linked to the maintenance of the strong position of EU agricultural products will increase (Wieliczko 2017, p. 380). This can also undermine the willingness of the EU Member States to undergo long and difficult negotiations concerning the shape of the CAP and the scale of its funding and to opt for national support for farming. This can be exacerbated by differences in the approach towards supporting agriculture visible among the Member States.

Summing up, it may be stated that there is room for activity by both the EU and the Member States within agricultural policy. The optimal division of tasks, based on subsidiarity principle, shows that EU policy should focus on safeguarding the competitiveness of EU agriculture and fair competition on the EU common market, while the Member States should concentrate on fine-tuning EU policy instruments to the specific needs of their agriculture.

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Warsaw, Poland; Faculty of Law, Economics and Social Sciences Sale, Mohammed V University in Rabat, Morocco, http://ec.europa.eu/competition/state_aid/scoreboard/index_en.html.

Abstract

Wyzwania integracji europejskiej – na ile wspólna polityka rolna powinna być wspólna?

Wspólna polityka rolna (WPR) jest uważana za najstarszą politykę Unii Europejskiej. Jednocześnie obejmuje tak szeroki zakres zagadnień, że prawie nie pozostawia miejsca dla polityki państw członkowskich w tej dziedzinie. Jednak ostatnie reformy opierały się na stwierdzeniu, że „jeden rozmiar nie pasuje wszystkim" i przyznały państwom członkowskim więcej możliwości dokonywania własnych wyborów. Można więc postawić zarówno pytanie teoretyczne, jak i praktyczne: jakie jest optymalne rozwiązanie dla UE i jej obywateli (działających zarówno jako konsumenci, jak i podatnicy), jeśli chodzi o kształtowanie polityki rolnej? Czy powinna to być polityka UE, czy powinna być ona pozostawiona państwom członkowskim, a nawet ich regionom?

W artykule przedstawiono odpowiedź na pytanie postawione w tytule. Tę odpowiedź oparto na teorii federalizmu fiskalnego i środowiskowego, a także praktycznych zagadnieniach związanych z funkcjonowaniem rolnictwa UE z odwołaniem do przeglądu literatury.

Wyniki pokazują, że w ramach polityki rolnej jest miejsce na działalność Unii i państw członkowskich. Optymalny podział zadań między UE i państwa członkowskie, oparty na zasadzie pomocniczości, pokazuje, że polityka unijna powinna koncentrować się na ochronie konkurencyjności unijnego rolnictwa i uczciwej konkurencji na wspólnym rynku UE, podczas gdy państwa członkowskie powinny skoncentrować się na dostosowywaniu instrumentów polityki UE do konkretnych potrzeb ich rolnictwa.

Słowa kluczowe: wspólna polityka rolna, rolnictwo Unii Europejskiej, federalizm fiskalny, federalizm środowiskowy, zasada pomocniczości.

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Elżbieta Kawecka-Wyrzykowska

EU'S MULTIANNUAL FINANCIAL FRAMEWORK POST-2020: BREXIT IMPLICATIONS, WITH A FOCUS ON POLAND

Abstract

The aim of the paper is to critically analyse the main elements proposed in the EU's Multiannual Financial Framework (MFF) for 2021–2027 presented by the European Commission in May 2018 and the ways to solve the problem of the Brexit gap. The assessment of the effects of budgetary changes is focused on Poland. In order to achieve the research goals, we conduct a critical analysis of EU documents and a review of the literature.

Britain's exit from the EU may speed up the reform of EU budget revenue. The Brexit gap is so large that EU Member States, despite a general dislike of taxes at the EU level, may accept some of the EU proposals in order to bridge that gap. An increase in GNI-based contributions to the EU budget is also a very possible scenario. On the expenditure side of the budget, the new MFF provides for cuts in spending on agricultural and cohesion policies. As a very large beneficiary of such support at present, Poland will lose relatively the most. The compromise on funding the Brexit gap will significantly affect the EU's ability to finance its priority expenditure after 2021 and thus the possibility to cope with present and future integration challenges.

Keywords: Multiannual Financial Framework, Brexit, EU budget.
JEL Classification: E62, F15, F36, H49, H87.

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1. Introduction

The EU's Multiannual Financial Framework (MFF) constitutes a key document specifying the maximum amounts of revenue and expenditure from the EU budget in a period of several years. Therefore, it determines the scale of measures funded at the EU level. The new MFF, to be effective from 2021, must take account of the possibility of the United Kingdom's exit from the EU (known as Brexit), which was postponed from 29 March 2019 until 31 October 2019 and then again until 31 January 2020[1]. Brexit will bring about a reduction in both the UK's contributions to the EU budget and transfers to the UK economy. Since the country in question is the second biggest net payer to the EU budget, the decrease in EU budget revenue will be much greater than the decline in spending.

On 2 May 2018, the European Commission presented a package of documents containing a draft MFF and accompanying legislative proposals (http://ec.europa.eu/budget/mff/index2021-2027_en.cfm). It was preceded by a series of analytical documents presented in 2017 regarding various aspects of the EU budget and the future of the EU (https://ec.europa.eu/commission/publications/reflection-paper-future-eu-finances_en).

This article aims to critically analyse the main elements proposed in the MFF and to determine the European Commission's approach to adjusting the EU funding system for 2021–2027 to the United Kingdom's exit from the EU. The emphasis is on the scale of reductions in EU budget revenue after 2021 and on the ways of financing it as that part of the budget will be the most affected by Brexit. We also indicate selected proposals for reducing EU budget spending. The Commission's rationale is (partly) that savings need to be made because of Brexit. Furthermore, these proposals concern two areas which are currently the most significant sources of EU transfers to Poland, i.e. cohesion policy and the common agricultural policy (CAP), and their consequences will be very important for the Polish economy.

[1] There is no guarantee, however, that Brexit will actually happen. The withdrawal agreement of the UK from the EU was endorsed by EU leaders on 25 November 2018. The UK was due to leave on 29 March 2019, two years after it started the exit process by invoking Article 50 of Lisbon Treaty. The agreement was not, however, accepted by the British Parliament, whose approval is necessary for ratification. In fact, it was rejected several times by the House of Commons. On 11 April 2019, the European Council agreed – at the request of the British Prime Minister Theresa May – to an extension of the UK's exit from the EU until 31 October. However, at the end of 2019 there are still huge controversies over Brexit among British politicians and in British society.

In order to achieve the research goals, we conduct a critical analysis of EU documents and a review of the literature.

The starting point for the analysis is an assessment of the importance of the multiannual budget to the implementation of EU priorities. This is followed by an estimation of the United Kingdom's current position in that budget and of the scale of funds necessary to finance the gap stemming from the UK's exit from the EU. In that context, the paper presents the Commission's proposals concerning the new MFF for 2021–2027. The findings refer to the implications of the discussed changes, mostly from the point of view of Poland.

2. Importance of the Multiannual Financial Framework to the Process of European Integration

Heated discussions between the EU institutions in connection with the adoption of annual budgets tend to attract significant interest from the public. But the fundamental role in EU actions is played by the Multiannual Financial Framework (MFF). In accordance with the Treaty on the Functioning of the European Union (TFEU), the MFF determines the size of the EU's annual budgets (Articles 310 to 320 of the TFEU). The current own resources ceiling in the budget (the appropriations with the reserve, referred to as the margin) is 1.23% of the EU-28 GNI (Council Regulation No 1311/2013). However, the ceilings on commitment appropriations and on payment appropriations as may be spent by the EU in the period covered by the MFF are lower. As regards the ceiling on commitment appropriations (i.e. funds for the implementation of EU policies, usually in a period longer than one year, after meeting certain conditions), in 2014–2020 it is an average of 1% of the EU-28 GNI, whereas the limit on payment appropriations (to be spent in a given year) is even lower – a mere 0.95% of the EU-28 GNI. The EU budget submitted for adoption must be in balance, i.e. show no deficit.

The Multiannual Financial Framework translates the EU policy priorities into budgetary amounts. Simultaneously, it is an instrument for maintaining budgetary discipline, since expenditures in annual budgets must be consistent with the MFF ceilings. Thanks to covering a period of several years (since the early 1990s – 7 years, whereas the TFEU provides for MFFs adopted for a minimum of 5 years), the MFF also ensures stability in the financing of EU actions: beneficiaries are able to project the level of such spending in subsequent years.

The new MFF should enter into force at the beginning of 2021 as the current MFF expires at the end of 2020. Reaching a new financial compromise will be much more difficult than in the case of the current MFF for 2014–2020, e.g. due to the large revenue gap stemming from the anticipated exit of the United Kingdom from the EU, the new challenges faced by the EU, such as an enormous inflow of immigrants and refugees, the digital revolution, globalisation, demographic changes, socio-economic inequalities, climate change, etc. (European Commission 2017, p. 8). The talks were also slowed down by the European Parliament elections (in May 2019) and the resulting change in the composition of the European Commission, which started its work with a one-month delay, i.e. on 1 November 2019.

The legal basis for an MFF is a regulation adopted by the Council unanimously after obtaining the consent of the European Parliament (given by a simple majority of its component members). Negotiations on the whole package of financial provisions involve – according to the TFEU – three institutions: the Council, the European Parliament and the European Commission. In practice, however, the key elements of the MFF are first established by the European Council.

3. Threats to the MFF Post-2020 Resulting from Brexit

The UK exit from the EU will result in a significant decline in EU budget revenue after 2020. In the agreement with the EU-27 of November 2018 (Agreement 2019, Art. 135) the United Kingdom agreed to continue to honour its financial obligations under the MFF for 2014–2020, even though it would probably earlier cease to be a Member State of the EU. In the case of a "no deal" exit from the EU (without an agreement), which cannot be excluded because of huge Brexit turmoil, the UK may decide to stop contributing to the EU budgets under the present MFF (i.e. in 2020 if Brexit is effective as of this year).

Due to the fact that the United Kingdom is now a major (the second largest) net payer, after its exit the decrease in EU budget revenue (in respect of the UK's payments) will be much greater than the decline in spending (transfers to the United Kingdom). Therefore, there is a risk that funds for EU-27 actions will be reduced from 2021 onwards.

In the literature there are varying estimations of the "Brexit gap" beyond 2020. The differences in these findings are primarily due to the adoption, as the basis for estimation, of different concepts of the EU annual budget, different years for estimation, and different calculation

methodologies (specifically, the inclusion or exclusion of the UK rebate). For example, J. Haas and E. Rubio (2017, p. 1) estimate the yearly net gap amount (net of UK contributions to the EU budget) at EUR 10 billion; E. Kawecka-Wyrzykowska (2018, p. 5) – at EUR 16.5 billion (as an average calculated on the basis of data for 2014–2015); and I. Begg (2017, p. 2) – at EUR 17 billion (an annual average for the period 2013–2015), i.e. ca. 12% of EU budget revenue. Each of the above-mentioned approaches shows a significant amount of funds missing from the budget after the United Kingdom's exit[2]. An obvious consequence of such a situation would be reducing appropriations for the financing of EU-27 actions in comparison with current spending. Therefore, an important question is whether the EU Member States will be able to agree on bridging the gap arising after 2020 or whether the EU budget will be reduced.

4. Possible Financing of the Brexit Gap after 2021

The proposal for a Council Decision on the system of own resources of the EU of 2 May 2018 provides for 1.29% of the EU-27 GNI ceiling (in terms of payments; European Commission 2018d, p. 2). This is an increase compared with the present financial period and reflects the higher payment needs of the EU integration process on the one hand, and the proposal to finance the "Brexit gap" on the other. Without raising the ceiling on own resources (set as a percentage of the EU GNI), the absolute size of the EU-27 budget would fall after the withdrawal from the EU of the United Kingdom, a very significant Member State in terms of income (around 15% of the EU GNI). In other words, leaving the own resources ceiling at 1.23% of GNI determined for the EU-28 for 2014–2020, after a decrease in the number of EU Member States and, therefore, a considerable fall in GNI, would result in a decline in the absolute value of the budget.

However, in 2021–2027, as at present, the commitment and payment appropriations will be lower than the ceiling on own resources. Those will be, respectively, 1.11% and 1.08% of GNI (current prices; European Commission 2018b, p. 25). According to the Commission, the above levels are comparable to the size of the current Financial Framework in real terms.

Obviously, every growth in the EU budget, or even only maintaining its level from the current period, after the revenue reduction in respect

[2] All these estimates have been done on the basis of the historical data of the EU budget. They do not take account of inflation, which will increase all items of the budget, including the size of the Brexit gap.

of UK payments, must be reflected in an increase in revenue. As already mentioned, the EU budget must be in balance.

Aware of the reluctance of various Member States to accept any new burdens in the form of additional contributions to the EU budget, the European Commission proposed significant modifications in the financing of the budget (European Commission 2018b, p. 27). The main new elements, presented by the European Commission on 2 May 2018, provide for the introduction of a basket of the following three new own resources:

a) 20% of the Emissions Trading System (ETS) revenues: the ETS (set up in 2005) is a key tool of EU climate policy, conducted for years in order to reduce greenhouse gas emissions. Within the framework of this policy, a number of "allowances" are auctioned by Member States and purchased by companies to cover their greenhouse gas emissions. The system is already significantly harmonised at the EU level.

b) A 3% EU call rate to be applied to the new Common Consolidated Corporate Tax Base (CCCTB) to calculate companies' taxable profits in the EU, including the digital sector. The call rate would be phased in once the tax and necessary legislation has been adopted. This solution would link the financing of the EU budget directly to the benefits enjoyed by companies operating in the Single Market. Each Member State would be free to tax its share of the profits at its own national tax rate.

c) A national contribution calculated on the amount of non-recycled plastic packaging waste (a call rate of EUR 0.80 per kilo). The assumption is that this will create an incentive for Member States to reduce packaging waste and stimulate Europe's transition towards a circular economy by implementing the European plastics strategy.

When assessing the above proposals, it must be stated that the Commission chose such sources of revenue as would allow to better connect payments of specific entities with their benefits from the EU's single market. In some cases (proposals a) and c)) new resources would not only generate receipts to the budget but also foster the achievement of EU climate and environmental policy objectives, which are increasingly important. However, the effects on Member States would vary widely. For example, Poland's ETS--based payment would be relatively high (and likely to significantly increase the country's total contribution) owing to the Polish economy's considerable dependence on CO_2 emissions and the high cost of purchasing additional greenhouse gas emission allowances by undertakings emitting CO_2.

Altogether, the three new own resources could contribute EUR 22 billion per year, which corresponds to 12% of EU budget revenue.

Moreover, simplification of the contributions based on current Value Added Tax is envisaged – they will be based on standard rates only[3].

According to the Commission's proposal, the widely criticised rebates will disappear. On the United Kingdom's exit from the EU, there will be no more reason for the existence of the UK rebate and related rebates (i.e. reductions in its financing for Austria, Germany, the Netherlands and Sweden). As regards rebates connected with call rates for the VAT-based own resource and the lump sum reductions for contributions based on GNI, these will automatically expire at the end of 2020. Let us note that such changes would bring about a significant increase in payments from the Member States currently benefiting from reductions[4]. Therefore, the Commission proposed the phasing out of the rebates over a period of 5 years.

According to the proposal for the MFF for 2021–2027, there will also be a reduction in the collection costs retained by Member States from traditional own resources (mainly from customs duties) from 20% to 10%.

The Commission also emphasised that a swift political agreement on a new EU budget would be essential to demonstrate "that, following the withdrawal of the United Kingdom in 2019, the Europe of 27 is unified, has a clear sense of purpose and direction, and is ready to deliver. And it would give the best possible chance for new programmes to hit the ground running on schedule on 1 January 2021, turning political objectives into quick results on the ground" (European Commission 2018c, p. 18). In addition, as stressed by the Commission, an early agreement is important not only from the political but also from the practical point of view, as the EU funding will directly affect many beneficiaries and all of them need legal and financial certainty. Any delay in the adoption of the MFF will have negative implications for the launch of the new programmes and consequently to the achievement of funding priorities (European Commission 2018c, p. 18).

The Commission's position is naturally justified and correct but it will not be easy to achieve the adopted goals, not to mention a swift agreement. In practice, the proposal for a basket of new own resources of the budget means accepting new taxes at the European level. At first glance it seems that it should be positively assessed by EU Member States as it offers bigger financing of the EU budget, without an increased burden on

[3] Let us note that this is not a new proposal. It was already discussed in the early 2000s, albeit in a somewhat different form – see, for instance, Cattoir (2004).

[4] The most affected Member State would be Germany, whose contribution to the EU budget would increase only in respect of the elimination of its "rebate on the United Kingdom rebate" by approx. EUR 1 billion per year (European Parliament 2016, p. 5).

national budgets. The costs of additional funding would mostly be borne by enterprises (the CCCTB and ETS proposals) and consumers (the ETS and plastic packaging waste-based payments). However, many countries have "always" fought against any European tax, treating it as the strengthening of the powers of the Commission (as an institution over which the citizens have no control) and the weakening of national fiscal sovereignty and thus of political sovereignty as well. In previous years the Commission submitted various proposals for the introduction of a tax as a source of co-financing for the EU budget, but it was never successful in obtaining the Member States' consent. The difficulty in arriving at an agreement is that deciding on the system of own resources of the EU budget requires the Council to act unanimously and all the EU Member States to ratify such a decision (Article 311 of the TFEU). The chances are, however, that at least some of the Commission's tax proposals (or yet another tax)[5] will be accepted, since this time the situation is different – a revenue gap of more than ten billion euros caused by Brexit and new challenges requiring extra financing.

Another option to cover the Brexit gap is to increase GNI-based payments. That would be the simplest solution in technical terms. This payment is a somehow automatic mechanism of national contributions (due to its residual character)[6]. Moreover, the method for calculating it is easy and transparent. The main problem is that the increase in GNI-based contributions would mean a very uneven financial burden on individual Member States. The countries to be hit hardest would be the present largest net contributors as they would become even bigger net payers to the EU budget. Such a solution would be politically unacceptable for those countries. A solution to mitigate this problem might be the introduction of new rebates (see: Kawecka-Wyrzykowska 2018, p. 6).

Failure to find appropriations for financing the gap would necessarily involve dramatic cuts in current budget items, including expenditure on cohesion and agriculture. Such reductions would have to be even sharper if the EU Member States intended to simultaneously increase spending on new priorities such as border protection and migration, youth mobility,

[5] The Commission itself presented the possibility of adding other sources of revenue in the form of seigniorage (revenue from the production of the euro that exceeded the cost of production of the euro) or revenues from the new European Travel Information and Authorization System (European Commission 2018a).

[6] The residual character of GNI-based resource means that it supplements revenue when the proceeds from traditional own resources and the VAT-based resource are not sufficient. National contributions of GNI resource are calculated according to the share of Member States in the EU GNI.

environmental and climate protection, i.e. areas where the most significant growth in expenditure was proposed by the Commission. However, deep cuts in expenditure would give rise to strong objections by a number of countries which considerably benefit from the cohesion and agricultural policies.

Even before the submission of specific proposals by the European Commission in May 2018, the European Parliament took a position on the new MFF. This opinion is important as the Parliament must approve the MFF after its adoption by the Council, although it is not entitled to negotiate on the MFF or to modify the Council's arrangements. In its resolution of 14 March 2018, the EP stated as follows: "ahead of a decision on the post-2020 MFF, the 'Brexit gap' should be bridged while guaranteeing that EU resources are not reduced and that EU programmes are not affected negatively" (European Parliament 2018b, point 17). In practice, this means that the Parliament is not inclined to accept any deeper reductions in expenditure on the cohesion and agricultural policies.

5. The Commission's Proposals for Savings in the EU Budget after 2020

The financial package for 2021–2027 provides not only for new revenue resources (taxes) but also for savings. These apply to the two biggest types of expenditures from the EU budget: the common agricultural policy and cohesion policy.

In its Communication of February 2018, the Commission pointed to the positive role played by rural development programmes (European Commission 2018c, p. 12). With regard to direct payments, currently representing 70% of the CAP budget (with rural development and market intervention measures accounting for 25% and 5%, respectively), the Commission stated that "Discussions are ongoing as to how to make best use of direct payments. Today, 80% of direct payments go to 20% of farmers".

Characteristically (certainly not incidentally), the Commission pointed out in its previous document from 2017 that "Apart from the rural development measures financed under the second pillar of the CAP, this is the only policy area managed together with the Member States without national co-financing" (European Commission 2017, p. 19). It may be interpreted as possible consideration of the national co-financing of payments in the new MFF. Such an option was explicitly mentioned by certain scholars and agricultural experts (e.g. Darvas & Wolff 2018, p. 3; Begg 2017, p. 6).

In support of topping up direct payments, regional policy chief Corina Cretu stated that "National co-financing could be considered an option

for direct payments" and added that "farmers don't mind whether CAP money comes from Brussels or the national coffers" (https://www.independent.ie/business/farming/eu/cap-under-pressure-as-most-member-states-reject-cofinancing-of-direct-payments-35942698.html). However, Agriculture Commissioner Phil Hogan said that the vast majority of Member States opposed the idea of co-financing pillar I of the CAP.

Therefore, the idea of introducing the co-financing of direct payments is not purely theoretical. Poland is the sixth largest beneficiary of direct payments in 2014–2020 (Regulation (EU) No 1307/2013). Obviously, any decision on reducing the expenditure in question would involve a deteriorated income position of Polish farmers. At the same time, national co-financing of those payments would necessarily entail cuts in Polish budgetary spending on other important development objectives. However, we must emphasise that the Communication of 2 May 2018, i.e. the Commission's official proposal to be negotiated among the EU Member States, does not mention any national co-financing of direct payments.

According to the Commission's proposal, the reformed CAP will, with EUR 365 billion (European Commission 2018b, pp. 13, 29), account for 28.5% of the MFF commitments scheduled for 2021–2027. This means a reduction of around 5% for the CAP budget at current prices (equivalent to a reduction of around 12% in constant 2018 prices) (http://europa.eu/rapid/press-release_MEMO-18-3974_en.htm). Such cuts in CAP spending will substantially limit income support for farmers and funds aimed at improving the competitiveness of agricultural products.

As regards Poland, the proposal provides for EUR 30.5 billion (8.5% of total spending on the common agricultural policy for the EU-27), of which nearly 70% will be for direct payments and 30% for rural development.

The Communication from the Commission assumes greater flexibility in the utilisation of appropriations at the disposal of Member States as they will have the option to transfer up to 15% of their CAP allocations between direct payments and rural development and vice-versa to ensure that national priorities and measures can be funded (http://europa.eu/rapid/press-release_IP-18-3985_en.htm). The Commission also proposed – undoubtedly under the influence of criticism from Member States, particularly those that joined the EU after 2004 – to reduce the differences in direct payments per hectare[7].

[7] The highest level of basic direct payments in the Netherlands and Belgium (excluding the unusual case of Malta with even higher payments) is around three times higher than in the Baltic states where it is the lowest.

The new CAP will require farmers to better address environmental and climate goals. A portion of the direct payments will be conditional on enhanced environmental and climate requirements. Moreover, at least 30% of the rural development budget of each Member State will have to be dedicated to environmental and climate measures.

According to the Commission, the EU budget plays a crucial role in contributing to sustainable growth and social cohesion. In recent years, however, some regions have actually diverged, even in relatively richer countries[8]. To better address the new situation, the Commission decided to extend the eligibility criteria for support to include new factors: labour market situation, education and demographics (15% of the allocation of all funds); climate protection covering greenhouse gas emissions (1%); migration factors, meaning net migration of non-EU citizens (3%). The traditional gross domestic product (GDP) per capita level (GNI for the Cohesion Fund) will be responsible for 81% of the allocation of cohesion policy funds. Moreover, the national co-financing rates will be increased, which – in the Commission's opinion – will better reflect today's economic realities.

Out of EUR 373 billion (current prices, commitments) of cohesion policy appropriations in 2021–2027, Poland is supposed to receive EUR 72.7 billion, i.e. 19.5% of the sum total (http://europa.eu/rapid/press-release_IP-18-3885_en.htm). In contrast, in the 2014–2020 period, Poland has at its disposal EUR 77.6 billion (current prices) for reducing disparities in socio-economic development, i.e. 22% of the overall amount from the EU budget for that purpose (https://ec.europa.eu/regional_policy/en/information/publications/factsheets/2014/cohesion-policy-and-poland). Therefore, the sum proposed is lower, especially in real terms (taking account of inflation). Nevertheless, in absolute terms, Poland will remain the largest beneficiary of cohesion policy in the EU.

Brexit may have yet another adverse effect on cohesion policy: certain regions will lose support. As a result of the United Kingdom's exit from the EU, there will be a fall in GDP per capita, which will decrease the eligibility threshold for support for the least wealthy regions. N. J. Brehon (2017) estimates that decline at ca. 3.6%, i.e. around EUR 1,000. According

[8] Opinions among economists on the effectiveness of cohesion policy differ but a number of empirical studies confirm the positive effect of this policy on real convergence in the EU. Such convergence (in terms of GDP per capita in PPP, it is in purchasing power parity) is visible at the country's level, as the convergence between regions has been increasing since the deep recession in 2008 (on the review of academic literature relating to the effectiveness of cohesion policy see: Creel 2018).

to his calculations, this statistical effect will cost 12 EU regions their support entitlements. In that group, he also identified the Polish region of Wielkopolska (Brehon 2017, p. 18). Obviously, such regions are likely to get transitional solutions (the phasing-out of support), as was the case before when such situations occurred (e.g. as a result of previous EU enlargements). However, much will depend on the final decisions made, including on the scale of appropriations for that objective.

As cohesion policy plays an increasingly important role in supporting economic reforms in the Member States, the Commission proposed to strengthen the link between the EU budget and the European Semester of economic policy coordination. Let us note that the European Semester is about the enhanced coordination of national economic policies. Therefore, one can expect that the EU Member States will not easily accept the new proposal for making funding under cohesion policy conditional on the implementation of the European Semester priorities imposed by the Commission. But the Commission promised to prepare a "dedicated investment-related guidance alongside the annual Country-Specific Recommendations, both ahead of the programming process and at mid-term to provide a clear roadmap for investment in reforms that hold the key to a prosperous future" (European Commission 2018b, p. 9). However, there is still a risk that the proposed "guidance" will reduce the flexibility of cohesion policy spending in individual Member States.

Under the heading "Cohesion and values", the Commission also proposed increasing the stability and efficiency of the Economic and Monetary Union (EMU) and certain funds to pursue those goals. The rationale is evident. As the Commission argues: "Under the Treaties, the euro is the currency of the EU, and economic convergence and stability are objectives of the Union as a whole. This is why the tools to strengthen the Economic and Monetary Union must not be separate but part and parcel of the overall financial architecture of the Union" (European Commission 2018b, p. 10). For reasons of space, we shall not discuss this issue further here. Let us merely point out that those tools, albeit justified, will not be fully available to Poland as some of them are targeted at euro-area members only.

6. Proposed Inclusion of the Conditionality Principle

The Commission's proposal for the new post-2020 financial rules also included a suggestion as regards conditionality. This concerns the possibility to link the payment of budget appropriations to respect for

the values referred to in Article 2 of the TEU, in particular with regard to the rule of law in Member States (European Commission 2018e). As indicated by the Commission, "under the current Multiannual Financial Framework, all Member States and beneficiaries are required to show that the regulatory framework for financial management is robust, that the relevant EU regulation is being implemented correctly and that the necessary administrative and institutional capacity exists to make EU funding a success". Simultaneously, the new MFF offers an opportunity to evaluate the implementation as well as "the moment to consider how the link between EU funding and the respect for the EU's fundamental values can be strengthened" (European Commission 2018c, p. 16). As a rule, such a mechanism could apply to all policies involving expenditure from the EU budget. The legal basis of a Regulation proposal is Article 322 of the Treaty on the Functioning of the EU, through which financial management rules are set[9].

Under the proposal, the Union could suspend, reduce or restrict access to EU funding in a manner proportionate to the nature, gravity and scope of the deficiencies. This regulation could be invoked when a generalised deficiency as regards the rule of law in a Member State poses threats to, for instance, the proper functioning of the national authorities implementing the Union budget, effective judicial review by independent courts, the prevention and sanctioning of fraud, corruption or other breaches of EU law relating to the budget, the recovery of funds unduly paid, endangering the independence of the judiciary, failing to prevent, correct and sanction arbitrary or unlawful decisions by public authorities, the lack of implementation of judgements[10]. Thus, the coverage of the proposal is very broad. The proposed mechanism would not affect individual beneficiaries of EU funding under the budget, e.g. Erasmus students, researchers, etc. The argument is that they cannot be held responsible for breaches of law.

7. Findings

The decision on the next MFF funds will determine not only the Member States' approach to whether they wish to at least maintain the real size of the budget at the present level (which will require increasing revenue after the withdrawal of the United Kingdom) but, primarily, their choice

[9] The proposed idea of conditionality was supported by the European Parliament in its resolution of 14 March 2018 (European Parliament 2018c, point 4).

[10] Article 3 of the proposed regulation (European Commission 2018e).

of a scenario for the EU's development in the nearest future. As aptly pointed out by J. Barcz, "in recent years, the internal differentiation of the Union has become a fact, a risk of fragmentation of the process of European integration, and a permanent characteristic of the process of European integration" (Barcz 2018, p. 31).

The above conducted analysis has demonstrated how much the future of an internally diverse EU now depends on reaching a compromise on increasing the budget for 2021–2027, at least by the Brexit gap. Without such a compromise, there will be insufficient funds to continue the current integration process, not to mention the new and ambitious priorities of the EU. A larger budget will mean readiness to jointly resolve existing and new problems and to enhance integration benefits. Limiting the budget to the size resulting from Brexit would mean having to reduce appropriations for currently implemented policies, especially the agricultural and cohesion policies, which represent important pillars of the process of European integration. The need to increase the budget is all the stronger that there are new objectives vital to all the EU Member States and whose effective implementation requires greater funds (e.g. counteracting climate change, the digitalisation revolution, the stabilisation of economic and monetary union, and external border protection).

The analysis has revealed that the United Kingdom's exit may speed up the reform of EU budget revenue. The Brexit gap is so large that net payers will object to financing it in technically the simplest but politically the hardest way – i.e. through a GNI increase. Therefore, they are likely to agree on new, additional sources, although not necessarily to approve all three of the Commission's proposals. It is also conceivable that a new rebate will be introduced as a compromise in the adoption of new solutions.

In 2021–2027, expenditure on cohesion policy and agriculture will be reduced. Such cuts would probably be inevitable anyway, but Brexit has made it easier for the Commission to justify them with the need for budgetary "savings" in conditions of lower revenue after 2020.

As in the case of other countries, Poland will receive less money from the EU budget after 2021 compared to 2014–2020. Cuts in funds for Poland (as well as for other Member States) will also result from other proposals of the Commission, only briefly mentioned here or excluded due to lack of space. For instance, those include the option to apply the conditionality principle (the reduction or suspension of EU funding in the event of a violation of EU values) in practice. Invoking such a provision is likely in situations where the Commission raises objections to Poland's

deficiencies as regards the rule of law. Certainly, such a decision would be unfavourable for the country. Other conditions for possible cuts in EU funds for beneficiaries include decreasing the EU co-financing rate for projects funded under cohesion policy, the lack of access to all appropriations proposed for enhancing the stability of the euro area (some items are only targeted at euro-area members), etc. In other words, the sums resulting from the formal division of appropriations among Member States do not adequately reflect the scale of funds expected within the MFF for 2021–2027. The actual amounts will depend on meeting a number of detailed conditions.

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Abstract

Wieloletnie ramy finansowe Unii Europejskiej po 2020 roku – skutki brexitu, ze szczególnym uwzględnieniem Polski

Celem artykułu jest krytyczna analiza głównych elementów propozycji Wieloletnich ram finansowych (WRF) Unii Europejskiej na lata 2021–2027 przedstawionych przez Komisję Europejską w maju 2018 r., w tym dotyczących sposobów zaradzenia luce brexitowej. Ocena możliwych skutków zmian w budżecie UE uwzględnia głównie

perspektywę Polski. Dla osiągnięcia celów badawczych zastosowano metodę analizy dokumentów unijnych i przeglądu literatury przedmiotu.

Wyjście Wielkiej Brytanii z UE może przyspieszyć reformę dochodów unijnego budżetu. Luka brexitowa jest tak duża, że państwa UE, mimo generalnej niechęci wobec podatków na poziomie UE, mogą zaakceptować niektóre ich propozycje w celu pokrycia tego niedoboru. Najprawdopodobniej nastąpi też pewne zwiększenie wpłat z tytułu DNB. Po stronie wydatków projekt nowych WRF przewiduje cięcia środków przeznaczonych na politykę rolną i spójności. Polska, będąca obecnie dużym beneficjentem środków na takie działania, straci na tym stosunkowo najwięcej. Kompromis w sprawie pokrycia luki brexitowej będzie miał istotny wpływ na zdolność sfinansowania po 2021 r. priorytetowych wydatków UE, a tym samym na możliwość sprostania obecnym i przyszłym wyzwaniom integracyjnym.

Słowa kluczowe: wieloletnie ramy finansowe, Brexit, budżet Unii Europejskiej.

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Renata Knap

POPULATION AGEING AND POLAND'S INTERNATIONAL INVESTMENT POSITION

Abstract

The aim of this paper is to try to evaluate the impact of population ageing on Poland's international investment position in the next five decades. To that end, a literature review was carried out along with a comparative analysis of measures of population ageing in Poland and other countries using logical deduction. The results of the study show that the expected intensive progress of population ageing in the 2020–2065 period will contribute to an increased demand for foreign capital, an increasingly negative international net investment position as well as unfavourable changes in the structure of foreign liabilities. The influx of foreign capital caused by population ageing might not translate into the expected maintenance of / increase in the rate of economic growth, while the substantial negative net international investment position may become a barrier to development in subsequent periods.

Keywords: population ageing, international capital flows, international investment position, Poland.
JEL Classification: F21, F43, J11.

1. Introduction

The process of population ageing is of a universal and asymmetric nature. It concerns all countries and regions, but the degree of its progress and its pace differ across countries and regions of the world. This diversification is recognised in the subject literature as a significant factor determining

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the scale and direction of international capital flows and thereby changes in countries' balance of foreign assets and liabilities, i.e. their international investment position.

All the available forecasts of the demographic changes in Poland indicate that over the next five decades the pace of ageing of the Polish population will accelerate significantly. The economic results of the predicted progress of population ageing in the coming decades have been the focus of multiple analyses and discussions presented in the Polish literature on the subject. However, researchers have concentrated on internal determinants, frequently in isolation from the international aspects of the demographic changes caused by the openness of Polish economy and globalization.

The aim of this paper is to try to evaluate the impact of population ageing on Poland's international investment position in the next five decades.

To that end, a literature review was carried out, which allowed the directions of the impact of population ageing on Poland's international investment position in theoretical terms and in empirical studies to be identified. The progress and pace of Poland's population ageing compared to other countries were defined through a comparative analysis of secondary data, such as life expectancy, population growth rate, age ratio, age index, median age, population age structure, and demographic dependency ratio. The results obtained in the analyses of demographic trends in Poland in relation to the demographic changes in other countries were used to define, using logical deduction, the directions in which population ageing impacts on Poland's international investment position.

Statistical material was obtained from the databases of the UN, the World Bank, the National Bank of Poland, and the Central Statistical Office. The research concerns the 1950–2065 period. Therefore, it encompasses an analysis of the actual development of the studied phenomena in the years 1950–2015 as well as a forecast of their development up to 2065.

2. The Theoretical Concept of Population Ageing as a Determinant of the International Investment Position

The international investment position (IIP) is a statistical statement at a given moment in time of foreign financial assets held by residents (receivables from non-residents and monetary gold) as well as of foreign financial liabilities possessed by residents (residents' liabilities to non--residents). The difference between the value of financial foreign assets

and liabilities constitutes the net international investment position (NIIP) (IMF 2009, p. 119).

The IIP reflects an accumulated value of capital flows (financial transactions registered in the balance of payments) made between a given country and the other countries of the world, adjusted for the changes of the value of foreign assets and liabilities not resulting from the conducted transactions (the ones unregistered in the balance of payments). The changes in the balance of foreign receivables and liabilities are thus a result of the influence of two factors: financial transactions (capital flows) between national and foreign entities as well as other changes (not resulting from the transactions) occurring in a given reporting period (IMF 2009, p. 120). Transactions and other changes may therefore be recognized as two separate channels through which population ageing impacts on the IIP (cf. Figure 1).

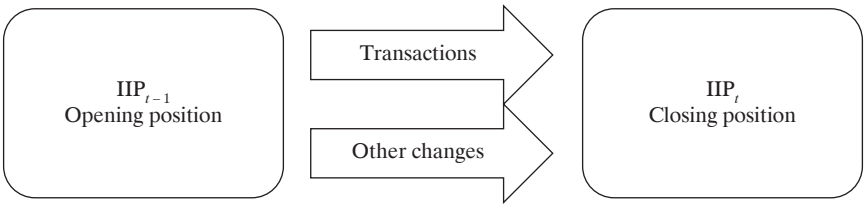


Fig. 1. IIP Change Factors in *t* Reporting Period

Source: author's own elaboration based on IMF data (2009).

In the subject literature changes in international capital flows (the transactions channel) caused by population ageing processes are recognized as the basic channel in which population ageing affects the IIP. This occurs through changes in national savings and investments (Figure 1).

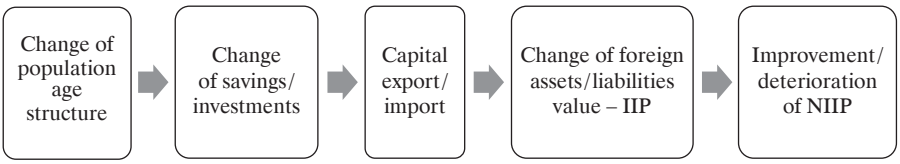


Fig. 2. The Process of Population Ageing Transmission on the IIP – "Transaction" Channel

Source: author's own elaboration.

The theoretical basis of the research presented in the literature concerning the impact of population ageing on international capital flows and on the IIP originate from a life cycle hypothesis formulated by F. Modigliani, R. Brumberg and A. K. Ando (Bárány, Coeurdacier & Guibaud 2016, Gudmundsson & Zoega 2014, Bryant 2006, Börsch-Supan 2004, Higgins 1998). In accordance with that hypothesis, individuals strive to maintain their consumption level at a relatively constant level throughout their entire lifetime. Since income level changes over a life cycle (it increases during the entire period of professional activity until retirement), consumers use the mechanism of borrowing and saving in order to even out the consumption level. Young people typically obtain lower income than their desired consumption level and hence do not save but instead contract loans. Middle-aged people obtain higher income, repay the loans, and accumulate savings in order to maintain the achieved consumption level during their retirement period, which is characterized by a decrease in income. Elderly people at post-working age finance consumption from the life savings they have accumulated. Hence, the hypothesis of a life cycle assumes negative (or very small) savings at a young age, positive savings in middle age, and negative saving in old age (Ando & Modigliani 1963, Modigliani & Brumberg 1954).

The hypothesis of a life cycle is also adopted to explain the impact of population ageing on investment needs (Lane & Milesi-Ferretti 2001). In line with this approach, young populations feature the greatest demand for investment (job creation, satisfaction of educational and housing needs, etc.). In older populations with a substantial percentage of individuals of post-working age, the demand for investment capital drops (a decrease in the supply of labour, shifts in the demand structure from more capital-intensive goods to less capital-intensive ones, etc.).

Therefore, changes in the age structure of a society determine the amount of savings and investments aggregated in the economy[1]. Depending on how advanced the ageing process is, a country shows either a deficit or a surplus of savings in relation to its current investment needs. In countries that are at an early stage of demographic change, with a relatively large percentage of young people, a deficit of national savings is observed and those countries are usually net capital importers from countries with older populations (they record an increase in foreign liabilities and a deterioration of/

[1] Research shows that this regularity relates not only to household savings, but also to corporate and public ones (Chawla 2007, pp. 119–123).

a negative NIIP). Countries in which the population ageing process is more advanced, and in which the share of prime savers is on the rise, demonstrate a growth of savings in relation to investment needs. Those countries export capital to younger economies (they record an increase in foreign assets and an improvement of / a positive NIIP). In demographically old countries with a relatively large percentage of the population at post-working age, the scale of the decline in the level of savings is typically greater than that of investment demand. Furthermore, the demand for foreign capital grows (there is an increase in foreign liabilities and a deterioration of / a negative NIIP) (World Bank 2016).

The presented theoretical interpretations of the influence exerted by the process of population ageing on international capital flows and on the IIP have been confirmed in numerous empirical studies (Bárány, Coeurdacier & Guibaud 2016, Gudmundsson & Zoega 2014, Bryant 2006, Domeij & Floden 2006, Chinn & Prasad 2003, Lührmann 2003, Börsch-Supan, Ludwig & Winter 2001, Attanasio & Violante 2000, Higgins 1998).

The development of empirical studies also revealed instances of irregularities between the theory and the actual impact of ageing on the IIP. Those discrepancies served as the basis for identifying the factors that may modify the influence of demography on international capital flows and the IIP. They include the degree of openness (liberalisation) of capital markets and the differences in the level of financial market development and its safety across countries (Mérette & Georges 2009, Brooks 2003). Moreover, as was demonstrated in the research, saving patterns may in fact differ from country to country and may diverge from the theoretical assumptions of the life cycle hypothesis. On the basis of life cycle models[2], the differences are attributed to the special conditions in individual countries, such as social security level (in particular, pension system security), cultural conditions or level of affluence (Graff, Tang, & Zhang 2012, Dekle 2004, Börsch-Supan 1992).

The second channel through which population ageing impacts on the IIP involves other changes in the value of foreign assets and liabilities not caused by transactions (Figure 1). This occurs through changes, triggered by ageing, in the determinants of foreign exchange rate and in the prices of foreign assets/liabilities and their quantitative changes (Figure 3).

Depending on the course of changes caused by ageing in foreign exchange rates and in the prices of financial assets and their other quantitative changes,

[2] Those divergences became the basis for developing an alternative to the life cycle hypothesis – a behavioural life cycle hypothesis. For more on this subject, see Bańbuła (2006).

this channel may deepen or offset the negative impact of transactions on the IIP. The mechanisms of population ageing affecting the IIP through the "other changes" channel are relatively poorly recognised both in theory and in empirical studies, which produce ambiguous results (Hassan, Salim & Bloch 2011, p. 724; Hassan, Salim & Bloch 2015, pp. 3–4; Lv 2018, p. 303; Gelinas 2018). To a significant degree, this results from the issue's high degree of complexity and from the lack of availability of sufficiently detailed statistical data.

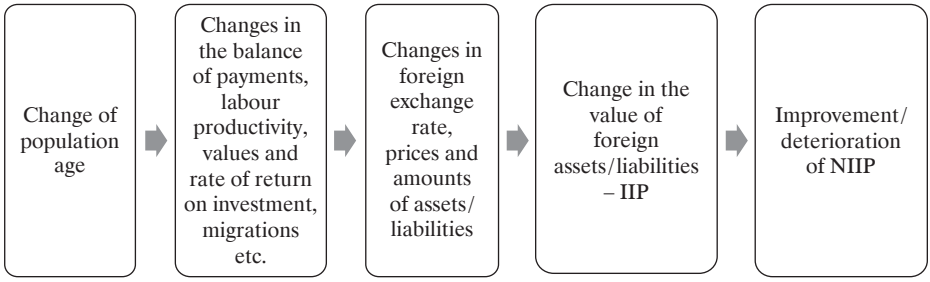


Fig. 3. Process of Population Ageing Transmission on the IIP – "Other Changes" Channel

Source: author's own elaboration.

For this reason, the impact of population ageing through the "other changes" channel is not taken into account in the remainder of this paper. The analysis is limited to the influence exerted by that phenomenon on Poland's IIP via the "transactions" channel.

3. The Process of Population Ageing in Poland

According to the concept of demographic transition[3] and global trends, the socio-economic development of Poland in the post-war period was accompanied by the weakening of demographic dynamics and a rise in average life expectancy. The UN forecasts for Poland for the next fifty years reveal a further increase in life expectancy and a continued decrease in birth rates. In the 2020–2065 period, expected lifespan will be much higher than the global average and will be closer to the average for developed countries. Birth rates, in turn, in contrast to the global average, will be showing negative values. Thus, natural population increase will become a natural

[3] For more on the concept of a demographic transition, see Okólski and Fihel (2012).

population drop, the scale of which will be significantly higher than that observed in developed countries (Table 1).

Table 1. Birth Rates and Life Expectancy in Poland Compared to Economic Regions and to Global Data in the 1950–2065 Period

Years	Birth rate (‰)				Life expectancy (years)			
	Poland	developed	developing	world	Poland	developed	developing	world
1950–1955	18.8	11.8	20.6	17.8	61.4	64.8	41.7	47.0
1960–1965	11.9	10.1	23.0	19.2	68.3	69.5	46.2	51.2
1970–1975	9.0	6.5	24.1	19.5	70.3	71.1	54.9	58.1
1980–1985	9.4	4.7	21.8	17.8	70.7	72.9	59.5	62.1
1990–1995	3.4	2.3	18.6	15.2	71.2	74.2	62.5	64.6
2000–2005	0.0	0.7	15.3	12.5	74.6	75.6	65.5	67.2
2010–2015	0.1	1.1	14,1	11.9	77.0	78.4	69.1	70.8
2020–2025[a]	–2.8	0.1	11.6	9.8	78.7	80.1	71.4	72.9
2030–2035[a]	–4.8	–1.0	9.4	7.8	80.3	81.7	73.3	74.7
2040–2045[a]	–6.2	–1.7	7.6	6.3	82.0	83.2	75.0	76.2
2050–2055[a]	–7.2	–2.0	5.9	4.8	83.4	84.5	76.5	77.6
2060–2065[a]	–8.5	–2.0	4.4	3.63	84.6	85.8	77.8	78.9

[a] Forecast.

Source: author's own elaboration based on United Nations (2018).

Poland's population is further affected by migration flows, the balance of which in the 1950s was negative (Figure 4). Although the forecasts indicate an improvement, it will still remain negative, while developed countries as a group will maintain a high, positive migration balance. According to the forecast, in 2065 Poland will have the greatest negative foreign migration balance in all of Europe, "surpassing" in that regard the net migration of countries such as Romania, Albania or Serbia (UN 2018). The negative balance of migration will contribute not only to Poland's depopulation, but also to changes in the population age structure. Young people (aged well below 65, which include – amongst women – women of reproductive age) predominate among emigrants from Poland (GUS 2018).

As a result of a decrease in birth rates, a rise in life expectancy, and a negative migration balance, Poland's population has been ageing. In the 1950–2015 period, the value of the demographic age ratio, i.e. the percentage of individuals aged 65 and older (65+) in the population in total grew

three-fold – from 5.2% in 1950 to 15.6% in 2015 (Table 2). In line with the UN classification[4], Poland's population changed from a mature population (in which the percentage of people aged 65+ does not exceed 7%) into an old population (in which the percentage of people aged 65+ is higher than 7%).

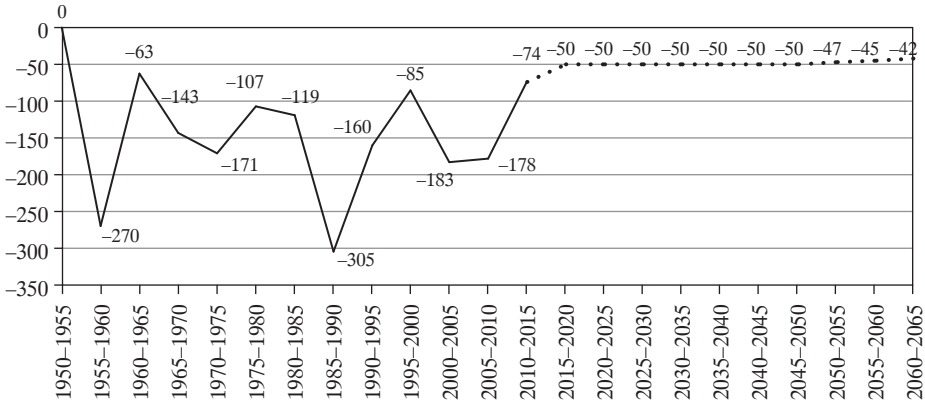


Fig. 4. Poland's Net Population Migration in 1950–2015 and a Forecast for 2020–2065 (1000S of People)

Source: author's own elaboration based on GUS (2018).

In the 1950–2015 period, the value of the age index, which reflects the relation between the generation of grandparents and the generation of grandchildren (the number of persons aged 65+ relative to the number of persons aged 0–14), rose nearly six-fold – from 17.8% in 1950 to 104.9% in 2015. According to the forecast, in 2050 this index will be as high as 299.2%, which means that there will be 300 grandparents per 100 grandchildren (Table 2).

The accelerated ageing of Poland's population is further demonstrated by the change in the population age median, which rose from 25.8 in 1950 to 39.7 in 2015 (Table 2). Already in the 1980's its value exceeded the threshold of 30 years of age, after which a population is considered to be demographically old.

[4] According to the UN classification: young population – the percentage of people 65+ is lower than 4%; mature population – the percentage of people 65+ is between 4% and 7%; old population – the percentage of people 65+ is higher than 7%; very old population – the percentage of people 65+ is higher than 20% (United Nations 2005).

The ageing of Poland's population is also evident in the changes in the demographic dependency ratio, which is the relationship between the number of people in age groups established according to economic criteria (in this paper it was assumed that up to 19 years of age is pre-working age, between 20 and 64 is working age, and 65+ is post-working stage). In the 1950–2015 period, the relation between the number of people of post--working age (65+) to the number of people of working age (20–64) grew in Poland from 9.4% to 24.3% (Table 2).

Table 2. Measures of Population Ageing in Poland, 1950–2065

Years	Age median (years)	Age ratio (%)	Age index (%)	Demographic dependency ratio (%)		
				old age (65+/20–64)	young age (0–19/ 20–64)	total (0–19 and 65+ /20–64)
1950	25.8	5.2	17.8	9.4	70.2	79.6
1960	26.5	5.7	17.0	10.5	74.1	84.7
1970	28.1	8.2	30.1	15.2	69.9	85.1
1980	29.5	10.2	42.5	17.6	54.9	72.5
1990	32.2	10.0	39.6	17.3	56.8	74.1
2000	35.0	12.0	61.5	20.1	47.3	67.5
2015	39.7	15.6	104.9	24.3	31.4	55.7
2030[a]	46.3	23.2	181.6	39.3	30.4	69.7
2050[a]	52.2	31.6	219.6	60.8	31.4	92.2
2060[a]	52.8	35.6	259.2	74.3	34.5	108.8
2065[a]	53.3	35.8	293.8	74.9	34.4	109.2

[a] Forecast.

Source: author's own elaboration based on United Nations (2018).

It is forecast that in the next five decades Poland's population will be undergoing significant advancement of the ageing process. In accordance with UN demographic forecasts, in 2065 the age ratio will rise to 35.8%, the population age median will increase to 53.3, the dependency ratio of elderly people will be as high as 74.9, and the total demographic dependency ratio will be over 109% (Table 2).

A comparison of the measures of Poland's population ageing with the global average and the averages for economic regions shows that in the 1950–2015 period Poland had a relatively young population – the values of the measures in that period were below the average recorded for the group

of developed countries. According to the theory of demographic transition, the progress of ageing in Poland was still higher than the average for less developed countries, which on account of their dominant share in the world population determined the global average values of age ratios (cf. Figure 5).

In line with UN forecasts, in the five decades between 2015 and 2065 the relative demographic position of Poland will undergo radical change. It is predicted that from around 2020 the process of population ageing in Poland will accelerate strongly, which will result in Poland's population showing significantly higher values as regards ageing measures not only in relation to the group of less developed countries and to the world average, but also in relation to the average for highly developed countries (cf. Figure 5).

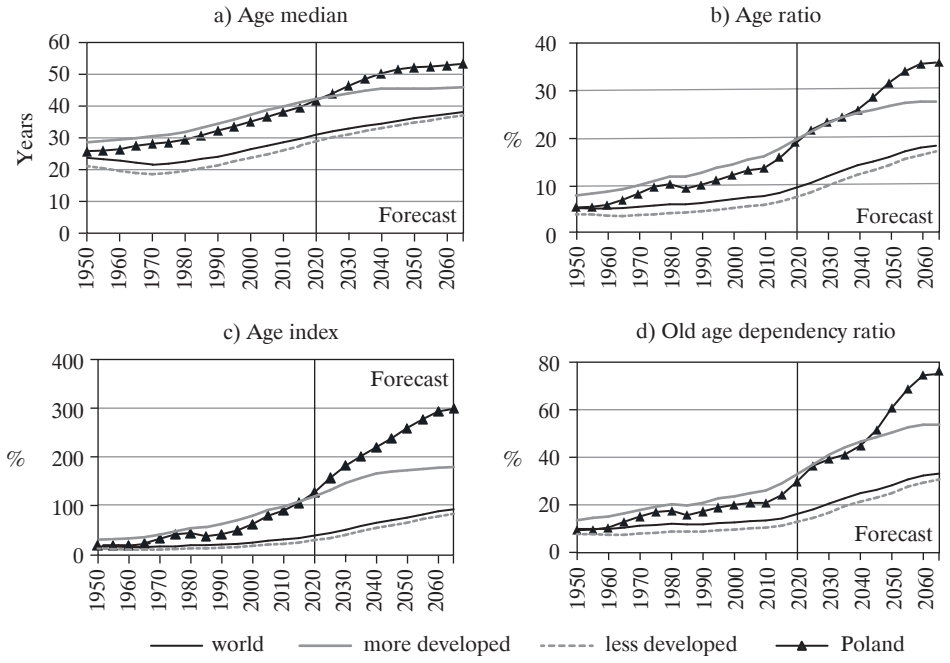


Fig. 5. Selected Measures of Population Ageing in Poland Compared to the World and to Economic Regions, 1950–2065

Source: author's own elaboration based on United Nations (2018).

According to the forecast, in 2065 Poland will be among the top--ranking oldest countries in the world. Owing to the age median and the old age dependency ratio, it will be in fifth place in the ranking of the oldest

populations, its age index will be the third highest in the world, while its age ratio will reach the sixth highest value globally (Figure 6).

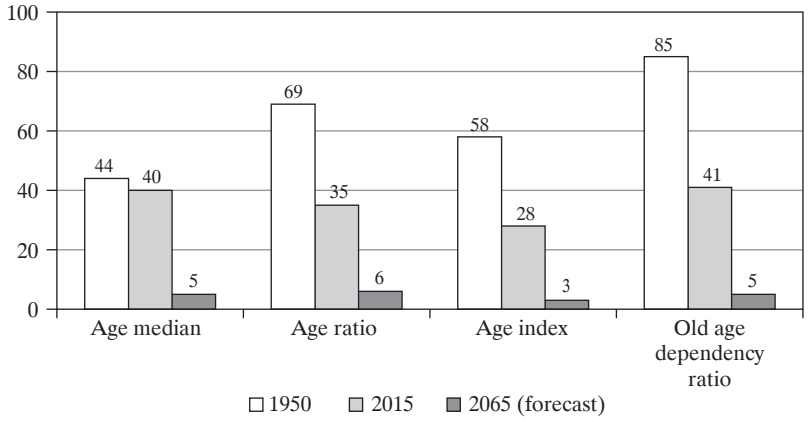


Fig. 6. Poland's Position in the Rankings of the Oldest Countries in the World in 1950, 2015, and 2065

Source: author's own elaboration based on United Nations (2018).

Table 3. Countries with the Highest Values of Measures of Population Ageing in 2065 (Forecast)

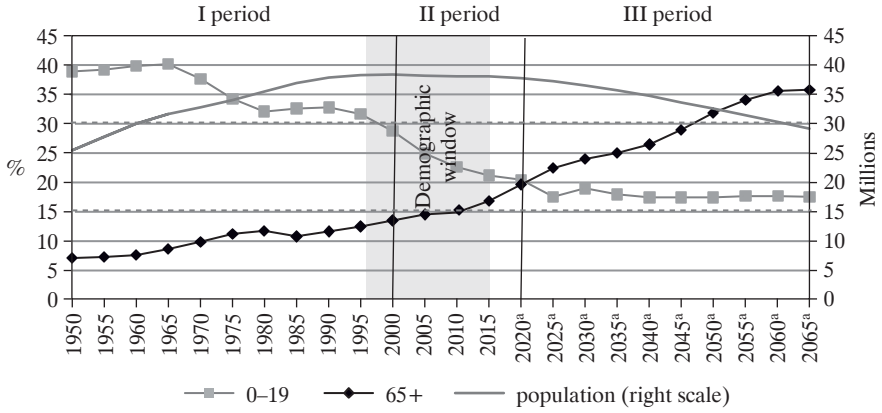
Age median		Age ratio		Age index		Old age dependency ratio	
1. Singapore	54.7	1. South Korea	37.7	1. Singapore	343.5	1. South Korea	82.9
2. Portugal	54.2	2. Taiwan	37.6	2. Portugal	308.7	2. Taiwan	82.8
3. Greece	53.7	3. Singapore	36.8	**3. Poland**	**299.2**	3. Japan	78.0
4. South Korea	53.5	4. Japan	36.2	4. South Korea	296.4	4. Singapore	76.0
5. Poland	**53.3**	5. Portugal	35.9	5. Greece	296.1	**5. Poland**	**74.9**
6. Taiwan	53.3	**6. Poland**	**35.8**	6. Taiwan	290.6	6. Portugal	74.4
7. Portorico	53.1	7. Greece	35.3	7. Japan	283.1	7. Hong Kong	73.5
8. Japan	52.8	8. Albania	34.5	8. Portorico	280.0	8. Greece	72.9
9. Spain	52.3	9. Portorico	34.4	9. Spain	271.6	9. Albania	72.5
10. Saint Lucia	52.1	10. Hong Kong	34.3	10. Saint Lucia	270.6	10. Portorico	70.4

Source: author's own elaboration based on United Nations (2018).

In 2025 Poland's population will turn from old to very old (age ratio of over 20%). In 2065 Poland will surpass most of the highly developed countries in the rankings of the oldest countries in the world, including European Union members, with the exception of Greece and Portugal. Poland will be the oldest country in the region of Central and Eastern Europe and the oldest among the new EU Member States (Table 3).

4. Population Ageing and Poland's International Investment Position

From the point of view of the impact on the IIP, the course of Poland's population ageing process in the years 1950–2065 may be symbolically divided into three periods. The first encompasses the years 1950–2000, during which Poland was a young country with a large proportion (over 30%) of people of pre-working age, a low percentage of people of post-working age (less than 15%), and a growing population (Figure 7).



[a] Forecast

Fig. 7. Changes in the Percentage of People Aged 0–19 and 65+ and the Population of Poland, 1950–2065

Source: author's own elaboration based on United Nations (2018).

The second stage comprises the years 2000–2020, during which the percentage of people of pre-working age fell below 30% and showed a strong falling trend, the percentage of people aged 65+ was at a relatively moderate level (12%–18%), and the population stabilised at approximately 38 million (Figure 7). Furthermore, the percentage of working people aged 45–64, i.e. "prime savers", rose significantly. In the years 2000–2015, for the first

time in the post-war period, the share of prime savers in Poland was higher than the average for developed countries (Figure 8). Therefore, it may be concluded that in the period under discussion, in particular in the years 2000–2015, there was a demographic window in Poland, i.e. favourable demographic conditions, which create an opportunity for achieving economic benefits (a demographic dividend) – Figure 7.

The third period concerns the forecast for the demographic changes in 2020–2065, during which the expected rate of growth in the percentage of elderly people (65+) will be significantly higher than the dynamics of the decrease in the young population (0–19). In 2020 the percentage of the post-working age group will become equal to the percentage of the pre--working age group and will be rising quickly, while the share of young people will stabilise at a level slightly above 16%. Consequently, population ageing will determine the increase in the dependency ratio of people of non--working age from 61.4% in 2020 up to 109.2% in 2065 (Figure 9). Such rapid population ageing, resulting in a growing total demographic dependency ratio, will be accompanied by a significant drop in Poland's population – from 37.9 million in 2020 to 28.7 million in 2065 (Figure 7). An additional, unfavourable phenomenon will be the dramatic decrease in the percentage of prime savers, which is forecast from 2040 onwards (Figure 8).

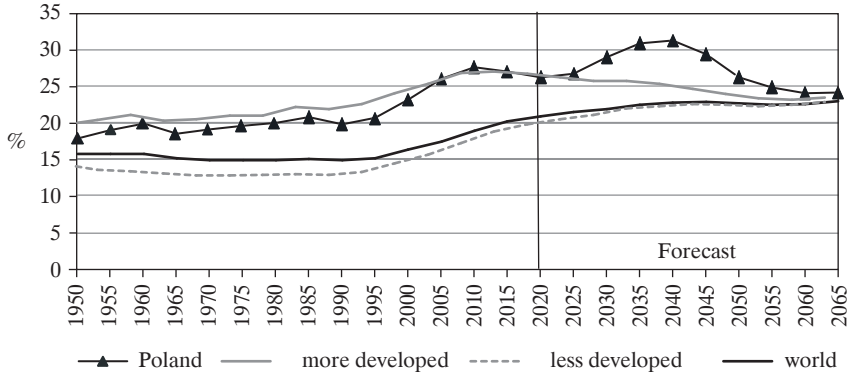


Fig. 8. Percentage of Prime Savers in the Population of Poland, Economic Regions, and the World, 1950–2065

Source: author's own elaboration based on United Nations (2018).

A comparison of the trend in the total demographic dependency ratio (as a synthetic measure of the economic effects of changes in population age structure) in Poland with the average for economic regions and for

the world shows that Poland's demographic position in relation to other countries, particularly in relation to developed countries, may be considered as having been most favourable in the years 2000–2020 (the second period). The demographic dependency ratio of people of non-working age was lower than the global average, the average for developing countries and – for the first time in the post-war period – the ratio remained at a lower level than the average for developed countries (Figure 9). From 2020, as a result of an acceleration in the ageing process, the demographic dependency ratio in Poland will, however, display a constantly rising trend. Around 2045 a substantial deterioration in Poland's demographic position is expected – the total demographic dependency ratio in Poland will exceed the average values of the measure for the world as a whole, for developing regions, and for developed countries (Figure 9).

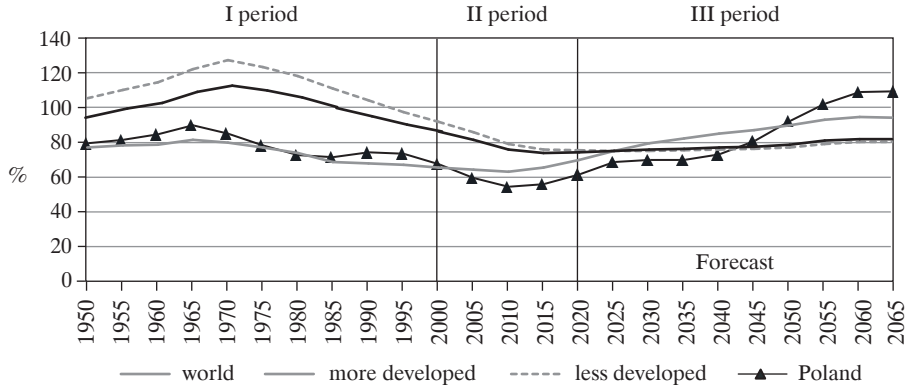
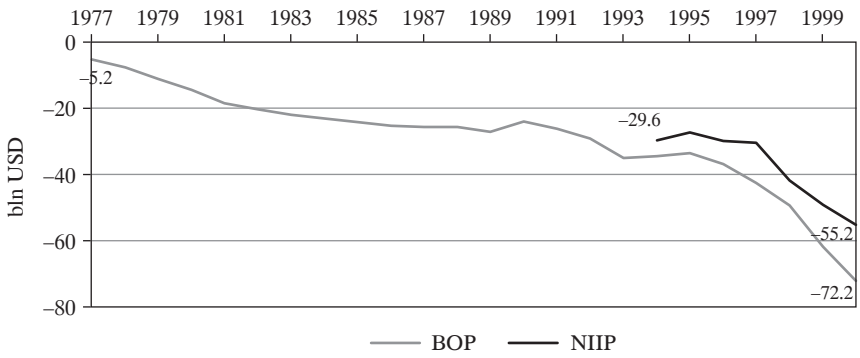


Fig. 9. Total Demographic Dependency Ratio in Poland Compared to the World Average and the Average for Economic Regions, 1950–2065

Source: author's own elaboration based on United Nations (2018).

According to the theory, in the first of the isolated periods, in the years 1950–2000, the relatively low progress of Polish population ageing was a factor behind the inflow of foreign capital from countries with older populations. A shortage of savings in relation to investment needs and an increased demand for external financing, which are characteristic to young societies, ought to result in a deterioration of / a negative NIIP. The specific conditions of the economic system in the first four decades of that period, including the lack of financial openness, modified the influence of demography and limited the influx of foreign capital (Figure 10).



Note: Accumulated current account balance (BOP) as an approximation of NIIP value (data have been available since 1976). Data on Poland's NIIP have been available since 1994.

Fig. 10. Accumulated Current Account Balance (BOP) and Net IIP, 1977–2000

Source: author's own elaboration based on NBP (2018) and World Bank (2018).

In the 2000–2020 period, as a result of the ongoing ageing process, the population changed from a young one to an old one (with a relatively low demographic dependency ratio and a relatively high percentage of prime savers). The advancement and pace of population ageing should thus be conducive to the growth of national savings, import reduction, and an increase in capital exports to relatively younger countries. However, the political transformation, underdevelopment and the process of catching up to the EU-15, and the global economic and financial crisis offset the positive effects of demographic changes in the first decade of the period under discussion. Those changes might, however, have contributed to Poland's improved net international investment position recorded in the second half of that period (in the years 2014–2016) – Figure 11.

Despite the fact that after 2002 the relation of Poland's NIIP to its GDP significantly exceeded the value that the European Commission considered safe from the point of view of external balance evaluation (the so-called "EU threshold", cf. Figure 11), Poland's situation was seen as stable. This was determined by, inter alia, the structure of Poland's foreign liabilities, in which foreign direct investments were dominant (NBP 2016, pp. 20–21).

After 2040 it is likely that the accumulated effects of demographic changes will have a negative impact on the economy, involving: a reduction in labour resources, a decrease in efficiency, shrinkage of the market, a high burden on public finances (including pension payments, health care spending, long-term care, etc.), tax increases (resulting from growing

budgetary expenditure and a decreasing tax base). If those threats transpire, it will additionally cause unfavourable changes (in terms of external balance) in the IIP structure. This will lead to a decrease in Poland's competitiveness and investment attractiveness, in particular for long-term capital, including foreign direct investment, for which Poland will compete with younger economies both in the majority of developed countries and in the dynamically growing, young markets of developing countries. Furthermore, the costs of attracting foreign capital will rise.

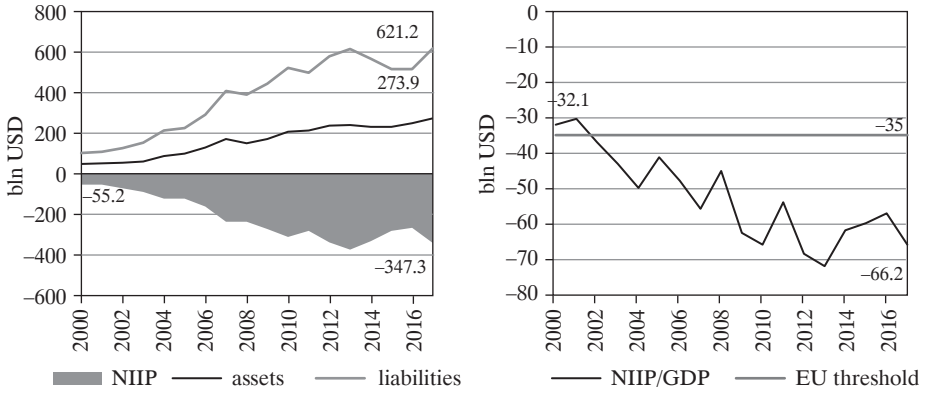


Fig. 11. Poland's International Investment Position, 2000–2017

Source: author's own elaboration based on NBP (2018) and World Bank (2018).

The progress of population ageing will contribute to an increased risk of the unproductive use of foreign capital (not on investment and development, but on financing the deficit in public finances generated by growing pension payments, etc.). Thus, a greater influx of foreign savings might not serve to maintain / increase the rate of growth and development but may cause foreign debt to grow, burdening the economy and making it dependent on external sources of financing. This raises the risk that after 2040 Poland may suffer economic stagnation, fall into "the medium income trap", and find it hard to catch up with other EU economies (Kalisz and Chrapek 2016, World Bank 2014). Therefore, the import of savings from abroad and high negative NIIP may change from a factor enabling / accelerating real convergence of the economy into a barrier to that process.

To conclude the discussion on the impact of population ageing on Poland's IIP, it needs to be stressed that savings and investments, and therefore the balance of capital flows and IIP, are affected by a series of

other factors in addition to population ageing. Those factors modify the influence of population ageing, while some of them may weaken / offset its effects and others may strengthen them[5].

5. Conclusion

After a period of youth in the years 1950–2000 and a mature stage in the years 2015–2020, in the next five decades Polish society will be one of the oldest populations in the world. The predicted progress of the population ageing process will be a factor in the growing demand for foreign capital and deterioration of Poland's international investment position.

The increased inflow of foreign capital from the "old" economy might not, however, translate into the expected maintenance of / increase in the rate of economic growth, while the substantial negative net international investment position may become a barrier to development in subsequent periods.

State policy will play an especially important role in alleviating the negative impact of population ageing on Poland's international investment position and its development opportunities in the coming decades. The priorities of that policy ought to focus on raising birth rates, raising the retirement age, increasing the professional activity of old-age pensioners and women, increasing the influx of migrants, limiting the budget deficit, and improving the net international investment position.

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[5] For reasons of limited space due to its extensive scope, this issue requires a separate study.

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Abstract

Starzenie się ludności a międzynarodowa pozycja inwestycyjna Polski

Celem artykułu jest próba oceny wpływu starzenia się ludności na międzynarodową pozycję inwestycyjną Polski w najbliższym pięćdziesięcioleciu. Dla realizacji celu przeprowadzono badania literaturowe, analizę porównawczą mierników starzenia się populacji Polski i innych krajów oraz logiczne wnioskowanie. Wyniki badań wskazują, że prognozowany wysoki poziom zaawansowania procesu starzenia się ludności Polski w okresie 2020–2065 skutkować będzie wzrostem zapotrzebowania na zagraniczny kapitał, zwiększeniem ujemnej międzynarodowej pozycji inwestycyjnej netto i niekorzystnymi zmianami w strukturze zagranicznych pasywów. Napływ zagranicznego kapitału, indukowany starzeniem się populacji, może nie przełożyć się na oczekiwane utrzymanie lub zwiększenie tempa wzrostu gospodarczego, a duża ujemna międzynarodowa pozycja inwestycyjna netto może stać się barierą rozwoju w kolejnych okresach.

Słowa kluczowe: starzenie się ludności, międzynarodowe przepływy kapitału, międzynarodowa pozycja inwestycyjna, Polska.

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POLISH COMMERCIAL BANKS' EFFICIENCY IN 2009–2016 UNDER STRESS CONDITIONS FOR RECAPITALIZATION

Abstract

In response to the outbreak of the global financial crisis, central banks and regulatory and supervisory bodies undertook a number of measures to mitigate the effects of the crisis and minimize its impact in the future. Changes were also made in Poland in 2009–2016, among others, in the areas of monetary policy (since 2015 interest rates have been at historically low levels), prudential regulations, the functioning of the deposit guarantee scheme, structured bankruptcy, and the so-called bank tax. The aim of this study is to attempt to answer the question of how changes in monetary policy and the regulatory environment affected the efficiency of banks in Poland. The study period was the years 2009–2016 and the sample consisted of the seventeen largest banks, divided into two groups. The division criterion was the value of the solvency ratio as a measure of a bank's capital strength (the limit value adopted was the total capital ratio of 9%). Based on the research conducted, it can be argued that despite the fact that banks with lower capital ratios still achieve higher profitability on banking operations, better capitalized banks have significantly compensated for the gap by further improving the return on assets compared to less capitalized institutions.

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1. Introduction

In 2008, the global financial crisis broke out. At first it affected the financial systems of the developed countries and then translated into crises in the economies of those countries and also of less developed countries, including Poland. Central banks, legislators and regulators have taken a number of steps to mitigate the effects of the crisis and minimize the risk of its recurrence.

A financial crisis can affect banks on two levels: liquidity problems may arise, and losses suffered by these entities may adversely affect their equity holding. From this perspective, it seems reasonable to ask how the changing market conditions are affecting the banking sector in Poland and the possibility of its further growth. In particular, of greatest interest is the question of the efficiency of commercial banks depending on the level of equity they hold.

This text consists of two major parts. The first contains the general characteristics of the banking sector in Poland in 2009–2016. The second is a study of the efficiency of the functioning (in 2009–2016) of the largest banks, divided according to the criterion of equity held. In addition to traditional measures, the Data Envelopment Analysis (DEA) method was used in the study.

2. The Banking Sector in Poland in 2009–2016

The Polish banking sector was tested after the collapse of Lehman Brothers and the subsequent capital tensions which spread throughout the European Banking after 2009. Despite its strong domestic fundamentals, the deep interdependence of local commercial banks and their foreign parent companies turned out to be dangerous. In 2011 65% of banking assets in Poland were controlled by international investors, mostly west-European banking groups. Moreover, over 70% of the financing of domestic activities was by foreign capital. The Basel III implementation schedule and European Banking Authority stress tests enforced the transmission of capital pressure to the Polish banking sector. Political and supervisory actions limited direct capital transfers. Nevertheless, due to group capital evaluation methods for minimal capital ratio requirements, local subsidiaries started aggressive

deleveraging procedures. In 2009–2010, foreign controlled banks reduced credit lines provided to Polish companies by PLN 19 billion, which related to 12.5% of global exposure. The main reason for this, as shown by several analyses, was Capital Adequacy Ratio diversity (Kawalec & Gozdek 2012).

The years 2009–2016 were a period of continuous growth of the banking sector in Poland (Table 1). The growth of this sector took the form of both a steady increase in lending and total deposits[1]. In all those years there were positive dynamics in both areas. Only in 2012 was there a significant decline in these dynamics, although they remained at positive levels[2]. The average growth rate of both deposits and loans was 7%. The increase in deposit and loan activity was accompanied by a systematic improvement in capital condition as measured by the solvency ratio (only 2011 and 2014 saw a slight decrease in this indicator).

Table 1. Commercial Banks in Poland in 2009–2016

Specification	2009	2010	2011	2012	2013	2014	2015	2016
Total loans (in billion PLN)	713.9	787.5	911.3	935.2	971.9	1,043.1	1,118.5	1,172.1
Total deposits (in billion PLN)	836.0	918.2	1,014.2	1,035.9	1,088.3	1,173.5	1,246.3	1,342.5
Net profit in the current year (in billion PLN)	8.3	11.4	15.5	15.5	15.2	15.9	11.2	13.9
Solvency ratio (%)	13.29	13.84	13.10	14.74	15.66	14.69	16.31	17.72
ROA	0.0113	0.0142	0.0169	0.0165	0.0156	0.0153	0.0101	0.0119

Source: Reports on the situation of banks for the years 2011–2016, Polish Financial Supervision Authority Office – UKNF (2012–2016, 2017b).

On the other hand, the sector's profitability measured both in absolute terms (as financial profit/loss) and return on assets (ROA) did not follow the growth in operations. Net profit in the current year in the first and last years of the analysed period was significantly lower than that achieved in

[1] At the end of 2015, for the first time in eight years, the value of deposits from the non-financial sector exceeded the value of loans for this sector (UKNF 2016, p. 5).

[2] According to the Polish Financial Supervision Authority Office (Urząd Komisji Nadzoru Finansowego – UKNF), the reduction in lending growth in 2012 was due to the lower growth of loans to households and businesses, which was caused by the economic downturn and a worse outlook for economic growth and jobs (UKNF 2013, p. 6). On the other hand, the fall in the rate of lending growth to the levels recorded in the final years of the analysed period was not, in the opinion of the NBP, a cause for concern, as the rate was close to the nominal GDP growth rate. It should not have therefore led to the accumulation of imbalances in the economy or been an obstacle to the development of the economy (UKNF 2016, p. 44).

2011–2014. The ROA systematically decreased in 2011–2015. The years 2010–2012 and 2015 were a period of negative dynamics for both measures, and in 2012–2014 the dynamics were close to zero. Considering both international capital pressure and the strength of domestically controlled banks, the fundamental question is whether the higher capital can make banks not only more secure but also more profitable. If this hypothesis were shown to be true, then market regulators and supervisory authorities would have a mandate to pursue further actions focused on banking sector stabilization and long term growth.

3. Determinants of the Profitability of the Banking Sector in 2009–2016

The profits or losses generated by a commercial bank can translate into both its current capital condition and the possibility of raising additional funds on the market. On the other hand, it seems that sufficient equity can determine the ability to generate profit.

The factors that affected the decline in the profitability of the banking sector in 2009–2016 included new banking regulations, low interest rates, increasing charges paid to the Bank Guarantee Fund – BGF (Bankowy Fundusz Gwarancyjny – BFG) and the introduction of the so-called bank tax (Jakubiak 2012, pp. 15–18; UKNF 2017b, p. 28).

The key regulations relating to the capital position of banks during the studied period were Basel 2.5 and Basel III. The first set of regulations was implemented into Polish law in the years 2008–2011 (the legislation introducing these new regulations was: Resolution No. 380/2008; Resolution No. 367/2010; and Act of 28 April 2011). The second package was implemented by the amendment of the Banking Law Act (Act of 1 November 2015).

Basel 2.5 increased the capital requirements for securitizations and correlation trading positions within a bank's trading book as well as incorporated add-ons for stressed Value-at-Risk and incremental risk requirements. Limits were imposed on the ability to manipulate the value of a bank's own funds. Banks were obliged to establish a robust liquidity risk management framework i.e. to develop a strategy, policies and practices to manage liquidity risk in accordance with risk tolerance and to ensure that the bank maintained sufficient liquidity. The rules for the preparation of input data for IRB models were clarified and the so-called concentration limit in another entity was introduced. The most important changes resulting from Basel III included: an increase in the amount and quality of equity;

separation of the Common Equity Tier 1 (CET1), which is intended to cover losses under the solvency conditions of a bank; and the obligation to allocate Tier2 supplementary capital to cover losses in the event of a loss of solvency or liquidation of a regulated entity.

International research shows that low interest rates and a flat yield curve can contribute to poorer financial results for banks[3]. Furthermore, in a low interest rate environment, the net interest margin (understood as interest income to interest-bearing assets) is reduced[4].

Table 2. Selected Interest Rates for 2009–2016 (Annual Average Values in %)

Specification	2009	2010	2011	2012	2013	2014	2015	2016
NBP reference rate	3.67	3.50	4.25	4.60	2.92	2.38	1.58	1.50
Average MFI interest rates on outstanding amounts, PLN denominated								
Deposits: total, overnight included	3.46	2.94	2.99	3.37	2.37	1.67	1.23	1.02
Loans: total, overdrafts included	8.40	8.35	8.47	8.71	7.13	6.25	4.92	4.73

Source: author's own study based on NBP data.

In the first part of the study period, a slight increase in interest rates can be observed (Table 2). However, since October 2010 this trend has changed. Since 2015, interest rates have been historically low.

As part of the adjustment of Polish legislation to the requirements of the EU as of 31 December 2010, the amount guaranteed by the Bank Guarantee Fund was increased to the equivalent of EUR 100,000 (from the previous level of EUR 50,000). Moreover, in the analysed period the parameters of obligatory payments to the BGF were changed[5]. In the meantime, the bankruptcy of two banks occurred[6]. All these factors translated into a steady increase in the burden on the banking sector towards the BGF (Table 3).

[3] This conclusion was based on the analysis of 110 large banks from 14 developed economies for the years 1995 to 2012 (Borio, Gambacorta & Hofmann 2015).

[4] Empirical research was conducted on a sample of 3,418 banks from 47 countries for 2005–2013 (Claessens, Coleman & Donnelly 2016).

[5] For example, in 2011 the mandatory annual fee payable by banks to the aid fund increased from 0.045% to 0.099% of the calculation basis (BFG 2010, p. 23; BFG 2011, p. 24).

[6] In 2015 – for the first time since 2001 – there was a case of disbursement of funds guaranteed to depositors of a bank in connection with the fulfilment of the condition of the BGF guarantee (this concerned the Spółdzielczy Bank Rzemiosła i Rolnictwa in Wołomin – SK Bank). The amount of funds disbursed amounted to about PLN 2 billion. To cover all the liabilities towards the BGF, banks had to make an additional payment to the Fund (BFG 2016, pp. 30–31; UKNF 2015, p. 35). In addition, the bankruptcy of the Bank Spółdzielczy in Nadarzyn (BS Nadarzyn in: BFG 2017) was announced at the end of 2016.

Table 3. Banking sector payments to the BGF in 2009–2016 (PLN million)

Specification	2009	2010	2011	2012	2013	2014	2015	2016
Total amount	320	299	736	824	936	1,165	4,243	2,391

Source: authors' own study based on UKNF data.

On 9 October 2016, the Act on the Bank Guarantee Fund, the Deposit Guarantee Scheme, and Forced Restructuring came into effect (Act of 10 June 2016). This is an implementation of the Bank Recovery and Resolution Directive (BRRD) and the Deposit Guarantee Schemes Directive (DGSD) into the Polish legal system. This law has transformed the existing funds into two new ones: the bank guarantee fund and the bank forced restructuring fund[7]. The funds of the deposit guarantee scheme in banks are expected to reach a level equivalent to 2.6% of guaranteed funds by 3 July 2030[8]. In addition, the Act introduces the so-called forced restructuring mechanism, which aims to minimize the bankruptcy costs of banks[9].

Also in 2016, the Act introducing the so-called bank tax came into effect (Act of 15 January 2016). Pursuant to it, the tax covers all entities of the banking sector that hold assets – adjusted for decreasing items[10] – exceeding PLN 4 billion. The tax base is the surplus above this value. Tax is calculated and paid on a monthly basis. The tax is 0.0366% of the tax base per month. Introducing the tax already in the first year has put considerable pressure on banks' financial profits (UKNF 2017b, p. 34). In 2016 two-thirds of the banking sector paid the bank tax. The banks paid 3198 mln PLN into the state budget (UKNF 2017c).

In view of the above, the question arises as to how banks with different capital levels managed to cope in 2009–2016. In other words, were the banks with higher equity capital more effective at this time than those with a smaller capital base?

[7] Similar funds were created for cooperative savings and credit unions.

[8] At the end of 2016, the security ratio for the deposit guarantee system in banks (bank deposit guarantee facilities / bank guarantee funds) was 1.65% (BFG 2017).

[9] The mechanism of resolution is comprehensively characterized by, for instance, Szczepańska, Dobrzańska and Zdanowicz (2015).

[10] The value of assets is reduced by: own funds, treasury securities, assets acquired from the NBP as collateral for a refinancing loan granted by the NBP. The banks associating cooperative banks further reduce the value of assets by the funds collected in all accounts of affiliated cooperative banks.

4. Methodology

In order to verify the research hypothesis, it was decided to compare the values of selected traditional measures for evaluating banks' activity – i.e. lending growth, ROA and net banking activity income – with those obtained using Data Envelopment Analysis (DEA)[11]. In this case, the DEA method is used to measure the relative technical efficiency of banks[12]. It is a deterministic method that allows us to assess the relative efficiency of a studied entity in terms of its ability to convert inputs into effects[13]. This method is particularly justified when conducting research under strict market regulations, where simple indicator methods do not give a full picture of the situation (cf. e.g. Ćwiąkalska-Małys & Nowak 2009)[14]. It is based on mathematical programming[15], which allows us estimate how effectively banks operate in changing market conditions and whether increasing capital standards has forced an increase in their efficiency.

[11] This is a method developed by A. Charnes, W. W. Cooper and E. L. Rhodes (1978) to measure effectiveness by estimating the edges of a set of production capacities for an empirical function of production. Among the most popular methods of measuring effectiveness alongside the DEA method is the Free Disposable Hull approach (cf. e.g. Tulkens & Vanden Eeckaut 1989).

[12] Technical effectiveness is, in addition to allocation and cost assessment, one of the three most popular research perspectives for the market strength of entities. Technical effectiveness speaks of the ability of an entity to convert inputs into effects. It evaluates the trends determining the market strength of the entities as a result of the changing business environment. In contrast to the allocation perspective, measuring technical effectiveness does not require knowledge of prices, which may be a trade secret of the entities. On the other hand, technical effectiveness is far more applicable than cost analysis, especially in the area of changing capital standards.

[13] In the DEA methodology, it is important to assess the capability of the results obtained depending on the scale of resources used. Market parameters determining the position of a given entity against the competition are treated as results. Typically, these are market parameters that indicate the profitability, scale of a business or the efficiency of an entity. These factors are termed effects in deterministic research. Resources available on a different scale, depending on the specificity of the entity, are applied to their implementation. Typically, they are divided into own resources, which include: fixed assets, know-how, labour and capital, and foreign resources such as customer deposits. These resources are called inputs.

[14] In order to obtain reliable test results, it is necessary to ensure proper selection of the test sample in which the studied entities operate under identical market conditions and pursue similar objectives using identical tools. The differences between entities should arise from the scale of the inputs used and the proportion between them.

[15] Statistical surveys, as well as deterministic methods, use parametric methods that are based on econometric estimation. They allow us to determine the maximum potential level of effectiveness under given market conditions. However, a significant limitation for the use of such methods is the need to estimate parameters and to adopt assumptions about production functions even before the start of the study. The difficulty arises especially in the case of a test sample whose distribution differs from the normal distribution and when the population is relatively small, which is unfortunately the case when analysing a group of commercial banks operating in Poland.

For the purpose of the study, an approach was adopted to show the possible variable scale effects[16]. Evaluation of the technical efficiency of individual entities studied (Decision Making Units – DMUs) is based on solving a linear task defined by the following formula (Matuszyk & Nowak 2012):

$$\theta_o = \max_u z_0 = \frac{\left(\sum_{r=1}^{s} u_r y_{r0} - u_0\right)}{\sum_{i=1}^{m} v_i x_{i0}}$$

$$\sum_{i=1}^{m} \mu_r y_{rj} - \sum_{i=1}^{m} v_i x_{i0} - u_0 \leq 0 \; \forall \; j$$

$$u_r, v_i > \varepsilon \; \forall \; r, i,$$

where:

s – number of effects produced,

m – number of inputs,

μ_r – decision variable, weight associated with the r-th effect in the task referring to the o-th object,

v_r – decision variable, weight associated with the r-th input in the o-th object,

x_{ij} – the value of the i-th input in the j-th *DMU*,

v_{ij} – the value of the r-th effect in the j-th *DMU*,

θ_o – the efficiency index of the o-th *DMU*,

o – index indicating the studied decision-making unit.

ε – infinitesimal constant.

Then, the transformation should be performed using the Charnes-Cooper transformation (linearization) to achieve the linear programming task:

$$\sum_{i=1}^{m} V_i X_{i0} = 1$$

$$\max_u z_0 = \sum_{i=1}^{m} u_r y_{r0}$$

$$\sum_{j=1}^{n} \lambda_j x_{ij} + S_i^+ = \varnothing x_{ij} \; \forall i,$$

where:

S_i^+ – slack values or free variables with non-zero values indicate the inefficiency of the unit.

[16] The basic DEA model assumes the existence of constant return to scale and works especially in shorter research periods. In the case of a time series covering an eight-year period characterized by strong market changes and far-reaching regulatory changes, it is justified to assume the possibility of variable scale effects.

The next step is to add a condition:

$$P(x, y) = \min\{x \to X\lambda, y \leftarrow Y\lambda, e\lambda = 1, \lambda \to 0\},$$

where:

$e\lambda$ – efficiency measure, which is the sum of the linear combination coefficients.

This allows the model to be independent of the variability of the scale effects.

5. Sample

The sample covered commercial banks that were active on the Polish banking market throughout the study period[17]. The study included the seventeen largest banks in Poland, representing almost 80% of the banking sector in Poland, taking into account the balance of loans granted[18]. The choice of sample was dictated by the limitations of the measurement instrument, which is the need to preserve the uniformity of the group in terms of the pursuit of goals and determinants of their activity. The diversification of activity should primarily concern the volume of inputs and the intensity of their application.

The banks were divided into two groups. The first included entities characterized by a potential shortage of sufficient equity. These include: Bank Handlowy w Warszawie SA, Bank Millennium SA, Bank Zachodni WBK SA, Deutsche Bank PBC SA, Euro Bank SA, mBank SA, Bank Polska Kasa Opieki SA (Bank Pekao), Raiffeisen Bank Polska SA, Santander Consumer Bank SA. The second included entities characterized by a better capital position, determining the ability to expand under conditions of rising capital requirements. This group includes: Alior Bank SA, Bank Pocztowy SA, BGŻ BNP Paribas Bank Polska SA, Credit Agricole Polska SA, ING Bank Śląski SA, Powszechna Kasa Oszczędności SA – Bank Polski (Bank PKO). The division of banks into two groups was based on the results of the first comprehensive survey of banks' capital strength in the European Union – the so-called capital exercise – carried out by the

[17] The number of all commercial banks that operated in Poland during the study period decreased by 30% (from 49 to 35).

[18] As of 31 December 2016, the value of granted loans in the portfolio of the studied banks amounted to PLN 918 billion. During the research period, the market share of the studied banks increased from 64.75% to 78.95%, taking into account the balance of loans granted (based on the monthly banking data published by the Polish Financial Supervision Authority Office (UKNF 2017b) and the individual bank data in the Bankscope and Orbis databases from Bureau van Dijk.

European Banking Authority (EBA). The study was the first to show the real level of capital ratios based on Basel III recommendations (EBA 2012). As a limit value, the total capital ratio was determined at 9.00%. In the case of banks included in international banking groups, the value of the ratio was established at the group level. The impact of market regulation was assessed by comparing the average effects achieved by both groups of entities.

6. Findings

Over the whole studied period, banks' lending activity has been growing (see Table 4 for a summary of the percentage changes in the variables tested for each of the groups). Entities from the first group gained an average lending growth of about 8% per year, while those in the second group gained 12%. Characteristic is the significant slowdown in lending growth in 2012 and – also observed in both groups of banks – the gradual slowdown in the final years of the period under review.

Table 4. Continued Relative Growth (%) of the Analysed Variables in the Studied Banking Groups in 2010–2016

Specification	2010	2011	2012	2013	2014	2015	2016
Lending							
Group 1	5.7	15.1	5.7	11.4	10.1	8.0	1.8
Group 2	14.1	14.2	5.8	9.7	18.5	13.7	7.5
Net banking activity income							
Group 1	7.95	4.97	3.97	9.43	2.38	0.32	4.83
Group 2	16.23	10.08	3.68	–0.63	9.00	0.20	11.46
ROA							
Group 1	1.87	–3.58	–2.05	–9.38	–8.04	–11.88	3.63
Group 2	1.91	–6.47	–1.83	–5.21	–7.61	–9.41	3.10
Technical efficiency							
Group 1	–2.51	4.17	–0.10	–4.79	1.16	–1.29	0.26
Group 2	–11.84	11.68	0.52	3.00	–0.74	8.73	0.00

Source: authors' own study.

The analysis of two elementary measures of bank efficiency, i.e. net banking activity income and the rate of return on assets, allows us to conclude that in both groups the changes in the first measure are relatively different, while the changes in profitability are parallel. The banks from the

group stronger in terms of capital are generally characterized by a higher growth rate of banking activity (except in 2013). In turn, in nearly all of the analysed period, the ROA decreased in both groups of surveyed entities, while the banks in the first group recorded slightly greater decreases. The decline of this indicator was halted only in 2016.

In most of the analysed years, the average[19] technical efficiency of all surveyed banks improved. The only exceptions were the years 2010 and 2013. Interesting conclusions may be drawn from the efficiency analysis broken down into poorly and heavily capitalized banks[20]. By 2013, banks with lower capitalization were characterized by higher levels of technical efficiency. In subsequent years the banks in the second group were more effective. It seems that this may be related to the adoption of Basel III at the EU level and determining the directions of the BRRD directive. Higher capitalization banks have become more effective, which can be understood as taking the competitive advantage in a market where capital has become a key asset for business.

7. Conclusions

The years 2009–2016 were a difficult time for banks in Poland. The global financial crisis translated into a downturn both in the external environment and domestically. In response to the crisis, the major central banks and the NBP conducted a lenient monetary policy, which resulted in interest rates falling to historically low levels. The tightening of provisions was made at the regulatory level, including the introduction and implementation of new banking regulations into domestic legislation (e.g. Basel 2.5 and Basel III). Additionally, in Poland, the banks' charges to the Bank Guarantee Fund increased due to obligatory contributions to the Fund, and in the last analysed year, the bank tax was introduced. All these changes had an impact on the banking sector. Based on the research conducted, it can be argued that, in this changing economic and regulatory environment, banks with lower capital levels continue to be more profitable in terms of banking operations, but in recent years higher capitalized banks have been more effective, as they have further improved asset yields compared to less capitalized institutions. These findings should be taken into account when preparing legislation aimed at stimulating long-term sustainable financial market growth. This contradicts the widespread view that increased capital

[19] Calculated as a simple arithmetic mean.

[20] The details for individual banks can be found in the Appendix.

buffers can have positive impact on profitability based on the market share of the institution.

Appendix

Table A1. The Value of the Technical Efficiency Index for the Commercial Banks Surveyed

Bank	2009	2010	2011	2012	2013	2014	2015	2016
Alior Bank	1.00	0.55	1.00	0.79	0.68	0.84	1.00	1.00
Bank Handlowy w Warszawie	0.42	0.32	0.86	0.36	0.45	0.32	1.00	1.00
Bank Millennium	1.00	1.00	1.00	1.00	1.00	0.90	0.88	0.80
Bank Pocztowy SA	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
BNP Paribas Bank Polska SA	1.00	0.75	1.00	0.81	1.00	1.00	1.00	1.00
Bank Ochrony Środowiska SA-BOŚ SA	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Bank Zachodni WBK SA	0.92	0.92	0.57	1.00	0.76	1.00	0.95	0.84
Credit Agricole Polska Group	0.55	0.44	0.37	0.82	0.87	0.58	1.00	1.00
Deutsche Bank PBC SA	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.96
Euro Bank SA	1.00	0.98	1.00	1.00	1.00	0.92	0.85	0.54
Getin Noble Bank SA	0.79	1.00	1.00	1.00	1.00	1.00	1.00	1.00
ING Bank Śląski SA	0.94	0.68	0.79	0.78	0.87	0.94	1.00	1.00
mBank SA	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00
Bank Polska Kasa Opieki SA-Bank Pekao SA	1.00	1.00	0.92	0.98	0.95	0.90	0.95	1.00
Powszechna Kasa Oszczędności Bank Polski SA-PKO BP SA	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00
Raiffeisen Bank Polska SA	0.88	0.80	1.00	1.00	0.79	1.00	0.41	1.00
Santander Consumer Bank SA	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.81
Arithmetic mean	0.91	0.85	0.91	0.91	0.90	0.91	0.94	0.94

Source: author's own study.

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Abstract

Efektywność polskiego sektora bankowości komercyjnej w warunkach zwiększonych obciążeń kapitałowych w latach 2009–2016

W reakcji na wybuch globalnego kryzysu finansowego banki centralne, instytucje regulacyjne i nadzorcze podjęły szereg działań, których celem było łagodzenie skutków kryzysu oraz minimalizowanie prawdopodobieństwa jego wystąpienia w przyszłości. Także w Polsce w latach 2009–2016 dokonano zmian m.in. w obszarach: polityki pieniężnej (od 2015 r. stopy procentowe są na historycznie niskich poziomach), regulacji ostrożnościowych, zasad funkcjonowania systemu gwarantowania depozytów, uporządkowanej upadłości oraz tzw. podatku bankowego. Celem badania jest próba odpowiedzi na pytanie, jak zmiany w polityce pieniężnej i otoczeniu regulacyjnym wpłynęły na efektywność banków w Polsce. Okres badania obejmował lata 2009–2016, próba badawcza składała się z 17 największych banków podzielonych na dwie grupy. Kryterium podziału była wartość współczynnika wypłacalności jako miary wyposażenia kapitałowego banku (jako wartość graniczą ustalono: współczynnik wypłacalności Total Capital Ratio na poziomie 9%). Na podstawie przeprowadzonych badań można postawić tezę, że mimo iż słabsze kapitałowo banki nadal osiągają wyższą rentowność z działalności bankowej, to lepiej skapitalizowane banki istotnie nadrobiły dystans, dodatkowo poprawiając rentowność aktywów w relacji do instytucji słabiej skapitalizowanych.

Słowa kluczowe: bankowość komercyjna, DEA, regulacje bankowe, efektywność funkcjonowania banków.

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