



TOWARD THE "NEW NORMAL" AFTER COVID-19 – A POST-TRANSITION ECONOMY PERSPECTIVE

Ewa Mińska-Struzik
Barbara Jankowska
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ul. Powstańców Wielkopolskich 16, 61-895 Poznań, Poland

phone: +48 61 854 31 54, 61 854 31 55

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CONTENTS

Foreword	5
<i>Ewa Mińska-Struzik, Barbara Jankowska</i>	

Part 1

CHALLENGES AT THE SUPRANATIONAL AND NATIONAL LEVEL 9

1. The economy battling Covid-19: A macroeconomic approach	11
<i>Tadeusz Kowalski</i>	
2. How Covid-19 impacted the European integration processes? The case of EU Cohesion Policy and budget	30
<i>Ida Musiałkowska, Piotr Ideczak</i>	
3. The European Union's Common Commercial Policy and the Covid-19 pandemic: Reactions and challenges	44
<i>Grzegorz Mazur</i>	
4. The future of the European Migration and Asylum Policy	54
<i>Judyta Cabańska</i>	
5. Central Bank Policy toward the Covid-19 pandemic: Seeking patterns among the most powerful central banks	63
<i>Anna Matysek-Jędrych, Katarzyna Mroczek-Dąbrowska</i>	
6. International portfolio diversification during the Covid-19 onset: A study of correlations among CEE post-transition and developed countries	75
<i>Paweł Śliwiński</i>	
7. Foreign direct investment and the Covid-19 pandemic: The real economy perspective and theoretical implications	90
<i>Marian Gorynia, Piotr Trąpczyński</i>	
8. The impact of Covid-19 on the finances of multinational enterprises from the perspective of Balance of Payments transactions	100
<i>Monika Andrzejczak</i>	

Part 2

CHALLENGES FOR BUSINESS SECTORS AND INDUSTRIES 125

1. Internal substitution in the tourism market: Effects of the Covid-19 pandemic	127
<i>Agnieszka Niezgoda, Ewa Markiewicz, Klaudyna Kowalska</i>	
2. Effects of the Covid-19 pandemic on sport, video game, and tourism industry: Sentiment analysis of press, internet articles, and Twitter data	137
<i>Lukasz Bryl, Justyna Majewska, Szymon Truskolaski</i>	

CONTENTS

3. Goods road transport sector facing pandemic crisis 152
Piotr Banaszyk, Sylwia Konecka, Anna Maryniak
4. The Polish logistics real estate market as a link in international supply chains during the Covid-19 crisis 171
Waldemar W. Budner
5. Disruption of European agri-food markets due to Covid-19: The case of Poland 177
Magdalena Śliwińska, Rafał Śliwiński
6. Consumer acceptance of AR Technology in e-commerce in the light of the Covid-19 pandemic: A conceptual perspective 186
Małgorzata Bartosik-Purgat, Tomasz Grzegorzczak, Wiktoria Rakowska
7. Challenges for innovation cooperation in the biopharmaceutical industry during the Covid-19 pandemic 196
Lukasz Puślecki

Part 3

- CHALLENGES FOR COMPANIES** 209
1. The adoption of Industry 4.0 solutions as a remedy against the pandemic crisis – the case of Polish companies 211
Barbara Jankowska, Ewa Mińska-Struzik
 2. Future competences in times of an economic crisis 223
Anna Łupicka
 3. The impact of the crisis on the maintenance of sustainable development initiatives: A comparative analysis of local and international companies 234
Lukasz Małys
 4. Women's entrepreneurship in the Covid-19 pandemic 244
Alicja Hadryś
 5. Challenges in currency derivatives management in the OTC market in Poland during the Covid-19 pandemic 254
Piotr Wybieralski
 6. Donation crowdfunding as a source of relief for small businesses 264
Marcin Wieczerzycki

Foreword

The coronavirus (Covid-19) being a highly transmittable, dangerous and pathogenic viral infection emerged in Wuhan city of China first and later on spread around the world. The outbreak of Covid-19 led to pandemic. A pandemic can be defined as “an epidemic occurring over a wide range of geographical area which crosses the international boundaries and also affects large number of people” (Last, 2001). The Covid-19 pandemic touched practically each country.

The pandemic is not new to us but this pandemic has put an extremely severe and strong impact on societies and economies. The sudden attack of Covid-19 and the way it affected human lives and economies manifests the VUCA concept, black swans phenomenon and wildcards' reality. Since the late 1980s the US military used the term of VUCA to characterize the geopolitical context when the iron curtain fell (Millar, Groth, & Mahon, 2018; U.S. Army Heritage and Education Center, 2018). Heinonen, Karjalainen, Ruotsalainen and Steinmuller (2017) explain the term in detail. V means 'volatility', U stands for 'uncertainty'. Heinonen et al. (2017) point to the fact that within uncertainty we may distinguish two aspects: objective indeterminacy in terms of external and internal factors beyond a company's control and subjective unpredictability with regard to lack of knowledge about large, interconnected economic and societal systems. C means 'complexity' that highlights a multitude of qualitatively different factors or elements that interact in many different ways. The complexity is reflected in the fact that there exist intrinsic webs of interaction, there are no easily noticeable cause-and-effect chains just disruptions that promulgate in vague ways. A represents 'ambiguity' which goes in line with difficulties in interpretation and explanation of causes and effects. A visible manifestation of the VUCA reality are black swans. Black swans concept was introduced in 2007 by a former Wall Street trader – Nassim Nicholas Taleb (2007), who pointed to three attributes of phenomena that deserve the notion: unpredictability of the event, severe and widespread consequences of the event, and after the occurrence of such event, it is often rationalized as having been predictable (hindsight bias). These kind of events differ and they may be regarded as unknown unknowns, unknown knowns and knowns with negligible

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probability of occurrence, thus not believed to materialize (Aven & Krohn, 2014). Unknown unknowns events are completely unknown to the environment, are more likely to occur in the instances of severe and deep uncertainties. Unknown knowns are events unknown to those who conduct analysis, however known to others, such events are not captured because of lack of knowledge or lack of consideration, thus more thorough analysis could have identified them and knowns with negligible probability of occurrence, thus not believed to materialize are events so unlikely to occur that are ignored, those events are on the list of hazards and risk sources but then removed due to extremely low probability. Heinonen et al. (2017, p. 3) explains black swans as highly improbable events that are difficult to anticipate, but if realized, will have dramatic, global impacts, either positive or negative.

Quite similar concept is the idea of wildcard events that according to John Petersen (1999) are events with low probability and high impact. These events have direct impact on human conditions, generate broad, large, important and sometimes fundamental implications, and facilitate the rapid movement for the system do adjust to the change (Barber, 2006).

Being aware what VUCA, black swans and wildcard events mean we easily find the links with the coronavirus pandemic. And we can easily notice that the new normal reality that will hopefully emerge and be developed on the foundation of the volatile, uncertain, complex and ambiguous Covid-19 reality, will be challenging. Thus, policymakers, business people and researchers need to discuss and join forces to create the post-covid societies and economies that will respect the broadly understood sustainability priority. To boost the healthcare systems, develop businesses, maintain jobs, upgrade education, stabilize financial markets we need to first diagnose the present situation and then ask ourselves how to improve the reality.

An attempt to join and facilitate the discussion on the causes, impacts, consequences and recovery strategies in the pandemic realm is the presented collection of 21 chapters addressing the challenges for societies, economies and businesses prepared by researchers from the Institute of International Economy and Business at the Poznań University of Economics and Business. The book is divided into three parts. Part one touches the supranational and national level aspects of the Covid-19 pandemic. Part two focuses on business sectors and industries. And part three provides the perspective of companies. In part one the authors identify and assess the complexities of Covid-19's impact on an economy; shed light on the instruments and solutions proposed within the framework of the cohesion and budget policy in the European Union (EU), investigate trade measures implemented EU as the aftermath of the Covid-19 outbreak and define general potential effects of the current economic turbulences on the future shape of the Common Commercial Policy (CCP). They discuss the future of the migration and asylum

policy in the EU. In this part readers find the chapter in which the authors compare the behavior of selected central banks, which are most significant for the global economy, in order to identify similarities and differences in anti-crisis policies, a study investigating correlations between domestic assets (represented by stock exchange indices in CEE post-transition countries) and foreign assets (represented by changes in selected global exchange indexes) and comparison of interdependencies among stock exchanges in the analyzed periods with the CBOE Volatility Index (VIX) representing investors' expectations for volatility of S&P500 index which is a proxy for the global risk. Within this part readers find a chapter discussing the effects of the Covid-19 pandemic on FDI, too. Part one wraps up with the presentation of the impact of the Covid-19 pandemic on the finances of multinational enterprises from the perspective of the structure of financing, investments and dividend policy.

Part two sheds light on the Covid-19 and post-covid reality within business sectors and industries. This part starts with the analysis of the substitution processes in the tourism market caused by the Covid-19 pandemic. Then authors examine the extent and level of the pandemic impact on sports, videogames and tourism industry using emotional narration of articles related to Covid-19 effects on these industries. In the next chapters authors indicate what effects in transport companies performance in Poland result directly from Covid-19 and speculate on the nature of external support expected by these enterprises, define the threats to the logistics real estate market in Poland, which are posed by the Covid-19 pandemic, and identify trends that shape the functioning conditions on this market in the time of the pandemic. Another sector presented in this part is the agri-food sector. The authors try to answer the question, what was the reaction of Polish agri-food markets on the first wave of the pandemic, which in the case of Poland can be perceived as the period from March until August 2020. Since Covid-19 reality is closely linked with the digital transformation the another chapter provides a model of consumers' AR acceptance in e-commerce. Then the the development of new partnerships and R&D alliances in the biopharmaceutical industry in the time of Covid-19 pandemic is verified.

In part three we learn about the challenges for companies. First, authors briefly present the adoption of Industry 4.0 technologies among Polish companies in the realm of the VUCA world. These solutions may be recognized as recovery measures towards "the new normal" reality. The "new reality" may need new competences, thus in another chapters the authors ask what competences seem necessary for future managers in the pharmaceutical industry in a turbulent environment. Since the pandemic pointed to tremendous challenges in terms of sustainability, the next chapter provides comparison of the declarations of local and international companies regarding the maintenance of sustainable development initiatives in

case of a crisis. Another aspects touched upon in this part of the book are challenges that women entrepreneurs face during Covid-19 and how have women entrepreneurs reoriented their business. Then, challenges in the currency derivatives management in the OTC (over-the-counter) market in Poland during pandemic era are discussed and selected activities undertaken by Polish commercial banks in this regard in the period March-November 2020 are presented. Part three ends with chapter on conditions that allow companies to become beneficiaries of altruistic fundraisers carried out through donation crowdfunding, as well as on potential of this type of crowdfunding to provide relief for small businesses.

The book presenting diverse impacts and consequences that economies, businesses and companies face in the pandemic period and will cope with in the “new normal” after Covid-19 is to be a voice in discussion on how to create a better world. Covid-19 revealed many weaknesses of the global economy, national economies, business sectors and companies. Nevertheless, it is the turning point and opportunity to use the expertise we got and the post-covid recovery strategies to simultaneously address the climate change, biodiversity loss, growing inequalities, future of work, consumption patterns and the issue of distribution of wealth.

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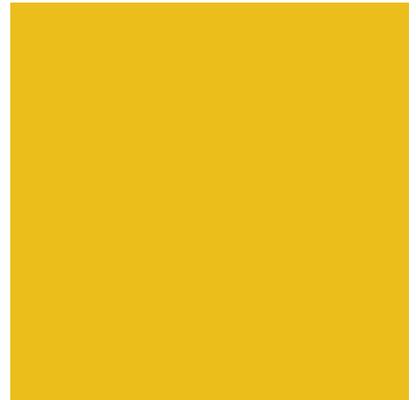
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PART

1



CHALLENGES
AT THE SUPRANATIONAL
AND NATIONAL LEVEL



1. The economy battling Covid-19: A macroeconomic approach



Tadeusz Kowalski

Poznań University of Economics and Business
Institute of International Business and Economics
Department of International Competitiveness
tadeusz.kowalski@ue.poznan.pl

Abstract

Purpose: The chapter identifies the complexities of Covid-19's impact on the economy. The empirical part presents and assesses initial reactions of inflation, industrial production, unemployment rate, Gross Domestic Product (GDP) growth rate, and shifts in the GDP expenditure structure.

Design/methodology/approach: A complete Keynesian macroeconomic model is used to outline how the negative shock hit the economies. The model shows potential implications of the use of reactive economic policy measures. Based on the model, the empirical part provides comparative analyses of reactions of four economies of the European Monetary Union (EMU) – namely France, Germany, Italy and Spain – two non-EMU economies of Hungary and Poland, and two major large open economies: the USA and Japan.

Findings: The Covid-19 pandemic has sent a universal, global shockwave with asymmetric outcomes in individual economies. Covid-19 hit all economies and struck both the demand side and – after a short time lag – the supply side. Although interconnected, the economies have maintained notable structural differences and, therefore their autonomous reactions to negative demand and supply shocks were diverse.

Practical implications: The complete macroeconomic Keynesian model allows for the conceptualization of the transmission of the Covid-19 shock on the economy's supply and demand sides. The model is also a helpful tool in the analysis of the potential role of economic policy in reaction to the supply and demand shocks triggered by the pandemic.

Originality and value: The empirical analyses unveil the eight economies' differentiated reactions to similar counter-crisis policy measures. Their scale in all cases pushed the state

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Kowalski, T. (2021). The economy battling Covid-19. A macroeconomic approach. In E. Mińska-Struzik, & B. Jankowska (Eds.), *Toward the "new normal" after Covid-19 – a post-transition economy perspective* (pp. 11–29). Poznań University of Economics and Business Press. <https://doi.org/10.18559/978-83-8211-061-6/11>

back to the center of economic life. This structural shift requires attention and systematic theoretical and empirical studies.

Keywords: complete macroeconomic model, Covid-19, supply and demand shocks.

1.1. Introduction

This chapter aims to identify and assess the complexities of Covid-19's impact on the economy. The Covid-19 pandemic has sent a universal, global shockwave with asymmetric outcomes on individual economies. The universality of the harmful disturbance has at least two dimensions. Covid-19 hit all economies without exception and it struck both the demand side and – after a short time lag – the supply side as well. Particular economies, although strongly interconnected, have maintained notable structural differences. Therefore, their autonomous reactions to negative demand and supply shocks were diversified.

In order to show the morphology of these compound reactions, a complete macroeconomic Keynesian model is used. It offers insights into how economies autonomously reacted to the disturbances. Therefore, it allows for the conceptualization of the transmission of Covid-19 on the demand and supply sides of the economy and offers insights into actual and potential shifts in their structure. The complete model is also a useful tool to present the potential role of economic policy in reaction to the demand and supply shocks triggered by the pandemic.

1.2. The pandemic of 1918–1920

The flu pandemic that appeared in March 1918 to April 1920 took a greater death toll than the First World War (Table 1).¹ It broke out during the 1918 heavy fights on the First World War fronts in 1918. After four years of battle, malnutrition and the huge scale of the mass mobility of soldiers and civilians, the population of European countries became profoundly vulnerable. After the Armistice in November 1918, the Bolshevik revolution continued in Russia. The fight there brought a high death toll, starvation of millions of people and disorganization of primary public functions. The Poland that reemerged in 1918 fought her own war with Bolshevik Russia in 1919–1920. That war established the final pattern of Poland's eastern borders.²

¹ According to some estimates, the total number of a death toll was higher than both world wars of the XXth century. See: How the Spanish flu of 1918–20 was largely forgotten, 2020, and Johnson & Mueller, 2002.

² The Polish-Bolshevik war formally ended with the signature of the Peace of Riga in March 1921.

Table 1. Mortality of the 1918-1920 influenza pandemic

Location	Published death toll (in 1,000)
Africa	2,375,000
Nigeria	455,000
The Americas	
Total Latin Am	766,000
Total North Am	725,000
The USA	675,000
Asia	26–36,000,000
India	18,500,000
Europe	2,300,646
Russia/Soviet Russia	450,000
Italy	390,000
Spain	257,000
Oceania	85,000
Australia	14,528

Source: Own elaboration based on (Johnson & Mueller, 2002, pp. 105–115).

Due to the war efforts and in order not to spread bad news countries at war filtered not only military news from the fronts but also censored any news that could harm the civilian determination aimed at providing the armies with supplies. Therefore, the first press news about the deadly flu was released by newspapers in Spain, a country that did not take part in the First World War.³ There were four waves of the Spanish flu. It is impossible to establish the precise numbers of cases and those who died of the flu, but the most hit was Asia (Table 1). The total death toll was over 2% of the world's population of that time.

In Europe a very high death toll was recorded in Hungary, Italy, Spain and the former Russian Empire at that time (Barro, Ursua, & Weng, 2020). Despite the fact that people continued to suffer and die due to flu after the Armistice of November 1918 up to the beginning of 1920, in a certain sense the flu was linked to the war and it was counted as part of that tragedy. Delayed social distancing

³ That was the origin of the name of the deadly flu.

was the principal measure that was used to stop the pandemic. Very high numbers of flu cases and the death toll harmed the postwar economies and hindered their economic recovery. There are estimations that in countries that fought in the First World War the real GDP per capita declined on average by above 8%, while the Spanish flu reduced it by an additional 6% (Barro et al., 2020).

1.3. The beginning of the Covid-19 pandemic

The first scattered news about a new virus in the city of Wuhan (capital of Hubei province in the People's Republic of China (PRC)) was spread in December 2019. At the beginning, due to the specific hierarchical state and party structure, the province and state officials played down any queries about the new disease. On January 3, 2020, the Chinese government decided to notify the World Health Organisation (WHO) that a "severe pneumonia of unknown aetiology" had been discovered in Wuhan (Mitchell, Sun, Liu, & Peel, 2020). The authorities, despite evident facts, maintained that the scale of the disease was limited. To show this social gatherings continued in Wuhan. On January 18, one such gathering attracted 40,000 families. Five days later (January 23) the eleven million population of Wuhan entered strict quarantine. However other Hubei province cities continued their unrestricted functioning. This path of events and lack of decisive, concentrated actions was a combination of the centrality bias, lack of transparency, contradicting messages and national pride. They all contributed to a sizable time lag in acknowledging both by the PRC authorities and the WHO that there had been "limited human-to-human transmission" in the city of Wuhan.

The time lag in announcing and designing effective anti-virus measures caused what is now called coronavirus to spread swiftly to other countries. The first case was recorded as early as January 14, 2020, in Bangkok, Thailand. Other cases soon were announced in neighbouring Hong Kong, Japan, Macau, South Korea and Taiwan. In February the first cases were signalled on other continents. In March the pandemic broke out in Northern Italy to spread rapidly on a massive scale throughout Europe and both Americas. Table 2 presents data on Covid-19.⁴

⁴ Data for the People's Republic of China, due to discrepancies in reporting, has not been included in the table. In the rest of the chapter, the analyses are focused on eight countries; Japan and the USA represent high-income economies. France and Germany are also advanced economies and play a key economic role in the EU. Italy and Spain suffered very much during the pandemic of 1918–1920 as in the time of Covid-19. These four countries belong to the Eurozone. Both Hungary and Poland belong to nations that incurred heavy losses due to Spanish flu and Covid-19. Hungary and Poland do not belong to the Eurozone.

In mid-November 2020, as the data on cases and the death toll shows, Covid-19 in its first eleven months is less alarming than the influenza pandemic that broke out at the end of the First World War. Interestingly, in the twenty first century again the USA, Italy, Spain and France recorded the highest numbers of cases and high death tolls (Table 2).

Table 2. Covid-19 cases in selected countries as of November 14, 2020

Location	Case – cumulative total (in 1,000)	Case –cumulative total (in 1,000) per 1 million population	Death toll (in 1,000)
Global	52,852,674	6,710*	1,295,328
France	1,862,666	28,536	42,628
Germany	751,095	8,965	12,200
Hungary	131,887	13,652	2,883
Italy	1,066,401	17,638	43,589
Poland	641,496	16,950	9,080
Spain	1,437,220	30,740	40,461
Japan	114,983	909	1,880
The USA	10,460,365	31,602	241,186

*own estimation.

Source: (World Health Organisation [WHO], 2020).

Initially, without any vaccine, countries had to follow standards of social distancing and thus introduce strict lockdowns. The lockdown inevitably froze sectors that relied on people's mobility the most. The drop in the aggregate demand of their economies was augmented by disturbances in the aggregate supply, stemming mostly from lockdowns in various spots in the global value chains. The PRC – a country from which the disease spread – due to its centrality, ability to impose strict lockdown measures, and stern surveillance of the population, was able to reduce the threat of further contamination and, so far, has not let the coronavirus hit the country's economy in the form of the second wave. According to the official PRC data its economy has returned to growth.

1.4. Conceptualization of the Covid-19 macroeconomic shock

As already noticed in Introduction *we are all Keynesians now*.⁵ The reason is simple; the scale of a negative economic shock stemming from Covid-19 is such that there is a consensus regarding the need of a massive intervention in national economies with the use of fiscal, monetary and direct control instruments. Without such economic policy actions, the economies will continue to be destabilized bearing heavy social costs threatening political stability (Chomsky, 2020; Gopinath, 2020; Kowalski, 2020, p. 42).

In this chapter a complete Keynesian SRAS/LRAS/AD model is used to outline the ways the negative shock hit the economies and to show potential implications of the use of reactive economic policy measures.⁶ The model corresponds to the IS/LM/BP concept (Abel, Bernanke, & Croushore 2016; Kowalski, 2013, pp. 20–22, 37–64;). It also allows for thinking about economic policy design in terms of the philosophy introduced by Jan Tinbergen (1952). The advantages of the SRAS/LRAS/AD model are such that it combines short and long-term considerations that are easily expressed in a graph form. In Figures 1, 2, 3, and 4 P stands for the prices level and Y represents output, whereas Y_n is the full-employment level of output. The LRAS is the long-term aggregate supply. The LRAS schedule might be seen as the normal level of output being a function of labor, capital, and natural resources and total factor productivity. If any of these factors increase it will shift the LRAS schedule to the right.

The SRAS stands for short-run aggregate supply. It reflects a standard assumption, that in the short-run, *ceteris paribus*, prices are fixed and firms, within their capacity are able to produce and offer as much as their customers demand. The aggregate demand (AD) shows relationships between output demanded by agents, *ceteris paribus* and the price level. Any negative event or change for worse in customers' expectations will shift the AD to the left.

Figure 1 shows the initial simultaneous equilibrium between the long-term and short-term output and the aggregate demand. The equilibrium price level (P_0) and the natural level of output (Y_n) signal also that there is no new information that would change economic agents' expectations. Figure 2 presents the reaction of the model economy to a negative shock stemming from Covid-19. The growing

⁵ This is a paraphrase of “we are all monetarist now” that reflected popularity of Milton Friedman’s monetarist revolution that took minds of many macroeconomists in the 1970s. The phrase became broadly used thank to D. Laidler’s article *Monetarism: and interpretation and an assessment*, 1981.

⁶ There are other models that can be used to study economic policy options and challenges. A good example is Robert Mundell’s concept of *effective market classification* (Kowalski, 2013, p. 53–55).

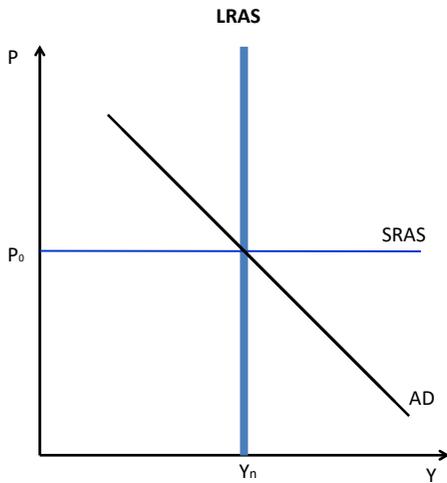


Figure 1. The SRAS/LRAS/AD model

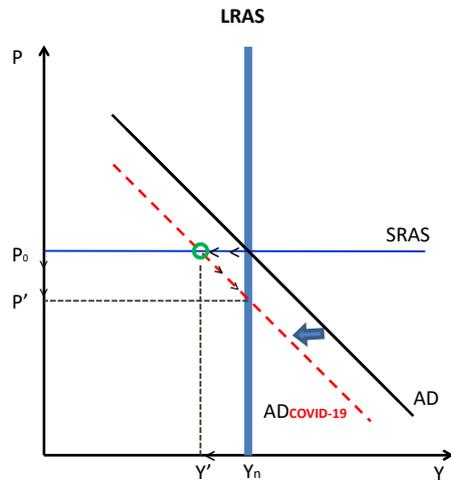


Figure 2. The first run reaction of the model economy to the Covid-19 shock

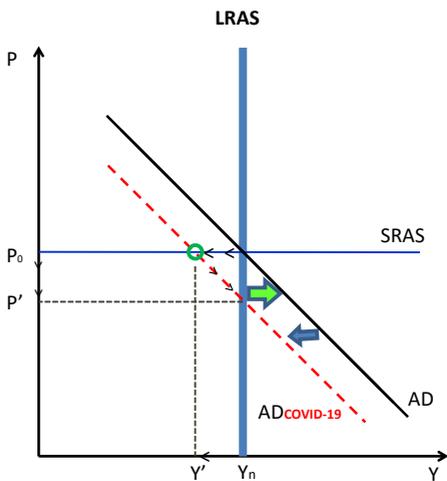


Figure 3. A perfectly fine-tuned stabilisation policy

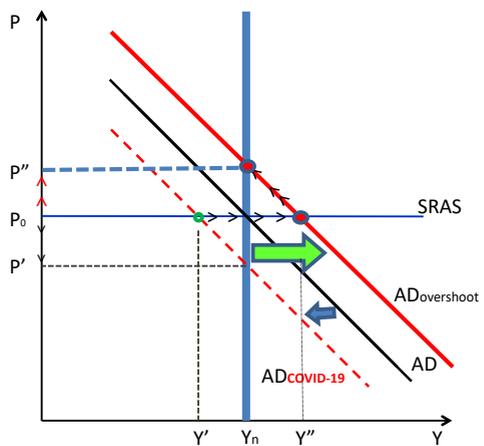


Figure 4. A case of the oversized stabilization policy package

Source: Own elaboration based on standard macroeconomic literature.

number of cases and the lockdown imposed in order to stop the disease reduced mobility of people and shrank consumer demand. Soon apart of the demand for staples and other goods migrated to the Internet and direct home delivery but the reduction of consumer demand was sizable. The pandemic, due to the health considerations and preventive anti-Covid-19 measures, contributed to a slower pace of manufacturing as well. As Figure 2 shows the shift of AD to the left that moved the economy out of the simultaneous triple equilibrium.

The reduced demand meant that the current output was lower (Y') than the natural level. If the economy is left without the anti-shock economic policy measures it would go through painful price and cost adjustments of an unknown time lag to return to its original equilibrium. The prolonged functioning below the Y_n level would also mean higher than natural unemployment rate.

Figure 3 presents a perfect economic policy scenario. It implies that the timing, structure and the size of fiscal stabilization policy measures and the accommodative monetary policy counter-balanced the Covid-19 blow. To realize how difficult it is to achieve such an economic policy design and implementation, if indeed this is possible, it is necessary to consider at least how fragile agents' expectations can be, the uncertainty accompanying pandemic and the scale of international interdependence.

Figure 4 outlines a scenario in which the combined fiscal and monetary policy measures were oversized or unnecessary reached sectors that did not require such a scale of a state help (Wolf, 2020). These measures can lead to an exceedingly expansionary policy overshooting the original effect and its induced negative shock. In such a scenario the stabilization policy could destabilize not only output but also could lead to an increase of the price level. Studying the first months of stabilization policy actions triggered by the Covid-19 the inflationary outcomes are barely seen.⁷

Due to the immediate pandemic impact on the demand side of the economy the analyses were focused on the short run. What has to be remembered is that such a pandemic inevitably has and will have impact on the size and structure of private investments. The scale of current public expenditures aimed at emergency help led to an unprecedented increase in public debt thus reducing the scope of public investments in the future. Both these trends will have an impact on the growth rate of Y_n .

⁷ The only exceptions so far are two countries: Hungary and Poland (see section 1.6).

1.5. Economic policy counter-shock measures

This chapter focuses on the analyses of fiscal policy.⁸ In the first stage of the reactive fiscal strategies countries concentrated their attention on maintaining household income – the key element determining consumption expenditure (see Section 1.3). In most cases some forms of cash transfers prevailed (Table 3). Additionally, broader coverage and an extended duration of unemployment benefits were considered. In the case of small businesses, in particular in the service sector, temporary deferrals of taxes and social security payments were introduced.

Table 3. Summary of selected country fiscal measures in response to the Covid-19 pandemic (per cent of GDP). Estimates as of September 11, 2020

Country	Above the line measures				Liquidity support			
	Additional spending or foregone revenue			Accelerated spending/deferred	Subtotal	Below the line measures: equity injections, loans, asset purchase or debt assumptions	Contingent liabilities	
	Subtotal	Health sector	Non-health sector				Guaranties	Quasi-fiscal operations
France	5.2	0.6	4.6	2.5	15.7	0.9	14.8	–
Germany	8.3	0.7	7.7	–	30.8	6.0	24.8	–
Hungary	4.1	1.2	2.9	–	4.4	–	–	–
Italy	4.9	0.4	4.5	0.4	33.0	0.2	32.8	
Japan	11.3	1.0	10.3	4.9	23.7	–	3.0	20.7
Poland	6.7	0.4	6.3	–	5.0	1.8	3.3	–
Spain	3.8	0.5	3.0	–	14.2	0.1	13.2	0.9
The US	11.8	1.5	10.3	0.1	2.5	0.3	2.2	–

Note: Estimates as of September 11, 2020. Numbers in US dollars and per cent of GDP are based on October 2020 World Economic Outlook unless otherwise stated.

Source: Own compilation based on (Fiscal Monitor, 2020).

⁸ See in this volume: A. Matysek-Jędrych and K. Mroczek-Dąbrowska, *Central Bank policy toward the Covid-19 pandemic: Seeking patterns among the most powerful central banks.*

These measures aimed at maintaining both the demand and short-run supply sides of the economies. Their general scope and efficacy were a function of the law-making culture and the civil service quality in particular countries. Due to the pandemic threat governments also had to extend their spending on the health sector and needed to launch extensive programs of liquidity support (Table 3).⁹

Data in Table 3 proves that the Covid-19 pandemic, even in its first-round, made the governments envisage substantive anti-crisis additional and accelerated spending and to accept deferred tax revenues. A sizable part of the ongoing fiscal measures took the form of liquidity support. In this case, the actual scale in terms of expenditure will only be known later.

The measures presented in Table 3 were an emergency part of a fiscal policy framework. One of the most direct and most comprehensible summary measures of the stance of fiscal policy is the general government overall balance (GGOB) as a percent of GDP (Table 4). In 2019 – the last year of pre-Covid-19 normality – only Germany had its GGOB in surplus. The projected figures for 2020 are all in deficit. The highest deterioration is forecast for the US, Italy and Spain; 12.4, 11.4 and 11.3 percentage points, respectively (Table 4). The IMF forecasts imply that all countries except Germany will continue their GGOB deficits, but their size is expected to shrink. However consecutive annual general government deficits along with slower GDP growth will lead to higher levels of public debt.

Table 4. General government overall balance (% of GDP) 2019-2022

Country	2019	2020*	2021*	2022*
France	-3.0	-10.8	-6.5	-5.3
Germany	1.5	-8.2	-3.2	0.6
Hungary	-2.0	-8.3	-3.9	-2.3
Italy	-1.6	-13.0	-6.2	-3.9
Japan	-3.3	-14.2	-6.4	-3.2
Poland	-0.7	-10.5	-4.3	-3.2
Spain	-2.8	-14.1	-7.5	-5.8
The US	-6.3	-18.7	-8.7	-6.5

* International Monetary Fund estimations.

Source: (International Monetary Fund [IMF], 2020).

⁹ In this respect, especially in countries with a stable approach to the civil service, there was still a well-established institutional memory stemming from the global financial crisis. See Kowalski, 2013, pp. 88–94.

The most straightforward, overall headline measures of fiscal prudence is the general government gross debt as a percent of GDP (GGGD) shown in Tables 5a and 5b. Table 5a presents the actual quarterly data. The quarterly data accurately shows the size and timing of Covid-triggered new levels of public debt. In most countries under consideration the level of debt to GDP ratio was relatively stable, as seen in Table 5a. The highest increase in 2020Q2 was recorded in the US, France, and Spain, by 17.8, 15.5, and 14.1 percentage points, respectively.

Table 5a. General government gross debt (% of GDP) - quarterly data

Country	2019Q3	2019Q4	2020Q1	2019Q3-2020Q1*	2020Q2
France	111.8	109.9	113.5	111.7	127.2
Germany	61.0	59.6	61.1	60.6	67.4
Hungary	67.9	66.4	66.3	66.9	71.1
Italy	136.8	134.7	137.6	136.4	149.4
Japan	239.1	237.6	237	237.9	249.2
Poland	62.8	61.9	63.5	62.7	70.1
Spain	103.1	102	104.7	103.3	117.4
The US	135.6	135.7	140.1	137.1	154.9

*Average general government gross debt (% of GDP) in 2019Q3-2020Q1.

Source: (World Bank, 2020).

Table 5b. General government gross debt (% of GDP) 2019-2022

Country	2019	2020*	2021*	2022*
France	98.1	118.7	118.6	120.0
Germany	59.5	73.3	72.2	68.5
Hungary	66.3	77.4	75.9	73.2
Italy	113.8	161.8	158.3	156.6
Japan	238.0	266.2	264.0	263.0
Poland	46.0	60.0	60.2	59.2
Spain	95.5	123.0	121.3	120.4
The US	108.7	131.2	133.6	134.5

*IMF estimations

Source: (World Bank, 2020; Fiscal Monitor, 2020).

The annual data and forecasts in Table 5b signal considerable differences between the countries under study already in 2019 – the last year of pre-Covid-19 normality. In 2019, the highest GGGD level was recorded in Japan (238% of GDP). Italy, the US, France and Spain did have high levels of debt as well. In contrast Poland, Germany and Hungary recorded a lower GGGD. Due to cyclical reasons and discretionary fiscal reactions (see Table 3) the GGGD rocketed in 2020. The highest debt to GDP increase is estimated in Italy (48 percentage points (pp)), and in Japan and Spain, 28.2 and 27.5 pp respectively. The lowest increases have been in Hungary and Poland.¹⁰ In all countries under study the higher debt level is expected in the coming years as well (Table 5b). The public debt will become a significant political and economic challenge. Even without Covid-19, high public expenditure needs to be envisaged to cope with climate-related goals.

1.6. Reactions of national economies

Due to space limitations, the empirical analyses of the first reactions of the eight economies to Covid-19 and the counter-crisis policy measures must be limited to only five dimensions. These are inflation, industrial production and the unemployment rate – all expressed by monthly data. The other two dimensions – GDP growth rate and shifts in GDP expenditure structure are analyzed quarterly. The time series (Figure 5, 6, 7, 8 and Table 6) are embedded in the SRAS/LRAS/AD framework discussed in Section 3.

As follows from the model (Figures 2 & 3), the actual inflation pattern in 2020 proved that the expansionary economic policies did not transform into higher consumer price inflation. It is evident in the case of four EMU countries (Figures 5a & 5b). In Hungary and Poland, the inflation dynamic was different (Figure 5c). In earlier years, the Polish government and central bank followed expansionary fiscal and monetary policies that led to a revival of inflation expectations and finally to higher inflation. In a certain sense that was also the case in Hungary. Japanese inflation was not changed by the Covid-19 disruption, whereas in the US its rate sharply declined in reaction to Covid-19-related disturbances (Figure 5d).

Analysing the reaction of industrial production (Figure 6) it needs to be noticed that Japan coped the best with the threat of the pandemic (Figure 6d). This was one of the primary reasons for its relatively smooth reaction of industrial production. Due to the large territory and diversified pattern of the pandemic the US production volatility was also relatively low and followed a different timing

¹⁰ In some EU Member States such as Poland and Hungary the scale of actual fiscal expenditure requires attention because even before Covid-related spending, sizable public expenditure was not recorded within the public finance framework.

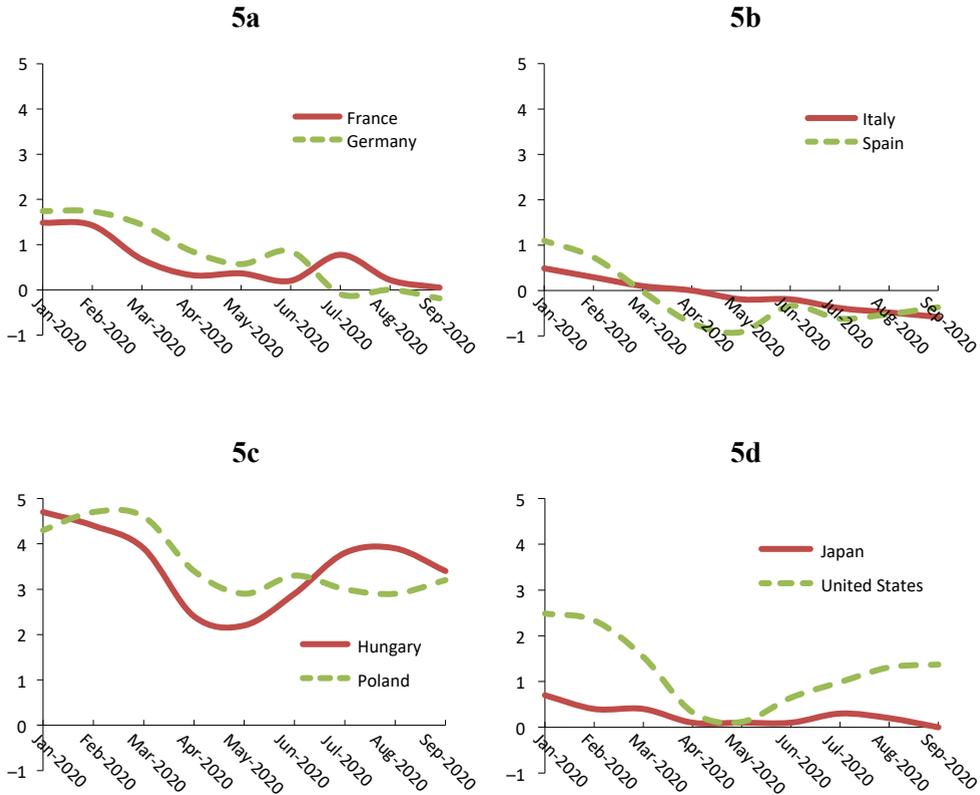


Figure 5. Consumer prices. Growth on the same period of the previous year

Source: Own compilation based on (OECD, 2020).

(Figure 6d). In Europe German, Polish and Spanish industrial production dynamics showed a similar pattern (Figure 6a, 6b and 6c) – its volatility was milder than in France, Italy and Hungary. All European economies had their troughs and peaks in industrial dynamics in the same months. After the trough all recorded volatile growth (Figures 6a, 6b and 6c).

Monthly unemployment data is presented in Figures 7a, 7b, 7c and 7d. Three economies – namely Japan, Poland, and Germany – proved Covid-resistant in terms of their unemployment rates (UR). They also continued to have the lowest UR in the sample of the studied countries. France's UR declined in February and March of 2020 to increase to 7.8% in April. In the next two months the UR declined to reach the lowest level of 6.6% in June. Since then, the UR returned to its upward trend reaching the level of 7.9% in September. In Italy the UR was declining to reach its lowest point (7.3%) in April. Since May, it began to increase

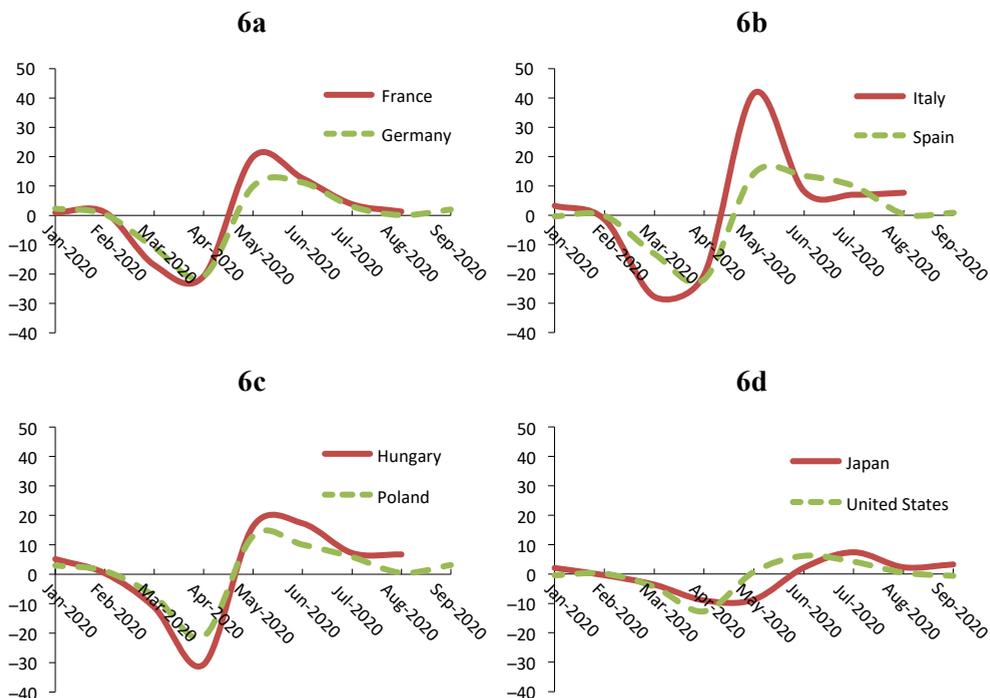


Figure 6. Industrial production. Growth previous period, monthly s.a.

Source: As in Figure 5.

surpassing the levels recorded in January and February. In Spain the lowest UR (13.8%) was in February. Since then, the UR began to climb reaching 16.7 and 16.5% respectively in August and September. The US labor market entered 2020 with for this country a very low UR of 3.6 and 3.5% in January and February respectively (Figure 6d). It increased by a 0.9 percentage point in March and rocketed by 10.3 percentage points to 14.7% in April. This shift reflects the nature of American labor market relations, where labor is treated as an asset which is swiftly adjusted to the current economic situation. The sharp decline in the US UR (to 6.9% in October) proves this American regularity.¹¹

Monthly GDP data is not publicly available. Therefore, the GDP time series for the studied economies are quarterly and for the sake of better comparisons a longer time is analyzed (Figures 8a, 8b, 8c and 8d). GDP covers not only industrial production but also the service sector (including tourism and leisure), construction, agriculture and forestry and net exports. Therefore, it presents a broader picture of

¹¹ Kowalski & Shachmurove, 2014.

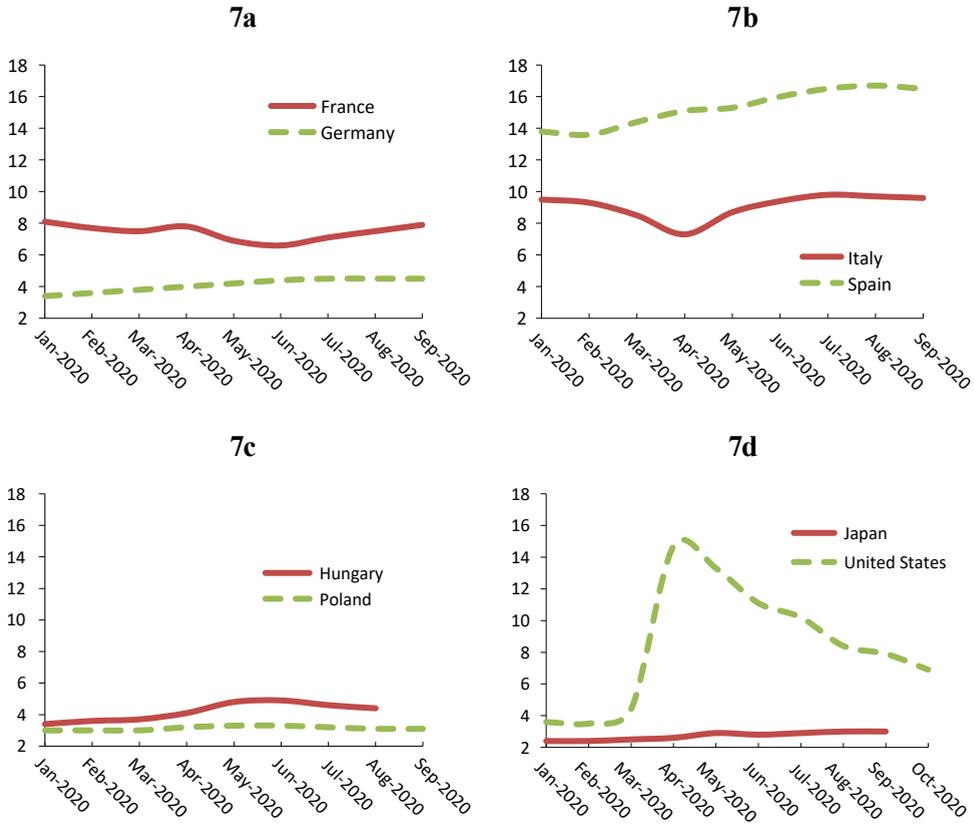


Figure 7. Monthly unemployment rate

Source: As in Figure 5.

the overall economic dynamics. In normal times, as in 2019, due to the specifics of quarterly data and the GDP structure its dynamics are smoothed (Figures 8a, 8b, 8c and 8d). It is interesting to note that Germany already in 2019Q2 and 2019Q4 recorded declining growth rates (Figure 7a). The first two quarters of 2020 saw negative growth rates with the 2020Q2 record slump of 11.25%. The third quarter in Germany was better (but still minus 4.23%). All countries recorded the most profound GDP drop in 2020Q2 and all, despite improvement in 2020Q3, retained negative GDP dynamics. In the first three quarters of 2020 the most significant growth volatility was noted in Spain, Italy, France and Hungary. The USA, Japan, Poland, and Germany had relatively more stable GDP dynamics. Data on GDP expenditure structure is presented in Table 6.

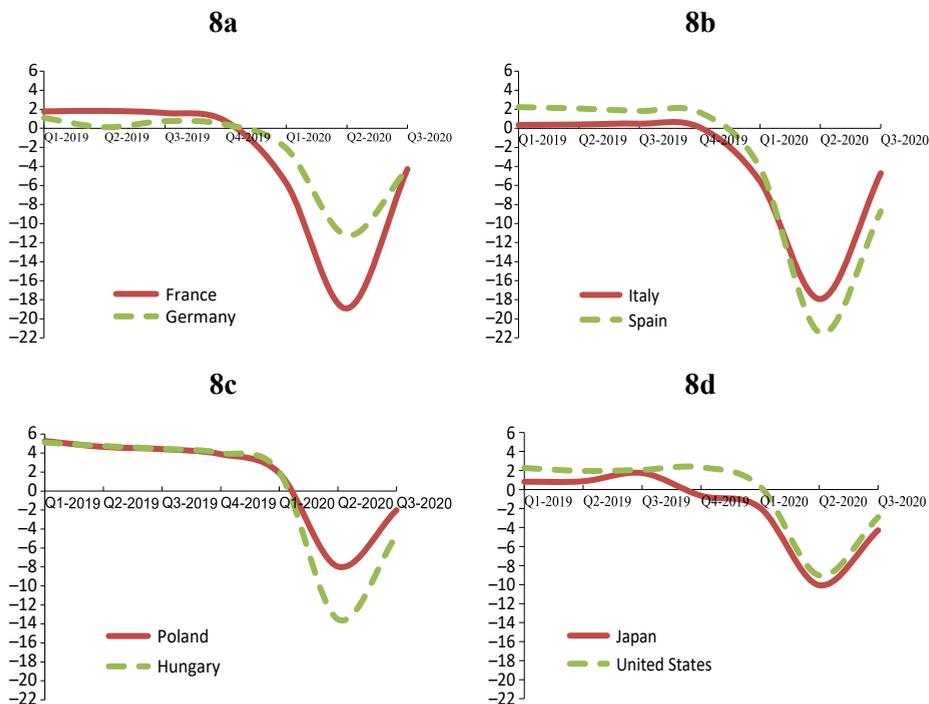


Figure 8. GDP. Quarterly, growth rate same period previous year, s.a.

Source: As in Figure 5.

The data sheds light on shifts in the GDP structure caused by different channels of the Covid-triggered negative shock and the relative role of government expenditure (G). Table 6 indicates how stable is GDP expenditure in the short term. It also presents the richness of structural differences even amongst developed economies. This feature is best seen when comparing the share of consumption expenditure (C) in GDP. For example, in 2019Q2 the difference between the US (68%) and Germany (52.6%) was over 15.4 percentage points (Table 5). This single feature shows reasons behind the varied vulnerabilities of particular economies to the negative shock that hit the consumption expenditure. It also explains why governments focused their anti-crisis measures on maintaining household expenditure. The best way to assess the scale of GDP structural change triggered by the implications of Covid-19 is to compare the data on C and G for 2019Q2 and 2020Q2. In all countries (except Hungary) the share of consumption declined. The most profound drop took place in Spain (2.8pp), Poland (2.3pp) and Germany (1.5 pp). In the USA and Japan, the share of consumption declined by 0.9pp and in Italy by 0.5pp. The lowest decline took place in France – 0.2pp). The share of government

Table 6. Shifts of GDP expenditure structure (in %) in 2019Q1 – 2020Q2

Countries	2019_Q1					2019_Q2					2020_Q1					2020_Q2				
	C*	G	GFCF	INV	NX	C	G	GFCF	INV	NX	C	G	GFCF	INV	NX	C	G	GFCF	INV	NX
France	53.6	23.0	23.3	0.8	-0.7	53.6	23.1	23.6	0.6	-0.9	53.6	24.1	22.7	1.0	-1.4	53.4	26.2	22.1	2.3	-3.9
Germany	52.3	20.2	21.8	-0.2	5.9	52.6	20.3	21.8	0.0	5.3	51.8	21.2	22.0	-0.6	5.5	51.1	24.0	22.4	-1.1	3.9
Hungary	48.8	19.4	27.1	1.6	3.8	48.9	19.5	27.0	1.0	3.5	50.2	19.9	27.4	-0.9	3.4	50.2	23.3	28.9	-0.8	-1.6
Italy	60.1	18.7	18.0	0.3	2.9	60.2	18.7	18.1	0.2	2.8	59.2	19.9	17.6	0.4	3.0	59.7	23.2	16.9	-1.7	1.9
Poland	57.7	17.9	18.7	1.6	4.1	57.6	17.9	18.5	1.5	4.5	57.6	18.1	18.3	1.0	5.0	55.3	20.0	17.7	-0.6	7.6
Spain	57.7	18.8	20.1	1.0	2.4	57.3	18.8	19.8	1.0	3.1	56.5	20.4	20.0	0.9	2.2	54.5	25.0	18.8	0.9	0.8
Japan	55.3	19.8	24.3	0.2	0.4	55.3	19.9	24.3	0.4	0.1	54.8	20.5	24.3	0.1	0.3	54.4	21.9	25.3	0.1	-1.7
The USA	67.6	14.0	20.9	0.4	-2.9	68.0	14.0	20.6	0.4	-3.0	67.5	14.1	20.9	-0.2	-2.3	67.1	15.6	21.6	-1.5	-2.8

*C – Private Final Consumption Expenditure; G – Government Final Consumption Expenditure; GFCF – Gross Fixed Capital Formation; INV – changes in inventories and net acquisition of valuables; NX – net exports (exports minus imports). In the case of Hungary and Poland, Changes in inventories and net acquisition of valuables were calculated as residuals.

Source: Own calculation based on (OECD, 2020).

expenditure in GDP increased in all countries (Table 6). The highest increase in 2020Q2 in comparison to the same time in the previous year was recorded in Spain and Italy and reached 6.2pp and 4.5pp respectively. Substantial increases were seen in Hungary, Germany and France, 3.8pp, 3.7pp and 3.1pp respectively. Poland (2.1pp), Japan (2.0pp) and the US (1.6pp) used this fiscal instrument with less force.

This brief review of the various dimensions of the economies' reaction to the Covid-19 disturbance shows that it had negative impact on all economies. The economies reacted in almost the same time showing how interdependent they are nowadays. The particular pattern of national economies' reactions was a function of their embedded resilience and the quality of economic policy design and implementation.

1.7. Conclusions

At the time of writing, Covid-19 is in its fully-fledged phase, so it is too early to predict its comprehensive consequences. In the last eleven years, it is the second negative shock that hits the global economy. The nature of the shock caused by the Global Financial Crisis of 2007–2009 was relatively easier to comprehend. The

concerted actions of major central banks, the exchange of information, and new prudential regulations helped salvage the financial system.

The Covid-19-triggered economic crisis has a truly global range combining grave economic implications with very existential threats to the society. It increases inequality at the national and international level and therefore adds to social and political tensions. Covid-19 should be seen as humankind's laboratory in preparation for the future unavoidable challenges of coping with the consequences of ageing societies, climate change, and mass migration, to name but a few.

The current scale of fiscal and central banks' stimulus once again has made us all *Keynesians*. These concerted actions pushed the state back to the center of economic life, but its bigger role can also engender serious threats. Once again, the general prosperity and fate of whole sectors depend more on politically driven decisions and actions than on creativity and entrepreneurial spirits. Some states, also in Europe, suffer from short-sighted policies and are captured by populists. The wave of nationalism and populism can reduce the chances to solve the unfolding crisis and to prepare for future challenges. All of these future challenges will require solidarity, a long-term perspective, and multilateral cooperation at the global and regional level.

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2. How Covid-19 impacted the European integration processes? The case of EU Cohesion Policy and budget



Ida Musiałkowska

Poznań University of Economics and Business
Institute of International Business and Economics
Department of European Studies
ida.musialkowska@ue.poznan.pl



Piotr Idczak

Poznań University of Economics and Business
Institute of International Business and Economics
Department of European Studies
piotr.idczak@ue.poznan.pl

Abstract

Purpose: The current pandemic crisis caused by Covid-19 significantly impacted the processes of European integration. The European Union decided to act within and beyond existing competences and instruments to support the efforts of its Member States, along with regional and local authorities, in the fight against Covid-19. Our study sheds light on the instruments and solutions proposed within the framework of the cohesion and budget policy to tackle the problems related to Covid-19 in Europe. The analysis focuses on two strands: 1) EU assistance offered through cohesion policy (CP) instruments toward above areas; 2) the future evolution of EU budget, and therefore integration shifts, provoked by the Covid-19 crisis.

Design/methodology/approach: The study analyzes statistical data with regard to the use of instruments of the Cohesion Policy under the Covid-19 pandemic, but also the amendments introduced to legal acts and decision-making processes that refer to the multiannual financial framework (MFF) for 2021–2027.

Findings: We notice a strong shift of priorities regarding environment transformation, digitalization, and health protection, reflected in the MFF. The coordinative role of European institutions and the redirection of different financial instruments to health care follows the neo-

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functionalist paradigm and represents a spillover effect resulting from integration. The crisis analyzed from the institutional perspective is seen as a chance to reform the decision-making process, while on the other hand, as a threat to the inclusive integration of all Member States.

Originality and value: The paper is an original contribution on the overall use of both financial and legislative instruments in the times of unprecedented health and economic crisis caused by Covid-19 in the European Union. The text can be a valuable insight for both researchers and practitioners in the field of broadly understood European studies.

Keywords: EU Cohesion Policy, EU budget, multiannual financial framework, Covid-19, European integration.

2.1. Introduction

The outbreak of the SARS-CoV-2 pandemic was observed in Europe in early Spring of 2020. The most severe consequences appeared in the spring wave in the southern Europe: Italy, Spain, but lately also in other EU Member States (MS). The pandemic showed the shortcomings in the area of health care and a country's available health system have emerged as crucial to the success of the response to the pandemic (Furlong & Hirsch, 2020). In order to protect their health care systems, the governments decided on lockdowns of the economy, which has led to an unprecedented economic crisis compared even to the 1930's global crisis (European Commission, 2020a). The both crises are of different nature but provoked set of policy responses showing necessity to rethink monetary and fiscal policies, instruments to be used to support individuals and businesses and revitalize whole economies, sectors and territories. The pandemic-caused crisis showed the urge need to introduce transborder cooperation between the states.

When we analyze growth rates, we observe drastic contraction forecasts of EU GDP by ca. 7.4% in 2020. The GDP is expected to regain a 4% growth rate in 2021 and 3% in 2022 (the pre-crisis levels). Economic activity is expected to rise again in the first quarter of 2021, but it might be additionally constrained by two factors: 1) virus containment measures and 2) the impact of less beneficial trading relations with the UK (European Commission, 2020a). There is variation in the growth rate and predicted speed of recovery among the Member States, depending on both virus spread and structural economic problems. The structure of regional (subnational) economies is a source of risk of job losses (which vary by more than 20% in the countries), especially in regions whose economy is largely dependent on accommodation and food services, wholesale and retail trade, construction and real estate services, art and entertainment, professional, scientific and technical activities, the manufacture of transport equipment, and air services (OECD, 2020a).

Current pandemic crisis caused by Covid-19 has also had a significant impact on the processes of European integration as such. The European Union drew

lessons from the financial and economic crisis from 2008 and decided to act within and beyond the existing competences and instruments to support the efforts of its Member States, and regional and local authorities in the fight against Covid-19. The regional and local levels were the most efficient in providing assistance with regard to e.g. health care and business environment affected by the pandemic. Also actions taken at the EU level can be expected to be efficient in ensuring an effective response to the coronavirus crisis. The challenge the EU is facing now is how to implement a recovery plan designed to counteract the socio-economic downturn and find a proper coordination mechanism in the health care sector. Therefore, our study sheds further light in the debate on the instruments and solutions proposed within the framework of the cohesion and budget policy. The analysis will focus mainly on two strands: 1) EU assistance offered through cohesion policy (CP) instruments towards above-mentioned areas; 2) future evolution of EU budget, and therefore integration shifts, provoked by the pandemic crisis. The paper is based on statistical data with regard to CP and analysis of legal acts and decision-making process referring to multiannual financial framework for 2021–2027. The chapter is structured as follows: the general overview on the EU reactions to the pandemic starts the study (section 2.2), then assistance under the cohesion policy against the Covid-19 is analysed (section 2.3), followed by reflections on the evolution of the EU budget for the years 2021–2027 (section 2.4) and conclusions.

2.2. European Union's reaction to the pandemic

The first reactions and activities were held at national, regional, and local levels. But soon after the numbers of infected have started to rise, the European institutions decided to coordinate efforts and fight against the transborder disease of Covid-19. The joint actions appeared early enough in comparison to the previous financial and economic crisis from 2007/2008, when the European Union learned the lessons how to jointly counteract a crisis.

In March 2020, during a special meeting of the heads of state or government of the 27 EU Member States, the EU identified four priorities for its SARS-CoV-2 response strategy, namely (European Parliamentary Research Service, 2020a):

- limiting the spread of the virus, including assessing the risk and closing external borders, with internal borders possibly open to allow single market functioning;
- ensuring the provision of medical equipment by increasing production of medical devices, issuing calls for production of medical equipment, and negotiating new supplies;

- helping researchers to find a vaccine quicker than in normal conditions, through existing research programs and enhancing cooperation with the private sector and other international organizations;
- aiding EU Member States to manage the social and economic impact of the pandemic.

The EU began to play a coordinating role, complementing national and subnational policies to help countries face common challenges with the use of existing and creation of new instruments (European Parliamentary Research Service, 2020a):

- RescEU (existing instrument newly adapted to the health crisis) stockpiled medical equipment such as ventilators and protective masks, enabling Member States facing equipment shortages to quickly procure the necessary supplies;
- the EU research program Horizon 2020 (existing instrument) was opened for funding of e.g. rapid point-of-care diagnostic tests and the development of vaccines and new treatments; an initial EUR 45 m committed to the project was supplemented in May 2020 with a further EUR 122 m allocated to the program;
- loans and guarantees of overall value of ca. EUR 540 bn under: 1) support to mitigate Unemployment Risks in an Emergency (SURE – new instrument) in order to help protect people at work and jobs affected by the coronavirus pandemic of total value of EUR 90.3 bn divided among MS in the form of loans and guarantees (OJ L 130, 2020.4.24; OJ L 159, 2020.5.20); in order to use it, Member States had to activate short-time work schemes to preserve employment and assist the self-employed; 2) support to businesses by the European Investment Bank and aid to the Member States under the European Stability Mechanism.

What is more, the European Central Bank offered monetary stimulus and temporarily has eased supervision criteria to increase liquidity and access to credit of a value of ca. EUR 1 tn. The European Commission quickly introduced flexibility on EU budgetary and state aid rules (ECOFIN, 2020) to let MS mitigate the effects of the crisis with the amount of ca. EUR 330 bn to activate the general escape clause to use national budgets to support countries' economies, and EUR 2–2.45 tn for the flexible use to support businesses and workers in the MS. The Commission also suspended the limits expressed in the Stability and Growth Pact.

Moreover, cohesion policy funds from the 2014–2020 financial perspective were re-allocated to help regional and local authorities fight against Covid-19 (see section 3.). The authorities were at the front line, while the pandemic has been testing multilevel governance strength (OECD, 2020b), but it also showed institutional limitations of the EU during the first and second wave of the pandemic (Pazos-Vidal, 2020).

2.3. Cohesion policy support to the fight against the pandemic

In April 2020, the European Commission adopted two packages of measures (OJ L 130, 2020.04.24) – namely the Coronavirus Response Investment Initiative (CRII) and the Coronavirus Response Investment Initiative Plus (CRII+) – in order to mobilize EU cohesion policy allocations to respond to the pandemic. The CRII package (OJ L 130, 2020.4.24):

- 1) provides flexibility to use existing unspent resources and redirect them to where they are most needed;
- 2) allows for transferring unallocated EU funding between funds and categories of regions;
- 3) gives an opportunity to increase EU pre-financing to improve cash flow;
- 4) creates an option to increase the EU co-financing rate to 100% for the 2020–21 accounting year.

The CRII/CRII+ initiatives were linked and prolonged on May 27, 2020, with the presentation of the REACT-EU (Recovery Assistance for Cohesion and the Territories of Europe) package as part of the new additional recovery and resilience facility (see section 2.4). Both initiatives were focused on three areas, and the implementation of CRII/ CRII+ was based on reprogramming of already adopted operational programs in MS (European Commission Cohesion Data, 2020):

- health care: in order to secure personal protective equipment, finance testing and support hospitals by purchasing additional medical equipment (see section 2.3.1.);
- businesses: with regard to providing working capital to SMEs, facilitating digitalization and setting up or redesigning financial instruments (see section 2.3.2.);
- persons: by implementing employment retention schemes and supporting vulnerable groups (see section 2.3.3.).

Until November 19, 2020, EUR 7.6 bn in additional EU pre-financing was provided, 129 cohesion policy programs have opted for 100% EU co-financing and EUR 3.3 bn has been transferred between funds and/or between categories of regions (EC Cohesion Data, 2020).

2.3.1. Change in the EU allocation to health actions

In response to the urgent need for adopting EU cohesion policy to the Covid-19-related challenges, the CRII/CRII+ packages provided for the possibility to redirect EU financial resources in particular to health actions. Eighteen out of 27 Member

States made use of the implemented provisions to reallocate appropriations in the framework of the funds granted to measures relating to the protection of public health and safety. In comparison to the originally planned financial support earmarked for the health care systems in the 2014–2020 programs, transfers of resources within the existing and still unallocated EU funding have resulted in an increase of ca. EUR 6.7 bn. The main target of the additional means in this field focus on securing personal protective equipment, compensating financially Covid-19 testing and financing purchases of medical equipment made by hospitals. The health sector falls within the shared competence between the UE and MS. Hence, the measures conducted with financing from the European Structural and Investment Funds (ESIF) are often programed within the framework of various priority axes in the operational programs (OP) managed by EU regions and MS. In order to see the reprogramming of financial support, it is necessary to analyze financial data in OP that are structured into categories of intervention (CoI) with precisely defined intervention fields. Figure 1 reports the reallocation of the EU funds in planned support to health care since the beginning of the Covid-19 pandemic. Figure 1 summarizes the aggregative values of health investments coded under the intervention fields as follows: health infrastructure, e-health, active and healthy ageing, access to social and health services.

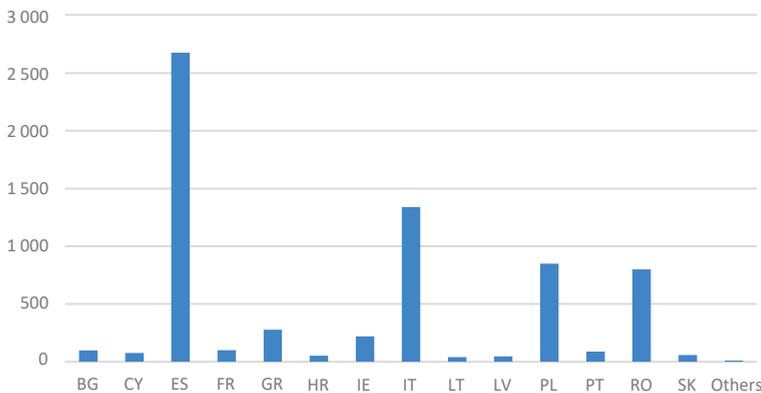


Figure 1. Reallocations of the EU funds in planned support to health care in EUR m*

* The financial data show the value of total transfers proposed in the national and regional programs to support the public-health measures in the fight against Covid-19 since 1 February 2020 up to now.

Source: Own work based on (European Commission Cohesion Data, 2020).

The finding emerging from this figure is that the highest values of changes are observed in those MS which, on the one hand, have been the largest beneficiary of

EU cohesion policy funds (e.g. Poland, Italy), and on the other – were most affected by the coronavirus crisis (e.g. Italy, Spain). More than 80% of total reallocations for Covid-19 actions were made by four MS: Poland, Italy, Spain, and Romania. The southern European countries in particular had to tackle the rapidly increasing number of Covid-19 infection cases. The outbreak of a novel coronavirus disease highlighted the limited capabilities of health care facilities to ensure the adequate protection of the health and safety of people being in need of medical attention. This also refers to health care workers and care providers who are vital to the functioning of health care, and – like the rest of the population – they face the same challenges when implementing infection prevention measures. Thus, health care staff had to be suddenly fitted out with huge quantities of personal protective equipment to avoid the transmission of infection and maintain a high standard of care and safety.

According to the financial data reported so far to the Commission by MS, approximately EUR 2.5 bn (37.5% of total reallocations) was already spent on the health sector to combat and counteract the Covid-19 pandemic. However, given that the data are provided with a delay, the total amount of EU financial support mobilized for such purposes is likely to be significantly higher. In view of this, the highest share in current spending is noticed in the purchases of personal protective equipment, medical equipment, and medicines linked to Covid-19 (close to 80%). It should be noted, however, that approximately EUR 1.1 bn out of this amount were spent on providing health care staff with necessary personal protective equipment. To state it explicitly, the reallocated funds have been devoted to furnishing among other items of personal protective equipment (e.g. gloves, gowns, shoe and head covers, masks, face shields, body suits etc.), ventilators, ambulances and vehicles for emergency response, hospital beds for additional space to accommodate Covid-19 patients requiring critical care.

2.3.2. Change in the EU allocation to business support

Many European countries have implemented strict quarantine measures or various forms of lockdown across their territories to slow the spread of the coronavirus. Those different types of unprecedented restrictions have been imposed on all areas of socioeconomic life, ranging from school closures through suspensions of cultural events to temporary prohibitions of certain business activities (e.g. shopping centers, hotel and restaurants, hair and beauty salons, sport and leisure centers). Economic ramifications of the coronavirus crisis quickly became evident and brought many businesses to a near-standstill. Small and medium-sized enterprises (SMEs) on the front lines have been particularly affected by the pandemic. Suspensions of certain commercial, industrial, or artistic activities by lockdowns

have not only directly affected those types of businesses but also indirectly affected affiliates or business partners and even companies in other countries. Therefore, business expected a rapid response to address current disruptions and to increase its resilience to the economic slowdown.

Being aware of the fact that SMEs act as a lynchpin linking the pandemic to a broader economic recession, MS were allowed from the very beginning to introduce reallocations of funding aimed at supporting business. Most transfers relied on shifting financial resources from one type of activity with larger unallocated means to another that currently showed a higher potential and opportunities to emerge from the downturn. As a result of changes made by countries and regions in the allocations at their disposal, EUR 9.8 bn were reprogrammed in order to relaunch the economy and deny the crisis. As can be seen from Figure 2, the largest changes in operational programs in favor of enterprises were adopted by Southern countries and Poland as an exception in this group. The value of business-oriented reallocations introduced by these countries accounts for 65% of the total reprogramming amount. What is striking about the data in this figure is that countries not rated among the major beneficiaries of EU cohesion policy spent relatively considerable funds on the measures focused on enhancing enterprises' resilience strategies. This finding suggests that the EU cohesion policy funds have been involved in large-scale activities directed at enterprises in various areas affected by the pandemic in many countries.

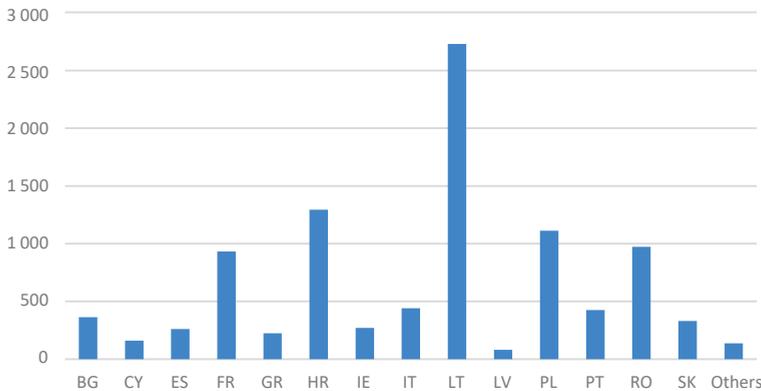


Figure 2. Reprogramming of the EU funds in planned support to enterprises in EUR m*

* The financial data show the value of total transfers proposed in the national and regional programs to support the function of the business activities best address the Covid-19 crises since February 1, 2020, up to now.

Source: Own work based on (European Commission Cohesion Data, 2020).

Member States proposed different measures to help enterprises cope with short-term financial risks and long-term business implications. It means that the support actions were designed to maintain temporarily the company's financial liquidity and provide incentives that will allow it to resume business activity fully later. Among priority measures offered by reprogrammed funds the highest shares fall on generic productive investments in SMEs (55.1% of total reallocated amount), SMEs business development, entrepreneurship, and incubation, including support to spin-offs and spin-outs (respectively 15.2%). In addition, SMEs could benefit from support for investments (implementing R&I activities) such as liquidity needed to cover additional costs or risks. The value of funding earmarked for this support amounted to over EUR 0.5 bn which constitutes approximately 5.5% of the total reallocated amount to enterprises. As a consequence, nearly 400,000 European enterprises could benefit from grants supporting their working capital. It can thus be suggested that reprogrammed funds have significantly contributed to preventing bankruptcy, encouraging investment and, most importantly, reducing layoffs.

2.3.3. Change in the EU allocation to support individuals

The implementation of mandatory mass quarantines by almost all European countries to prevent coronavirus spread resulted in the fact that many citizens were put on various forms of social isolation. However, they were affected by the coronavirus crises in different way, often deprived of employment and earning opportunities. Thus, the funding available under the European Social Fund (ESF) was also opened to reprogramming at the level of national and regional operational programs so as to counteract the negative effects of the Covid-19 crisis. The total volume of the reallocated resources in ESF to support people directly amounted to EUR 2.9 bn. The financial assistance was used to combat the pandemic in such forms as supplementary wage for health care personnel, PPE and services for vulnerable groups, special support to short-time work arrangements, and IT equipment. Figure 3 shows an overview of the funds reprogrammed to combat the effects of the pandemic among societies. General inspection of the data indicates that three countries dominate in regard to the amount of the reallocated funds, i.e. Italy, Poland, and Slovakia: they redirected ca. 87% of the total reprogramming amount.

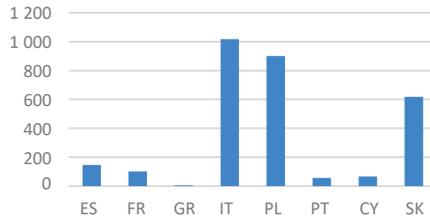


Figure 3. Reallocation of the EU funds in planned support of individuals in EUR m*

* The financial data show the value of total transfers proposed in the national and regional programs to support social services, retention of employment, support to vulnerable groups and others since February 1, 2020, up to now.

Source: Own work based on (European Commission Cohesion Data, 2020).

2.4. Multiannual financial framework and resilience and recovery facility: Next Generation EU

The times of pandemic has affected negotiations on multiannual financial framework that should provide financing of EU policies for the forthcoming years 2021–2027. In order to help its MS to recover from the coronavirus crisis the European Commission proposed in May 2020 an additional EUR 750 bn fiscal stimulus to MFF (EUR 390 bn in grants and EUR 360 bn in loans) and other flexibility measures and monetary stimuli. This is an unprecedented, new, yet temporary instrument (resilience and recovery facility) for the future development of the EU, on which the heads of governments and states (the European Council) primarily agreed in July 2020. On November 10, 2020, the European Parliament and the EU Council reached an agreement on the next budget and this new instrument named the Next Generation EU (NGEU), finally approved at the December EU Council summit. Unexpectedly, the Polish and Hungarian governments opposition to the linking of EU budget with the rule of law conditionality made them tried to veto the agreement and break solidarity with all other EU MS waiting for the adoption of MFF and NGEU.

Most resources under the new MFF will go to the following budget headings: Cohesion, Resilience and Values, Natural Resources and Environment followed by Single Market, Innovation and Digital (Table 1, Figure 4). This distribution of resources reflects the shift of EU priorities to deal with environment protection and stresses the necessity to implement the European Green Deal, resilience building, innovation and digitalization in post-Covid-19 times. Additionally, the crisis that is affecting health care systems brought an impetus to launch a new EU4Health

initiative worth EUR 5.07 bn that will help in e.g. the coordination of future risks related to the next pandemic, and provide necessary supplies of medicine, access to health care, diagnostics etc. The designed initiative does not give more room for maneuver under European treaties. The importance of research in the program Horizon Europe and education and mobility within the Erasmus+ program was additionally underlined by the increase of allocations to them, but also by the creation of the Just Transition Fund to transform coal-based regions.

Table 1. MFF and NGEU for 2021–2027 (EUR bn)

Heading	MFF	NGEU	Total
Single Market, Innovation and Digital	132.8	10.6	143.4
Cohesion, Resilience and Values	377.8	721.9	1 099.7
Natural Resources and Environment	356.4	17.5	373.9
Migration and Border Management	22.7	–	22.7
Security and Defense	13.2	–	13.2
Neighbourhood and the World	98.4	–	98.4
European Public Administration	73.1	–	73.1
Total	1 074.3	750.0	1 824.3

Source: (European Commission, 2020b).

The use of NGEU requires that each Member State will prepare recovery and resilience plans presenting a coherent package of reforms and public investment projects that should be implemented by 2026. The plans should be linked to challenges of the European Semester, country-specific recommendations, and actions related to the green and digital transition, namely correspond to the 2021 Annual Sustainable Growth Strategy; which has four dimensions of environmental sustainability, productivity, fairness, and macroeconomic stability (COM/2020/575, European Commission, 2020c). The Commission is preparing the ground for the disbursement of NGEU and the mechanisms implemented under SURE instrument are proposed as a model.

The new MFF initiated a discussion on revenues and a basket of new own resources and its ceiling (e.g. Dobrova, 2018, Dachrenberg, 2020), along with a new dimension to the European fiscal policy regarding loans and guarantees, which form the core of new instruments such as SURE and NGEU. This might signify further deepening of integration processes, but also reveal challenges to future economic policy of increased public expenditure.

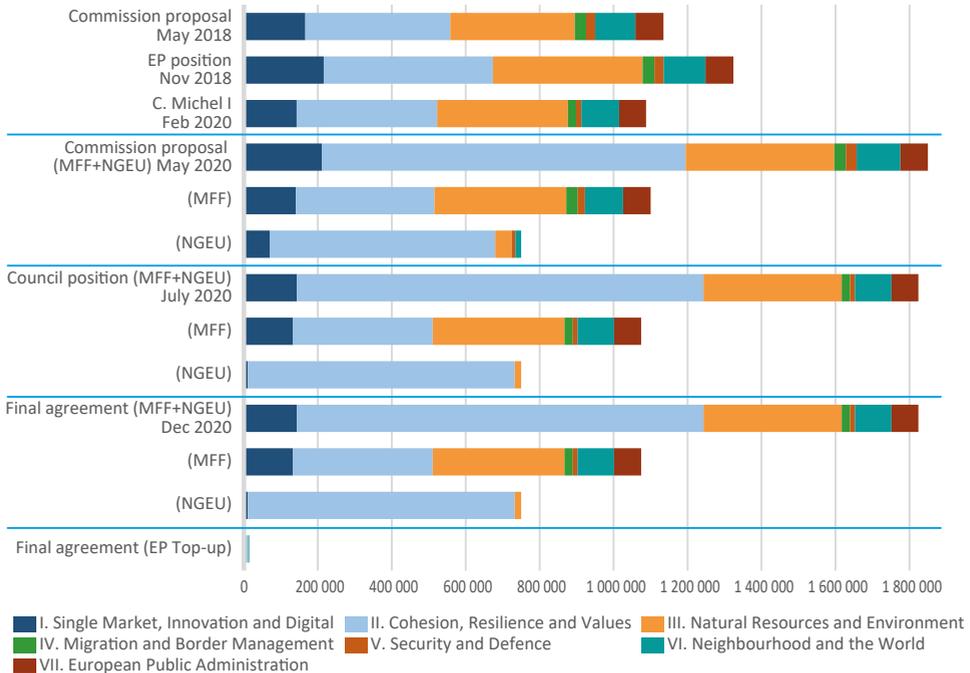


Figure 4. The evolution of MFF and NGEU 2021–2027 in negotiation processes, May 2018–November 2020 (in constant 2018 prices) in EUR m

Source: European Parliamentary Research Service, 2020b.

2.5. Conclusions

The Covid-19-caused crisis reveals serious implications for European integration process.

First, we notice a strong shift of priorities regarding environment transformation, digitalization, and health protection, reflected in MFF. The coordinative role of European institutions and the redirection of different financial instruments to health care follows Haas' neofunctionalist paradigm (1968) and represents a spill-over effect resulting from integration (Pazos-Vidal, 2020). Second, the EU reacted relatively fast to counteract the crisis by using existing legal and financial instruments, not to mention creating new ones. Third, as Fabbrini (2020) argues, the crisis immediate health cost and its socioeconomic implications expose the institutional and substantive shortcomings of the current EU system of governance and show the need to reform the EU and 1) enforce it in the areas of health and 2) redesign the system of own resources without merely relying on financial

transfers from its Member States. The EU decision-making process requires further shifts from an inter-governmental mode that sometimes creates a bottleneck to timely response from the European level toward e.g. a Conference on the Future of Europe that could make the EU system of governance more effective and democratic. This motion requires changes in treaties as well, which is a challenge because the unanimity of all MS would be required to do so (Pazos-Vidal 2020, Fabbrini, 2020). Fourth, the last crises that affected the EU in the near past led to the use of international agreements outside the EU legal order e.g. in the European debt crisis (Fabbrini, 2020). If a veto to MFF were to appear, one of the solutions to save the implementation of Next Generation EU would be to use a similar legal instrument. Such a solution might have led to further divisions among MS and the strengthening of a multi-speed Europe, in which some countries would deepen the integration process “in the club” while others concentrate on existing/selected policies and are left behind the integration process. The crisis analyzed from the institutional perspective appears as a chance to reform the decision-making process but, on the other hand, as a threat to the inclusive integration of all Member States.

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3. The European Union's Common Commercial Policy and the Covid-19 pandemic: Reactions and challenges



Grzegorz Mazur

Poznań University of Economics and Business
Institute of International Business and Economics
Department of European Studies
grzegorz.mazur@ue.poznan.pl

Abstract

Purpose: The general aim of the chapter is to investigate trade measures implemented in the EU in the aftermath of the Covid-19 outbreak and define general potential effects of the current economic turbulences on the future shape of the Common Commercial Policy (CCP).

Design/methodology/approach: The chapter is based on literature/EU official documents studies and statistical analysis of the EU's merchandise trade. It has been structured into three parts. The first one presents recent trends in the EU's external merchandise trade caused by the pandemic's economic repercussions. This is followed by a short analysis of temporary trade restrictions implemented by many EU Members States and the EU in response to supply shocks. The third part refers to the potential impact of current trade and economic processes on the post-pandemic trade strategy of the EU.

Findings: Although the future shape of global trade system and the pandemic's impact on the nature of the CCP are subjects of high uncertainty, the conducted analysis offers some general conclusions. The implemented trade restrictions should be limited and made temporary as future trade openness is essential for economic recovery. There is also a general consensus that the EU's CCP should ensure the necessary resilience to future trade distortions. However, this should not be connected with protectionism and narrowly understood self-sufficiency. Among important factors that reinforce the resilience, we should mention the solutions delivered by new technologies (e.g. automation, AI, three-dimensional printing), fair competition, higher transparency of trade policies, international standards, certification schemes, and stronger multilateral cooperation, including World Trade Organization's reforms. The renewed trade

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strategy will also be accompanied with global trade and economic tendencies such as the reshoring and regionalization of trade.

Originality and value: The chapter is addressed to students, scholars, and policymakers by contributing to the current debate on the post-pandemic shape of global trade relations and the future nature of the EU's Common Commercial Policy.

Keywords: EU, Common Commercial Policy, trade policy, Covid-19, pandemic.

3.1. Introduction

The Covid-19 pandemic has triggered unprecedented and multidimensional repercussions for economic systems at both national and global levels. One of the areas mostly affected by the “Covid-19 recession” is international trade. The historic fall of global merchandise trade, the collapse of global supply chains, and trade restrictions implemented by many countries have undermined the international trade system and invited a reflection on the future nature of international trade. With its Common Commercial Policy (CCP) implemented on behalf of all 27 Member States (MS) and its economic and trade potential, the European Union has a key role in reviving distorted international trade links, but also in defining post-Covid-19 international trade environment.

The general aim of the chapter is to investigate trade measures implemented in the EU in the aftermath of the Covid-19 outbreak and define general potential effects of the current economic turbulences on the future shape of the CCP. The chapter consists of three parts. The first one presents recent trends in the EU's external merchandise trade caused by the pandemic's economic repercussions. This is followed by a short analysis of temporary trade restrictions implemented by many EU Members States and the EU in response to supply shocks. The third part – especially important in the context of the chapter's general aim – refers to the potential impact of current trade and economic processes on the post-pandemic trade strategy of the EU.

3.2. The EU's external trade in the era of the Covid-19 pandemic

The measures taken by many countries around the world to contain the Covid-19 pandemic in the first quarter of 2020 resulted in unprecedented changes to global merchandise trade volumes and values. The trend of falling commodity prices started before the pandemic, accelerated in the first quarter of 2020, reaching its

historical fall with fuels being the main driver behind this development (fall of 33.2% in March 2020); in March 2020 the UNCTAD's Free Market Commodity Price Index lost 20.4%, which was an unprecedented decrease even when compared to falls after the global financial crisis of 2008 (CCSA, 2020). The falls of commodity prices, decreasing demand on selected goods and trade measures introduced by many countries in the first months of 2020 led to a severe drop in world merchandise trade value (in the first quarter of 2020 decreased by 14.3% compared to the previous quarter). The sharpest falls were faced by Europe and North America, where exports declined by 24.5% and 21.8% respectively, while Asia recorded only a 6.1% fall in exports. As of October 2020, the WTO forecasts a decline in the volume of global merchandise trade in 2020 by 9.2% (14.7% for Europe). The projected decrease was partly alleviated by the growth of trade in Covid-19 related products recorded during summer months of 2020. The forecasted recovery in 2021, with the projected rise of 7.2%, will not restore pre-pandemic global trade values by the end of 2021. Moreover, those projections are subjects to a high degree of uncertainty since they do not include influence of the second/next waves of the pandemic and can be tested by the government responses to the situation in the forthcoming months of 2020/2021 (WTO, 2020).

This historical decrease of global trade has been also clearly perceptible from the perspective of the EU's external trade. The steepest decline in the EU's trade flows was recorded in the second quarter of 2020, when extra-EU exports and imports recorded falls at the level of ca. 25–30% (Figure 1). In the following months, the situation – similarly to global trends – improved and the falls were not

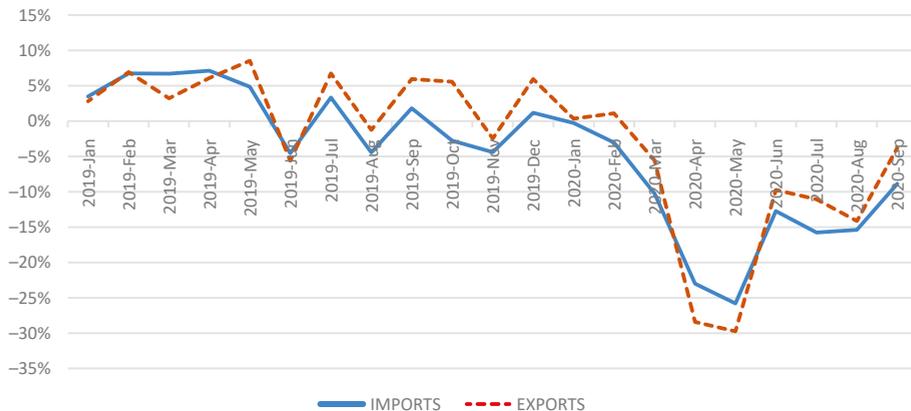


Figure 1. Extra-EU-27 exports and imports (monthly change (%) to previous year, January 2019 – September 2020)

Source: (Eurostat, 2020a).

so severe as in the second quarter of 2020. However, the total value of extra-EU trade during the period of January to September 2020 recorded a strong decrease of 11.4% and 12.8% in exports and imports, respectively (Table 1). Regarding changes in the structure of EU's trade, we see that energy and manufacturing sectors – esp. transport equipment and electrical machinery – are the most affected by declines, while primary goods and chemicals recorded relatively modest disruptions. The decline in EU-27 merchandise trade was recorded with most of the main trade partners; from top EU's traders only trade with China increased in the first nine months of the 2020. If this trend continues, China will become the most important trade partner of the EU for the first time ever (Figure 2). Let us note that trade distortions and volume volatility recorded during the pandemic have been more severe in the case of extra-EU merchandise trade than internal trade flows; in January to September 2020, the intra-EU trade decreased by 9.9% compared to the same period of 2019 (Eurostat, 2020b).

**Table 1. Extra-EU-27 trade by main product sections
(January to September 2019 vs. 2020, bn EUR)**

	Extra-EU EXPORTS			Extra-EU IMPORTS			Trade balance	
	Jan-Sep 2019	Jan-Sep 2020	change (%)	Jan-Sep 2019	Jan-Sep 2020	change (%)	Jan-Sep 2019	Jan-Sep 2020
Total	1 580.4	1 400.6	-11.4	1 452.6	1 266.1	-12.8	127.8	134.5
Primary goods	237.8	206.9	-13.0	423.3	311.3	-26.5	-185.5	-104.4
Food & drink	118.7	121.0	1.9	87.5	84.6	-3.3	31.2	36.6
Raw materials	41.3	38.6	-6.5	61.0	58.3	-4.4	-19.7	-19.6
Energy	77.7	47.3	-39.1	274.8	168.4	-38.7	-197.0	-121.2
Manufactured goods	1 308.9	1 161.1	-11.3	1 007.0	928.0	-7.8	301.9	233.1
Chemicals	304.3	310.2	1.9	177.7	175.3	-1.4	126.6	134.9
Machinery & vehicles	642.4	539.4	-16.0	468.4	421.1	-10.1	174.0	118.3
Other manufactured goods	362.2	311.5	-14.0	361.0	331.6	-8.1	1.3	-20.1
Other	33.7	32.6	-3.3	22.4	26.9	20.1	11.4	5.8

Source: (Eurostat, 2020b).

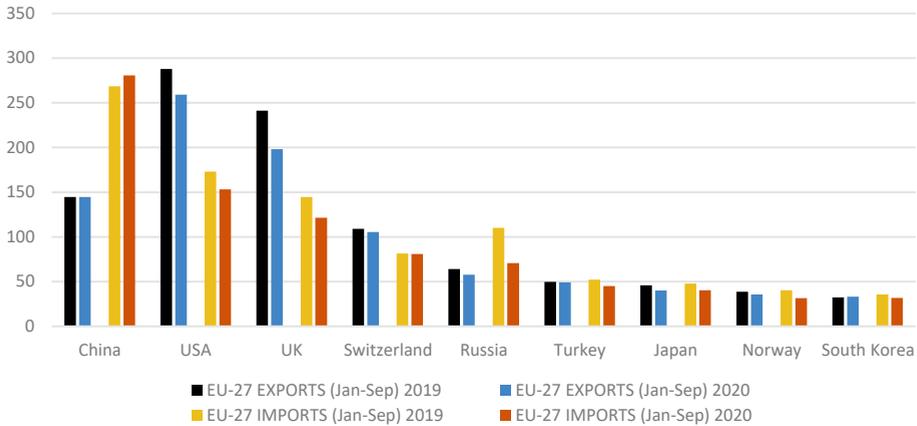


Figure 2. Extra-EU-27 trade by main trade partners (January to September 2019 vs. 2020, bn EUR)

Source: (Eurostat, 2020b).

3.3. Reactions to trade during the Covid-19 pandemic from the EU's perspective

The first phase of the pandemic revealed weaknesses of the global trade architecture, at that time mostly noticeable in the trade of Covid-related products. The growing challenge of adequate stockpiling, the shortcomings of ‘just-in-time’ production, and high dependence on a limited number of suppliers (or even one) met an unprecedented increase in demand for personal protective equipment, medical devices, and pharmaceuticals. Although the EU is one of the largest producers and a net exporter of medical devices and high-quality medicinal products, the shortage of adequate supply of those products was noticeable in many European countries. The EU depends strongly on the import of medicines, protective equipment, and various basic substances and semi-products used for further processing in the EU. The total value of the pre-pandemic EU’s imports of Covid-19-related products amounted to ca. EUR 127 bn (2019; Cernat, 2020) and the insufficient availability of many of those goods led to export restrictions implemented ad hoc by many countries worldwide, including EU Member States. In consequence, global distortions in supply have triggered strategic questions about the European and global solidarity and the future shape of supply chains for “essential products” (VZBV, 2020).

The individual EU Members States were among first traders – together with some Asian and Arab countries – that launched (February-March 2020) trade

restrictions regarding the pandemic. Those included mostly export restrictions and requisitions of domestic supplies of essential goods (BDI, 2020). Implemented out of fear of domestic shortages, the measures targeted the medical supplies and medicines associated with the Covid-19 pandemic: e.g. test kits and related apparatus, disinfectants and sterilization products, medical consumables, protective garments, and some medical devices (Pirker, 2020). The restrictions frequently assumed even the drastic form of direct interventions and requisitions of medical products. Export bans implemented by several EU countries were applied both to other EU MSs and non-EU countries (Hoekman, Fiorini, & Yildirim, 2020). As the EU production of personal protective equipment concentrates in the Czech Republic, France, Germany, and Poland, and those countries were at some point restricting export of those products, the EU market faced trade and supply disruptions from both global and EU suppliers (Pirker, 2020). The steps and decisions undertaken by individual MSs might have led not only to further problems with access to critical supplies for other EU partners, higher market volatility, and increase of average prices of products needed in tackling the pandemic but such immediate and autonomous decisions might have also eroded the fundamental rules of the EU's Single Market and the Common Commercial Policy. In broader political context, such reactions have negative repercussions in trust among European partners and the reputation of the European project (Hoekman et al., 2020).

In the middle of March, the European Commission (EC) joined the action and adopted measures that, on the one hand, addressed intra-EU impediments that resulted from the abovementioned steps of individual Member States and Europeanized an export authorization scheme. On the other hand, the EC answered the growing concern of shortages of medical supplies resulting from export restrictions implemented by traditional suppliers to EU markets. On March 14, 2020, the EC adopted a Regulation that imposed (until April 26) the authorization requirement for export outside the EU (since the March 20 not applied to EFTA) of personal protective equipment, i.e. protective spectacles and visors, face shields, mouth-nose-protection equipment, protective garments, and gloves (EC, 2020). The EU exported those products mostly to the USA, Switzerland, Norway, China, and Russia (Pirker, 2020).

Implemented in the middle of March, export restrictions were not the only trade measures undertaken at the EU level to deal with the pandemic. The EC adopted several legislations and guidelines with the goal to affiliate trade with and within the EU and to ensure the availability of goods and services essential for responding to the Covid-19 pandemic. Those included (EC, 2020c; Deloitte, 2020; DG Taxud, 2020; Pirker, 2020):

- Decision (EU) 2020/491 on relief from import duties and VAT exemption on importation granted for goods needed to combat the effects of the Covid-19 outbreak during 2020;

- the Covid-19 guidelines on the application of customs provisions relating to the customs decision-making process, customs procedures and customs formalities to ensure a uniform application of the Union’s Customs Code in times of crisis;
- the Covid-19 guidelines on border measures to the EU Member States to ensure the undeteriorated and free circulation of all goods in the Single Market and guarantee the supply chain of all essential products (e.g. the Commission proposed to implement “Green Lanes” for speeding emergency freight transport between Member States, waiver of existing weekend bans, and the facilitation of safe movement for transport workers); in accordance with the guidelines, any restrictions implemented by Member States should be “motivated, transparent, relevant and mode-specific, non-discriminatory and maintain a level playing field in the Single Market” (EC, 2020b);
- Guidelines on Facilitating Air Cargo Operations including operational and organizational procedures to secure transport flows from outside the EU, including medical supplies.

The measures implemented by the EC aimed on the one hand at facilitating trade and transport and increasing the supply of products essential in counteracting the pandemic. On the other hand, they had a protectionist character to control the supply and stockpiling of those goods and to prevent emerging shortages in this area. The decisions at the EU level were a response to individual steps of EU Member States that could have led to more chaotic and non-transparent trade rules, detrimental for both fundamental rules of the Single Market and the “common character” of the EU’s trade policy. In this context, the EC played a coordinating role in promoting transparency in intra and extra-EU trade in the turbulent times.

3.4. The post-pandemic trade strategy of the EU: Challenges ahead

The pandemic strongly affected social and economic activities in many aspects. Although there remains uncertainty about Covid-19 – including the risk of “next waves” and possible shutdown measures – many expect that the pandemic’s trade and economic aftermath not only affects the economic activity during the pandemic and shortly after it but that it will lead to a redefinition of economic structures and business relations in the long-term perspective. This also applies to the system of international trade and global supply chains, which may induce new approach and strategy of the EU’s Common Commercial Policy.

The general concern aroused as the consequence of worldwide trade restrictions is the threat of growing protectionism in the global trade system and the

accompanying lack of transparency in trade policies. Although some trade measures undertaken during the pandemic may be justified by social or security reasons, in the long-term perspective such trade restrictions may bring unintended adverse economic consequences. Export restrictions make the trade system less efficient and effective, harming trade partners, and leading to potential negative humanitarian and foreign policy consequences. Such measures may result in the instability of the trade system, as the aftermath might include price volatility, the reallocation of production and distribution, retaliatory actions from trade partners, panic buying, hoarding and speculation, or long-term negative effects on the reputation and perception of investment risks influencing allocation decisions. Retaliatory export restrictions may also lead to a limited access for domestic companies to imported inputs, which would in consequence adversely affect the ability of domestic production to expand. Certainly, the current pandemic and some problems with the supply of Covid-related goods, especially at the beginning of the outbreak, will be an incentive to reduce overdependence on the small number of suppliers by providing multiple markets with more diversified and local production for the price of economies of scale (Hoekman et al., 2020).

Trade will be an important engine of recovery after the pandemic, which also applies to EU economies, traditionally open and dependent on international trade. However, this will require addressing many of the mentioned above processes and developments triggered by the outbreak. The experience of the current crisis may lead to redefining some of the EU's trade policy priorities. The EU's response must address trends reinforced by the Covid-19 pandemic such as state intervention, the surge of managed trade, state capitalism distortions (China), and the need for structural reform of the multilateral system; including dispute settlement, subsidies, sustainability, and the link between trade and health (Macyra, 2020).

The future EU's trade policy must also address the nature of global supply chains and their vulnerabilities revealed by the pandemic crisis. In this context most reiterate that the EU should reinforce its resilience to supply shocks and serious shortages in future. This might be developed in multiple ways. The global value chain should be rethought and redefined as today many countries in Eastern Europe or the Mediterranean region have a comparative advantage in products (e.g. machinery, clothing, furniture and car parts) imported mostly from China (Cernat, 2020) following the development of the "China +1 model" in which importers have alternative supply sources from a different country than China. Some alternatives to current trade patterns may come also from new technologies. The automation and development of AI may encourage the reshoring of production or help to mitigate supply chain risks. Three-dimensional printing may be a substitute for imported production and, as such, might play a greater role in GVC by providing an alternative to supply chains in crisis. Some incentives that ensure higher transparency

and security for international trade may also come from blockchain technologies, which can be especially helpful for business continuity during lockdowns and physical distancing; this may change future trade activities in areas of trade, finance, customs, certification processes, transportation, logistics, and insurance.

3.5. Conclusions

The European Union's CCP – with its legal exclusive competences at the European level – is one of the key policies aimed at restoring economic growth and development after the Covid-19 crisis. For decades, the CCP has emanated from the fundamental philosophy of the European project based about market integration and openness to the world. Although the future of trade and post-Covid-19 global trade system – and, even more broadly, globalization – appear among the main topics in debates on the impact of the current pandemic and crisis, the future nature of the CCP is a subject of high uncertainty.

The first restrictive steps taken by the MSs and strong government interventions through trade were met with the EC's reply that stressed the implemented trade restrictions should be limited and temporary, and that trade openness is essential for overcoming the pandemic and, subsequently, recovering economic stability. As this might brought some confusion (restrictions vs. openness), especially at the beginning of the Covid-19 outbreak, the general approach at the EU level stresses that the necessary resilience to future trade distortions should not come from protectionism and narrowly understood self-sufficiency. Some alternative solutions come from new technologies, fair competition, higher transparency of trade policies, international standards, certification schemes, and stronger cooperation on the multilateral level, including the WTO reforms. However, this must be confronted with trends highlighted –but not initiated – by the current pandemic such as the reshoring and regionalization of trade. The general and still declared openness of the EU's trade policy does not preclude the future drift of the CCP from a neoliberal doctrine in the long-term perspective (Orbie & Ville, 2020). The Covid-19 pandemic may be one of the triggers of that shift.

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4. The future of the European Migration and Asylum Policy



Judyta Cabańska

Poznań University of Economics and Business
Institute of International Business and Economics
Department of European Studies
judyta.cabanska@ue.poznan.pl

Abstract

Purpose: Migration is a complex issue, with many facets that need to be weighed. Five years after the 2015 refugee crisis and the European Agenda on Migration, the EU still lacks a common migration and asylum policy. The aim of the chapter is to discuss the future of the migration and asylum policy in the European Union.

Design/methodology/approach: The chapter analyzes the current migration situation in Europe, the impact of Covid-19 on migratory flows in Europe, challenges faced by the EU, and legislative initiatives proposed under the New Pact on Migration and Asylum. The text indicates key challenges related to migration faced by the European Union and provides an overview of the legislative proposals that seek to address the identified gaps.

Findings: Covid-19 pandemic highlighted the need for the EU to be prepared to address situations of force majeure and broader crises, which impact migration and asylum management systems. The Pact on Migration and Asylum sets out the Commission's new approach to migration, addresses border management, and ensures more coherence to integrate the internal and external dimensions of migration policies.

Originality and value: The chapter attempts to contribute to the literature on international migration by delivering analysis results of Covid-19 pandemic's impact on the migration flows in Europe and the analysis of EU's new approach to migration and asylum policy.

Keywords: migration, asylum, COVID-19, Pact on Migration and Asylum.

Suggested citation

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4.1. Introduction

The outbreak of the Covid-19 virus quickly escalated into a global pandemic, resulting in a crisis that affects people worldwide. The measures taken by EU's Member States heavily restricted individual mobility and fundamental rights. The overcoming of the global crisis is to justify such measures, but we should examine how these steps shape future migration and asylum policies. Covid-19 already significantly impacts migration and asylum policies, while the pandemic produced divergent reactions from Member States.

Five years on from the refugee crisis of 2015 and the European Agenda on Migration, the EU is still lacking a common migration and asylum policy. Migration is a complex issue, with many facets that must be weighed together: the safety of people who seek international protection and the concerns of countries at the EU's external borders, which worry that migratory pressures will exceed their capacities, and which need solidarity from others. In September 2020, the European Commission proposed the New Pact on Migration and Asylum. The Pact sets out a new framework that ensures the fair sharing of responsibility and solidarity among Member States while providing certainty for individual applicants (European Commission, 2020b). The European Commission's proposal will be then discussed in the European Parliament and Council of the EU. Highly dependent on migrant labor in many sectors, the EU Member States will have to work out appropriate regulations.

The aim of this chapter is to discuss the future of the migration and asylum policy in the European Union. I analyze the current migration situation in Europe, the impact of Covid-19 on migratory flows in Europe, challenges faced by the EU, and legislative initiatives proposed under the New Pact on Migration and Asylum. These elements indicate key challenges in relation to migration faced by the European Union and provide an overview of the legislative proposals that seek to address the gaps identified.

4.2. The current migration situation in Europe

Since the migration crisis of 2015, the number of arrivals and composition of flows significantly changed. The number of irregular arrivals to the EU decreased from over 1.8 million in 2015 to around 142,000 in 2019 (a decrease of 92%). The most common routes of arrivals to Europe were Mediterranean routes and Canary Island route (UNHCR, 2020b).

Between January 1 and December 31, 2019, 123,700 refugees and migrants arrived via the three Mediterranean routes; 13% less compared to arrivals in 2018

(Figure 1). Most crossed Mediterranean routes from Turkey and North Africa (UNHCR, 2019).

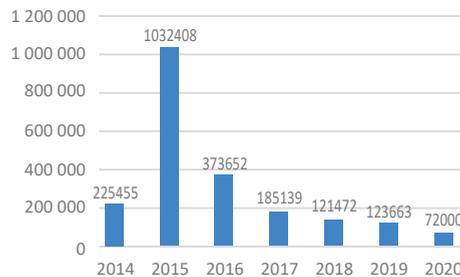


Figure 1. Total yearly arrivals to Europe through the Mediterranean routes and the Canary Islands route

Source: Own elaboration based on (UNHCR, 2020a).

On the Central Mediterranean route, the number of irregular migrants dropped by 40% in 2019 (roughly 14,000) compared to 2018, with most migrants coming from Tunisia and Sudan. The total number of irregular migrants on the Western Mediterranean route – including the Western African route – dropped by 54% (roughly 27,000 people) compared to 2018, most of them coming from Morocco and Algeria. In contrast, there appeared significantly more arrivals in 2019 compared to 2018 via the Eastern Mediterranean route (around 83,000; 47% more) and via the Western Balkan route (around 15,000; 159% more). Nevertheless, these figures are still much lower than those of the 2015–2016 crisis (European Commission, 2020a). In 2019, 56% of arrivals were men, 17% women, and 27% children. Due to the high risks associated with crossing the Mediterranean Sea, most estimate that 1336 people died or went missing between January 1 and December 31, 2019, a 41% decrease compared to the 2277 deaths in the same period in 2018. Most deaths occurred between North Africa, Italy, and Malta, but also between North Africa and Spain (UNHCR, 2019).

Asylum applications have not followed the decreasing trend in irregular arrivals. It means that the ratio of asylum applications to irregular arrivals is higher than it was in 2015. In addition, the share of migrants from countries of origin whose nationals have a low chance of being granted international protection has increased. With a consistently high number of asylum applications in the past years, the pressure on national asylum systems remains high, especially in those Member States that can find it a challenge to rapidly process all asylum applications.

Noteworthy, every year, 400–500,000 foreign nationals are ordered to leave the EU because they entered or are staying irregularly. Eurostat (2020) data show

that the number of third-country nationals found to be irregularly present in the EU substantially decreased by 70% from 2015 to 2019. However, the number of third-country nationals who returned decreased by only 3% and the number of actually returned third-country nationals decreased by 18% between 2015 and 2019. On average, only one-third of them goes back to their home country or to another third country through which they traveled to the EU.

4.2.1. The impact of Covid-19 on arrivals to Europe

The Covid-19 pandemic and measures to contain it profoundly impacted mobility and migration (Figure 2). The pandemic has produced divergent reactions from Member States (Dimitriadi, 2020).

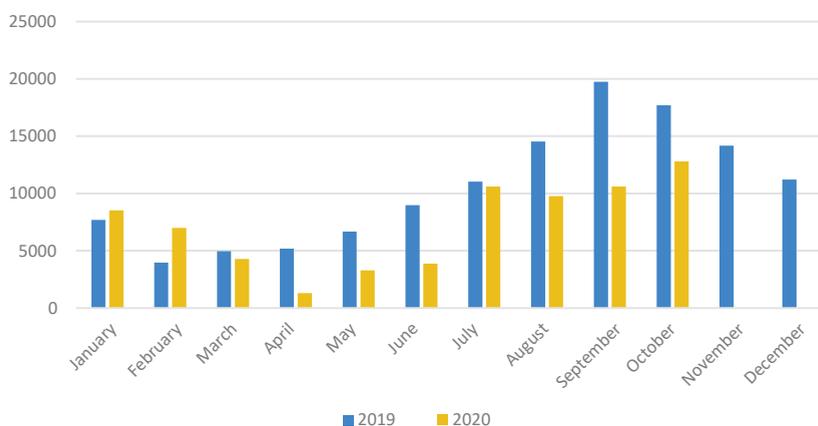


Figure 2. Total monthly arrivals through the Mediterranean routes and the Canary Islands route, 2019–2020

Source: Own elaboration based on (UNHCR, 2020a).

Travel restrictions are passed to contain the virus, including by prohibiting entry of residents from other countries, and some countries have closed their borders entirely. The pandemic substantially reduced the number of irregular arrivals to the EU in the past months (Frontex, 2020). Migration processing and assistance to asylum seekers slowed down. These mobility restrictions forced the International Organization for Migration and the United High Commissioner for Refugees to temporarily suspend refugees' resettlement travels (IOM, 2020).

4.3. Challenges faced by the EU

Given the current migration situation, this part describes the resulting challenges faced by the EU. A sustainable system that would work for all Member States was never implemented to ensure immediate reactivity to external factors, especially in times of crisis. There is no structured mechanism in the Common European Asylum System (CEAS), whereas the pressure on individual Member States varies greatly.

First, there is a lack of an integrated approach at the EU-level that is effectively translated into national asylum and migration policies. Despite increased cooperation in the implementation of the CEAS, Member States' asylum and return systems operate mostly separately. Notwithstanding the assistance from EU agencies, effective structures for coordinating the migration and asylum policy are still wanting. There is no coordination at any of the stages of migration management process, from arrival through the processing of asylum requests to the provision of reception conditions and the handling of returns (European Commission, 2020d).

Another problem lies in weaknesses of the current Dublin III Regulation. Consequently, there is a lack of effective rules for sharing responsibility for asylum applicants across the EU. The current rules on the shift of responsibility provide an incentive for irregular migration and allow applicants for international protection to influence this shift. Currently, when the EU implements instruments for the deportation of foreigners that gained much importance (Soysüren & Nedelcu, 2020), the rules of the Dublin system should be clearer.

In addition, we must note that fragmented and voluntary solidarity among Member States disproportionately strains first entry Member States. Efforts to address the pressure of Member States through relocation solidarity measures dealt only with applicants for international protection. Mixed arrival flows to the EU make it all the more necessary to consider the widening of relocation to other categories of migrants. In such situations, relocation cannot be the only effective response to deal with the realities presented by such flows and should also be addressed by different forms of solidarity. On the legislative side, negotiations of the CEAS proposals led to no agreement among Member States, especially due to divisions on the issue of compulsory relocation of applicants for international protection. Finding an agreement among Member States is a key for the more effective management of migration (European Commission, 2020d).

Moreover, the problem remains that there is no dedicated mechanism to address crisis situations like the Covid-19 pandemic. Every system requires a framework for dealing with extreme situations. Despite the improvements implemented after the 2015 crisis, the EU remains unprepared to address crisis situations.

4.4. Overview of legislative acts and proposals on migration and asylum

In 2016, the European Commission presented a set of legislative proposals to complete the reform of the Common European Asylum System. The asylum reform consisted of seven legislative proposals: the recast Dublin Regulation, the recast Eurodac Regulation, the Regulation establishing the European Union Agency for Asylum, the Asylum Procedure Regulation, the Qualification Regulation, the recast Reception Conditions Directive and the Union Resettlement Framework Regulation. All of them aimed to move toward an efficient, fair, and humane asylum policy framework that could function effectively also in times of a sudden increase in numbers of arrivals. Whereas significant progress and provisional political agreement among co-legislators was reached on the Qualification Regulation, the Reception Conditions Directive, the Union Resettlement Framework Regulation, the Eurodac Regulation and the first proposal establishing the EU Agency for Asylum, less progress was achieved on the Dublin and the Asylum Procedures Regulations (Cymbranowicz, 2020).

Although the number of irregular arrivals to the EU has dropped since 2015, structural challenges still exist. Moreover, the recent Covid-19 pandemic highlighted the need for the EU to be prepared to address situations of force majeure, which impact migration and asylum management systems.

4.4.1. Analysis of the initiatives under the New Pact on Migration and Asylum

In September 2020, the European Commission presented the New Pact on Migration and Asylum that includes the following proposals:

- Proposal for a Regulation on Asylum and Migration Management;
- Amended proposal for a Regulation on establishing a common procedure for international protection in the Union;
- Amended proposal for a Regulation on the establishment of “Eurodac”;
- Proposal for a Regulation introducing a screening of third country nationals at the external borders and amending Regulations (EC) No 767/2008, (EU) 2017/2226, (EU) 2018/1240 and (EU) 2019/817;
- Proposal for a Regulation addressing situations of crisis and *force majeure* in the field of migration and asylum.

The proposal for a Regulation (or Pact) on Asylum and Migration Management sets out a common framework based on integrated policymaking. The aim of this

regulation is to address the lack of unified approach to implementing EU's asylum and migration policies. It provides a comprehensive approach to migration management, which follows the principles of solidarity, integrated policymaking, and responsibility sharing. The proposed system provides for a monitoring structure based on Member States' reports on the implementation of the common framework. This will allow for a comprehensive view of the situation in the EU. Moreover, the Pact introduces an effective and coordinated screening of people apprehended in connection with unauthorized crossing of external borders. The Pact proposes that all such third-country nationals are immediately screened, with identity and health checks and registration captured in Eurodac (European Commission, 2020c).

Additionally, the Pact consists of the proposal of a seamless asylum return procedure. The European Commission has proposed to bring together the rules on the return and asylum procedure in a single legislative instrument. Moreover, some noticed that the individual assessment of each asylum application with full respect of fundamental rights – such as the principle of *non-refoulement* – must always be ensured.

The new Pact contains a more comprehensive approach to solidarity. It has introduced new forms of solidarity. The main pillars of this new approach are relocation and return sponsorship. The solution proposed responds to the need of broadening solidarity beyond the relocation of asylum seekers and to include the relocation of other categories of migrants and answer to a wider range of situations. In addition, in order to address the challenges related to migrants rescued at sea, the Pact proposes to extend the principle of solidarity to SAR operations, building on voluntary contributions. The European Commission will establish the measures to be taken by Member States. The share of such contributions will be calculated based on a distribution key of 50% GDP and 50% population. For SAR operations, the implementing act setting out a solidarity pool of contributions will also be foreseen.

The new proposal includes more efficient responsibility rules for robust migration management. There is a proposal that the current responsibility criterion linked to first entry can remain, but a criterion on responsibility for examining an application registered after entry following a SAR operation would be added. In terms of respect for fundamental rights, there is a proposition of the right to family reunification, which reinforces the rights of unaccompanied minors and makes them a priority for relocation.

In order to address identified data gaps, the new Pact proposes new rules. The amended proposal for a Regulation on the establishment of “Eurodac” aims to provide for more efficient data processing.

The European Commission also noted that in the light of lessons learned from the Covid-19 pandemic, the EU requires flexibility in situations of force majeure.

The proposal for a regulation that establishes procedures and mechanisms addressing situations of crisis aims to ensure that the EU has at its disposal specific rules that can be applied to ensure effective solidarity in situations of crisis in national asylum and return management systems (European Commission, 2020d).

4.5. Conclusions

The Covid-19 pandemic highlighted the EU's need for preparation to situations of force majeure and broader crises, which impact migration and asylum management systems. The Pact on Migration and Asylum sets out the Commission's new approach to migration, addresses border management and ensures more coherence to integrate the internal and external dimensions of migration policies. The European Commission proposal must still make its way through the legislative process in the European Parliament and European Union Council.

One of the most important changes is that the Pact allows Member States to opt out from participating in the relocation of asylum seekers and refugees within the European Union, by offering them the possibility to instead provide financial support to other Member States. The viability of this scheme may raise doubts. Another concern is that border security has been prioritized over access to asylum. While emphasizing the principle of *non-refoulement* as enshrined in international refugee law, the Pact simultaneously introduces measures clearly meant to complicate the possibility for individuals to seek protection in the EU (Kirişçi, Erdoğan, & Eminoğlu, 2020). However, because the measures taken during the Covid-19 pandemic largely restricted mobility and individual freedom, there remains a risk of stricter migration and asylum policy.

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5. Central Bank Policy toward the Covid-19 pandemic: Seeking patterns among the most powerful central banks



Anna Matysek-Jędrych

Poznań University of Economics and Business
Institute of International Business and Economics
Department of International Competitiveness
anna.matysek-jedrych@ue.poznan.pl



Katarzyna Mroczek-Dąbrowska

Poznań University of Economics and Business
Institute of International Business and Economics
Department of International Competitiveness
katarzyna.mroczek-dabrowska@ue.poznan.pl

Abstract

Purpose: The main objective of this chapter is to identify the role of central banks in managing the crisis created by the Covid-19 pandemic. In order to explore this subject, the chapter attempts to identify similarities and differences in the behavior of selected central banks, those most important from the viewpoint of the global economy.

Design/methodology/approach: The study encompassed 29 countries, mostly European economies (16) and other economies that bear the impact on the global output. The empirical analysis was based on k-means clustering analysis, which enabled us to identify groups of countries that followed similar solutions in response to the Covid-19 crisis.

Findings: The analysis conducted in this chapter indicates the diverse nature of central banks' policies and, in many cases, to a specific bias toward an increase in monetary or financial policies. The intensification of the use of the tools of certain policies must be seen from the perspective of the purpose of those policies, but also in the context of the legal or statutory constraints imposed on central banks.

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Research limitations/implications: An interesting direction of research into the diverse nature of central bank policies will undoubtedly be to seek answers to the question of the effectiveness of these policies in the context of crisis. Such a study, carried out *ex post*, may provide a starting point for designing future central bank crisis policy and implementing institutional solutions of a national or even supranational nature.

Originality and value: The chapter shed some light on the regulatory and statutory sphere of central banking. We may clearly state that key central banks of the world do not operate within the framework of a single universal rule and that there simultaneously is no optimal combination of crisis policy tools even for the same crisis. Therefore, when looking for regulatory and legal solutions, we should treat each case individually by designing regulations in a way that corresponds to the specific features and conditions prevailing in the given financial and economic system.

Keywords: central banks, COVID-19, monetary policy, pandemic, regulatory framework.

5.1. Introduction

The Covid-19 started in China in Autumn 2019 but after a short time it spread all around the world. Undoubtedly, the original nature of the crisis should be referred to the issue of people's health, but we cannot avoid its deep financial, economic, and social impact. Although we still do not know everything about the course of the crisis and its consequences, a consensus has undoubtedly been reached with regard to the basic channels of transmission of the Covid-19 crisis in the macro-economic and business spheres, i.e., a negative supply chain shock to the world economy by locking down the economy, shutting down factories, and disrupting global supply chains (OECD, 2020; Boissay & Rungcharoenkitkul, 2020; Fornaro & Wolf, 2020). It is almost certain that the aggregate demand channel is also active in spreading the crisis, but the scale of its impact is questionable.

The Covid-19 crisis must undoubtedly be perceived as a real threat, not only in terms of people's health and lives but also in terms of its microeconomic and macro-economic impact (cf. Kowalski, 2021). Governments and institutions that regulate and supervise the financial markets, along with national and supranational bodies, are taking numerous, often unconventional measures to mitigate the potential negative effects of this crisis. Central banks around the world are one of the most active players, responding quickly and forcefully to the economic and financial disruptions engendered by the Covid-19 crisis. Such an activity makes central banks a particularly interesting subject of in-depth research.

The main objective of this chapter is to identify the role of central banks in managing the crisis created by the Covid-19 pandemic. In order to explore this subject, the chapter attempts to identify similarities and differences in the behavior of selected central banks, those most important from the point of view of the

global economy. The hypothesis that central banks increasingly assume the goal of financial stability – despite their statutory goal of price stability – will be verified in this chapter.

The structure of the chapter is the following. First, we will conduct a multi-faceted analysis of the Covid-19 crisis to identify the basic mechanisms for the spread of the crisis and its impact on the global economy. Then we will discuss the evolution of central bank functions and reviewed the tools used by central banks in the crisis policy. In the next section, we will present the results of empirical research carried out on the activity and nature of central banks in anti-crisis policy. We will present some general conclusions at the end.

5.2. The Covid-19 impact: A macroeconomic perspective

Not having a laboratory at hand where they can carry out experiments, economists most often conduct considerations based on experience from similar past events. Therefore, the frequent approach in the literature is the use of the perspective of the Global Financial Crisis¹ (GFC) in assessing the effects of the Covid-19 crisis is not surprising. Table 1 includes the most important features of both crises.

As Covid-19 differs as a crisis from its predecessors and from the GFC (see Table 1), the mechanism of its impact on the global economy and the tools for its mitigation will also be different this time. The analytical study of the Covid-19 crisis should start with the original source, i.e., the coronavirus. Many studies have found that population health – as measured by life expectancy, infant and child mortality, and maternal mortality – is positively related to economic welfare and growth (Pritchett & Summers, 1996; Bloom & Sachs, 1998; Bhargava, Jamison, Lau, & Murray, 2001; Cuddington, Hancock, & Rogers, 1994; Cuddington & Hancock, 1994; Robalino, Jenkins, & El Maroufi, 2002a; Robalino, Voetberg, & Picazo, 2002b; WHO Commission on Macroeconomics and Health, 2001; Haacker, 2004; Arnold, De Sa, Gronniger, Percy, & Somers, 2006; Barro, Ursua, & Weng, 2020; Correia, Luck, & Werner, 2020). There are many channels through which an infectious disease outbreak influences the economy.

Therefore, the Covid-19 pandemic impact on the global economy (aggregate, macroeconomic approach) and the firm (micro approach) is multifaceted and differentiated according to many factors and many direct and indirect channels. The observed regularities illustrated on Table 1 result from the impact of a complex set

¹ The Global Financial Crisis is used to refer to the financial crisis that began in the U.S. subprime mortgage market in 2007. Very quickly, this crisis spread – through financial and trade contagion channels – to other economies, leading to the deepest economic collapse since the 1920s and 1930s (see e.g., Blankenburg & Palma, 2009; Crotty, 2009).

Table 1. Covid-19 crisis versus the Global Financial Crisis

Feature	Covid-19 Crisis	Global Financial Crisis
Primary source of the crisis	Coronavirus (medical dimension, Chinese market)	Subprime mortgage segments (financial dimension, American market)
Primary nature of the crisis	Human, determined by the growing number of infections	Financial, mostly limited to the banking crisis
Direct transmission channels	Globally synchronized lockdowns (sudden stop in economic activity) Supply chain disruption Financial markets (sharp repricing with the increase of uncertainty, flight to safe assets, rush to liquidity) Credit market (lenders hold back on extending credit) Unemployment (increase in the risk of defaults)	Financial markets (dramatic fall of commodity prices, increased exchange rate volatility) Credit market and banking sector channel (global liquidity squeeze, problems of “mother” banking institutions) International trade (weaker global demand, FDI channel) Stock exchange market
Scale of the crisis	Global	Global (with dominance of highly developed countries)
Primary anti-crisis policy measures	Fiscal policy-related	Monetary policy-related
Anti-crisis policy nature	“Act fast and do whatever it takes” (Baldwin & Weder di Mauro, 2020)	“Whatever it takes” (Draghi, 2012)
Uncertainty level	Extremely high	Very high
Process	Crisis is immediately and completely spreading across the real economy, evaporating supply and demand simultaneously	Crisis was gradually spreading from the financial markets to the real economy (gradual contagion process)

Source: Own elaboration based on (Draghi, 2012; Baldwin & Weder de Mauro, 2020; Boissay & Rungcharoenkitkul, 2020; Fornaro & Wolf, 2020; OECD, 2020).

of factors such as the pathway of the pandemic, the intensity and efficacy of containment policies, the scale of the economies’ openness, the dependence of the economy on a particularly fragile industry, shifts in spending patterns, behavioral changes. These are uncertain factors that interact in ways hard to predict.

Establishing precise cause-and-effect relationships among these factors and observed trends, determining the direction of these relationships, and measuring their strength seems impossible at present and would be a task that well exceeds the framework outlined in this research proposal.

Hence, from a pragmatic point of view, the following assumptions could be formulated regarding the impact of Covid-19 on the macroeconomic level (Bofinger et al., 2020; Fornaro & Wolf, 2020; Kowalski, 2021):

- the real economic impact of Covid-19 is channeled through three different optics: a) manufacturing supply chains, b) services, including tourism and transportation, and 3) energy and commodity demand and prices,
- the financial market channel impact of Covid-19 includes both the insolvency phenomenon and credit crunch,
- the development of uncertainty (i.e., behavioral lens of analysis) is crucial in assessing the long-term impact of Covid-19 on business.

There is one important trade-off that must be stressed here (Gourinchas, 2020): “flattening the infection curve inevitably steepens the macroeconomic recession curve.” The social distancing policies are purposefully inducing an economic slowdown; hence, containment policies worsen the economic recession.

5.3. Central Bank’s anti-crisis policies: Tools

The Covid-19 pandemic significantly contributed to the increase in economic instability and – according to some economists and politicians – it will be the foundation of a deep economic crisis. It should not come as a surprise, therefore, that individual countries, – but also supranational bodies – are trying to intensify all possible anti-crisis measures. In the context of the Global Financial Crisis, it is the central banks that one of the most important “guardians of stability” and, therefore, even in the current crisis, it is the central banks on which eyes of many market participants are focused.

However, the active role of central banks in dealing with the Covid-19 crisis repercussions is not so obvious, due to their statutory restrictions. Originally, the primary function of central banks was a monopoly on the issuance of legal tender. Later, central banks began to be seen as guarantors of the stability of the monetary system, and after the introduction of inflation targeting in many countries, most agreed that the central bank’s objective should be price stability. Such an approach strongly limited central banks in terms of crisis policy. Hence, there increasingly appeared opinions and specific legislative measures that indicated possibility of imposing a financial stability objective on central banks. The question whether

there might be drawbacks to involving central banks in financial stability has arisen rather recently (Svensson, 2000; 2003; Padoa-Schioppa, 2003). The main argument against giving central banks any sort of responsibility in the area of financial stability is that the latter objective would not always align with the primary price stability objective, thereby leading to socially suboptimal monetary policy. To counter that argument, scholars often stress that financial stability and price stability do not conflict with each other and that, on the contrary, one cannot be achieved without the other (Schwartz, 1988; Bordo, Dueker, & Wheelock, 2000). The more broadly defined the purpose of the central bank, the wider the range of instruments available for the central bank in anti-crisis policy.

Central banks worldwide are seeking to mitigate the immediate impact on real economy through traditional monetary policy measures, but also through some extraordinary monetary, financial and macroprudential measures. Currency devaluation, capital controls, and bail-in are the main tools available to national financial authorities, however there is no universal playbook. Basically, the tools used by central banks can be classified into three different policies, which are entirely made up of central bank policies but are assumed to have slightly differently defined main objectives:

- monetary policy focuses on the objective of price stability, i.e., the strict and direct control of money supply and the promotion of stable economic growth as an additional objective;
- external policy mitigates the effects of external economic shocks and using the exchange rate tool;
- financial policy (macro-prudential and micro-prudential) focuses on the stability of the banking sector and support for borrowers.

The use of tools of the above policies primarily depends on the institutional and legal solutions adopted, e.g., the participation of a country in a monetary union makes it impossible to use devaluation as a tool of anti-crisis policy and to prevent the spread of crisis on identified channels. The crisis triggered by the Covid-19 pandemic is not a classic financial or currency crisis, hence the actions taken by central banks are often unprecedented and, for the most part, significantly ahead of theoretical considerations in this area.

5.4. Methodology and results

The empirical analysis was based on k-means clustering analysis, which enabled us to identify groups of countries that followed similar solutions in response to the Covid-19 crisis. Clustering refers to grouping entities (here: countries) in such

a way that entities belonging to one group (cluster) display similar features and at the same time are different to those grouped in other clusters. First, we ran hierarchical cluster analysis based on Ward's minimum variance technique so as to name the appropriate expected number of clusters. The expected number of clusters is the number of groups that are optimum; any lower or higher number would mean that the objects are not properly categorized. Second, we applied k-means clustering analysis to identify which economies shared similar approach to monetary and fiscal policies during the pandemic. Both the Ward's minimum variance technique and the k-means clustering analysis were performed twice, once for monetary policy tools and, separately, for financial policy tools.

We based the study on two separate groupings, one that concerned monetary policy tools and the other that referred to financial policy tools. While the monetary policy aims to control the money supply and promote stable economic growth, financial policy focuses mostly on supporting the banking system stability, expanding access to capital, and providing borrowers with direct relief. Monetary policy must therefore be seen through the lens of macro-economic policies, while financial policies through the optics of sectoral and micro-economic policies.

In the monetary-based clustering analysis, we identified the following grouping factors:

- introduction of policy rate;
- introduction of central bank's liquidity support;
- introduction of central bank's swap lines;
- introduction of central bank's asset purchase scheme.

In the financial-based clustering we have applied the following grouping factors:

- introduction of capital buffers;
- introduction of liquidity buffers;
- introduction of adjustments to provisioning requirements;
- introduction of state loan or credit guarantees;
- introduction of restructuring of loan terms.

The study encompassed 29 countries, mostly European economies (16) and other economies that bear the impact on the global output. The grouping was made for 2 a priori identified clusters in each of the attempts. According to the variance analysis, the F-values for all factors included into the study were high, and therefore the factors reflected well on cluster breakdown. The results indicate that the aim of minimizing the within-cluster variance and maximizing the between-cluster variance was fulfilled and is presented in Table 2 below. The mean values for the identified clusters are presented in Table 3.

Table 2. Variance analysis

Factor	Between cluster	df	Within cluster	df	F-value	p
Monetary policy tools						
policy rate cuts	7.24	1.00	0.00	27.00		
central bank swap lines	1.33	1.00	3.43	27.00	10.47	0.00
central bank asset purchase scheme	1.42	1.00	5.61	27.00	6.83	0.01
central bank liquidity support	0.00	1.00	0.00	27.00		
Financial policy tools						
use of capital buffers	2.36	1.00	2.95	27.00	21.60	0.00
use of liquidity buffers	2.76	1.00	2.00	27.00	37.24	0.00
adjustments to provisioning requirements	2.36	1.00	2.95	27.00	21.60	0.00
state loan or credit guarantees	0.75	1.00	4.03	27.00	4.95	0.03
restructuring of loan terms	0.74	1.00	4.02	27.00	4.94	0.03

Note: In the case of the policy rate cuts and central bank liquidity support the within-cluster variance is 0, which does not allow for calculating the F-value.

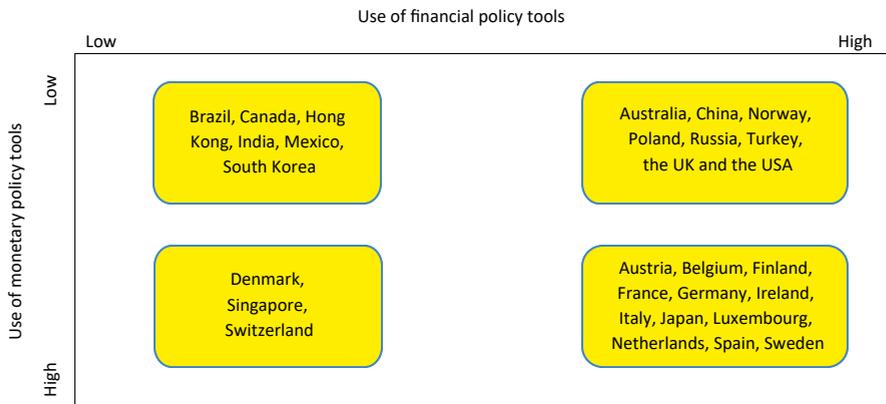
Source: Own elaboration.

The cluster analysis has created a matrix reflecting the scale of use of monetary and financial policy instruments by central banks worldwide in the context of the crisis triggered by the Covid-19 pandemic (cf. Figure 1). In the group of countries with low activity in both monetary and financial policy, there are the central banks of Brazil, Canada, Hong Kong, India, Mexico, and South Korea. In contrast, the central banks of Denmark, Singapore, and Switzerland are highly active in monetary policy (i.e., growth-enhancing measures) and low in financial policy. The situation is the opposite in Australia, China, Norway, Poland, Russia, Turkey, the United Kingdom, and the United States. This group of countries is dominated by instruments aimed at directly supporting the stability of the banking sector or borrowers. The relatively largest group of central banks are those that make extensive use of both monetary and financial policy tools. These countries include the Member States of the Economic and Monetary Union, Sweden, and Japan.

Table 3. Means for grouping measures in respective clusters

Variable	Cluster 1	Cluster 2
Monetary policy tools		
policy rate cuts	0.00	1.00
central bank swap lines	1.00	0.57
central bank asset purchase scheme	0.80	0.36
central bank liquidity support	1.00	1.00
Fiscal policy tools		
use of capital buffers	0.95	0.33
use of liquidity buffers	1.00	0.33
adj, to provisioning requirements	0.95	0.33
state loan or credit guarantees	0.90	0.67
restructuring of loan terms	0.90	0.56

Source: Own elaboration.

**Figure 1. Countries breakdown into clusters**

Source: Own elaboration.

5.5. Conclusions

The crisis triggered by the Covid-19 pandemic is currently a major challenge for central banks. Operating in many countries in an environment of low or near-zero interest rates, the banks must act using a wide range of central bank policy instruments.

The analysis carried out in this chapter points to the diverse nature of these policies and, in many cases, to a specific bias toward an increase in monetary or financial policies. The intensification of the use of the tools of certain policies must be seen from the perspective of the purpose of those policies, but also in the context of the legal or statutory constraints imposed on central banks. It can be clearly stated that the key central banks of the world do not operate within the framework of a single, universal rule, that there is a clear justification for saying “one policy does not fit all” and that there simultaneously is no optimal combination of crisis policy tools even for the same crisis. The crisis itself – although triggered by the Covid-19 pandemic – has a different course of action from one country to another, as the channels of its spread and the scale of materialization vary greatly.

An interesting direction of research into the diverse nature of central bank policies will undoubtedly be to seek answers to the question of the effectiveness of these policies in the context of crisis. Such a study, carried out *ex post*, may provide a starting point for designing future central bank crisis policy and implementing institutional solutions of a national or even supranational nature.

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6. International portfolio diversification during the Covid-19 onset: A study of correlations among CEE post-transition and developed countries



Paweł Śliwiński

Poznań University of Economics and Business
Institute of International Business and Economics
Department of International Finance
pawel.sliwinski@ue.poznan.pl

Abstract

Purpose: The chapter examines the hypothesis that during the Covid-19 onset, the higher positive correlations between stock exchange indices persist, preventing the use of international diversification to reduce the volatility of global portfolio.

Design/methodology/approach: The study focuses on CEE post-transition countries and their main stock exchange indices' correlations with developed markets stock exchange indices. The data cover the period starting from January 8, 2004, until the end of October, 2020. The bivariate relationship between stock indices and VIX was measured by the Pearson coefficient of correlation.

Findings: The findings of correlations estimation in three periods (long-term, Covid-19 onset, and recovery) indicate that except for a period of large volatility measured by the VIX index lower relationships between developed and emerging stock markets persist. However, the results of the study concerning the shaping of correlation between the stock indices and the global risk shows a significant negative relationship between them, approaching very high levels close to 1 during the Covid-19 onset. All the CEE stock exchanges – even those low correlated in the longer term – behaved very similarly during the stock exchange crunch with its epicenter in March 2020.

Practical implications: The answer to the research questions concerning the shaping of correlations on international markets is important for the portfolio theory itself in its internation-

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al aspect, but also from the viewpoint of its applicability in practice. Huge market synchronization in terms of co-movements in stock indices is troubling. It significantly reduces or even eliminates the benefits of international diversification during market crashes.

Originality and value: Through the verification of the research hypothesis, this paper attempts to contribute to the broader literature on international portfolio diversification by delivering evidence on its limitations during the Covid-19 pandemic due to the herd behavior of investors leading to almost perfect correlations among stock exchanges.

Keywords: international portfolio theory, COVID-19 crash, international diversification.

6.1. Introduction

The Covid-19 pandemic and the actions taken to quell it led to economic turmoil in the world and contributed to the stock market crash. The crash began with series of declines in stock markets that began the February 20 and ended on April 6, 2020, when all 30 components of the Dow Jones Industrial Average (DJI) ended in the green starting its recovery that led to new historical record levels in November 2020.

The 2020 stock market crash was the fastest and most devastating fall in the global stock market since 1929. March 16 brought more than a 10% drop of indices in many countries. A characteristic feature of this period was the herd behavior of investors. As a result, the indices moved in waves, emphasizing the interconnect-edness of the world economy.

The aim of the study is to investigate correlations between domestic assets (represented by stock exchange indices in CEE post-transition countries) and foreign assets (represented by changes in selected global exchange indices) in three periods. Besides a long-term perspective covering the period from January 7, 2004, to October 30, 2020, we paid special attention to the stock market Corona-virus Crash of 2020 (February 20 to April 7, 2020) and the recovery period after the crash until the end of October, 2020. Additionally, this chapter compares interdependencies among stock exchanges in the analyzed periods with the CBOE Volatility Index (VIX), which represents investors' expectations for volatility of S&P500 index as a proxy for global risk.

Referring to studies on increased correlations among stock exchanges in the periods of crises, we assume a hypothesis that during the Coronavirus crash the higher positive correlations between stock exchange indices persist, preventing the use of international diversification to reduce the volatility of a global portfolio. If correlations between domestic and foreign markets grow in periods of increased risk (e.g. during panic related to the spread of the Covid-19 pandemic), this means a reduction in benefits of international diversification, making it even useless in

high risk times. In relation to classic explanations related to e.g. restrictions on capital flows between countries, transaction costs, or exchange rate risk, such an observation would give an additional argument in explaining the phenomenon of home bias (Black, 1974; French & Poterba, 1991), which takes place in the international stock market especially in periods of economic turbulences, thus crowding out capital from foreign markets home. However, the research questions go further. For instance, it is intriguing how the correlations are shaped in the period of recovery after crises and if the CEE post-transition countries are homogenous in bivariate relationships within a group and with global mature markets. Another question concerns the relationship between the studied indices and the VIX index, which could indicate that the correlations in the global capital markets depend on the perception of global risk.

Through the verification of the research hypothesis, this chapter attempts to contribute to the large literature on international portfolio diversification by delivering evidence on its limitations in times of the pandemic due to herd behavior of investors leading to almost perfect correlations among stock exchanges. In turn, the answer to the research questions concerning the shaping of correlations on international markets is important for the portfolio theory in its international aspect, but also from the point of view of its applicability in practice.

This study focuses on the CEE post-transition countries and their main stock exchange indices (Poland, WIG; Hungary, BUX; Czech Republic, PX; Slovakia, SAX; Romania, BET and Bulgaria, SOFIX) correlations with developed markets stock exchange indices represented by the S&P (the USA), DAX (Germany), FTSE-100 (the United Kingdom) and CBOE VIX index. The data cover the period from January 7, 2004, until the end of October, 2020.

This chapter is organized into five sections. After the introduction, a short literature review is presented, with section three addressing data and methodology. Section four presents the study and section five concludes the chapter.

6.2. Short literature review

The thesis that there is less connection between economies in different countries is the foundation of international portfolio theory (Grubel, 1968; Solnik, 1974) which is an extension of the modern portfolio theory developed by Markowitz (1952).

The international portfolio theory (IPT) assumes that the diversification of an investment portfolio consisting solely of domestic assets by adding foreign assets allows for a shift of efficient domestic portfolios toward international portfolios. Greater diversification on global markets benefits investors as international portfolios deliver a higher rate of return at a given risk, measured by standard

deviation (or lower risk at a given rate of return) compared to domestic ones. As a result, lower mutual relationships among investments in different countries can lead the international diversification to improving the mean-risk ratio of efficient portfolios.

The theoretical justification for this thesis is the occurrence of low correlations between domestic and international portfolios. This entails the practical use of the theory in international investment which in turn can explain the large share of foreign investors in trading on stock exchanges around the world. This is also the case of turnover in trading on post-transition countries stock-exchanges, dominated by foreign investors.

Empirical literature regarding international portfolio diversification (IPD) covers research exploring (i) benefits and barriers of international diversification, (ii) links between stock markets in the world, (iii) reasons for lower correlations among international portfolios, and (iv) dynamics of correlations in the globalized world.

Technically, investors benefit from international diversification as a result of increasing their inspected return in relations to their variation measured by standard deviation. A group of studies tested the benefits of diversification, by exploring mean-variance analysis proposed by Markowitz and following Solnik's experiment (Solnik, 1974). Most articles consider the benefits resulting from international diversification from the viewpoint of US investors, which should not come as a surprise, given the size of the US capital market. Such articles as e.g. Tesar's and Werner's (1995a) or Wan-Jiun, Alice, and Chiu-Chi (2009) confirm the existence of lower correlations between the US and other developed markets. The focus on interdependencies among emerging and developing countries and between them and developed markets were also the subject of research. What follows from the role of less developed economies in the construction of the international portfolio is the particular emphasis on smaller correlations between these economies and the developed ones. The examples are articles that examine the correlation coefficients in the Central and Eastern European stock markets (Egert & Kocenda, 2011; Middleton, Fifield, & Power, 2008), or in the Asian emerging markets (Worthington & Higgs, 2004; Dunis & Shannon, 2005). The general conclusion resulting from these works boils down to the statement that due to the fact that the dependencies between developed countries are higher than the dependencies between them and developing countries. This should lead to greater gains when the latter are included in the portfolio.

Although the causative factor of the more efficient mean-variance relation is the lower correlation between domestic and global stock exchanged compared with higher interdependencies among domestic assets, correlation coefficients among

stock exchanges are not stable. As shown by Solnik, Boucrelle, and Le Fur (1996), Knif, Kolari and Pynnönen (2005), or Sandoval and Franca (2011), correlations between stock markets tend to increase over time especially during periods of high volatility. The idea that volatility is the major driver of international correlation was however disputed by Longin and Solnik (2001) who express a different opinion. They state that correlations in capital world tend to increase in bear markets more than in bull markets. Thus, it is not volatility but a downward market trend, which is more responsible for instability in relationships between international markets. The rise of correlation especially in emerging markets was in turn caused by globalization process resulting in more freely capital flows between countries (Levy-Yeyati & Williams, 2011).

Another group of articles deals with barriers to international diversification. Solnik and McLeavey (2009) and Ardalan (2019) list the following limitations to benefits resulting from IPD: (i) lack of liquidity especially in less developed markets, (ii) different tax regulations, (iii) trading costs, (iv) unfamiliarity with foreign markets, (v) exchange rate risk, (vi) political risk, (vii) currency controls, (viii) market inefficiency related to unequal access to information (information asymmetries). The combination of “tangible” (organizational and legal) and “intangible” (social and cultural) barriers leads to the phenomenon of equity home bias (Cooper & Kaplanis, 1994; Tesar & Werner, 1995b; Coval & Moskowitz, 1999). The concentration of investors in domestic “home” equities is analyzed in numerous articles. The review of home bias literature is conducted by Cooper, Sercu, and Vanpée (2013).

6.3. Data and methodology

The dataset focuses on stock exchange indices in CEE post transition countries, corresponding stock indices in developed countries, and CBOE Volatility Index (VIX), which is globally one of the most important measures of volatility. Daily data from January 7, 2004, to October 30, 2020, were utilized. These were dictated by the availability of data for VIX index as the CBOE changed its methodology at the end 2003. Because the data panel was unbalanced – especially due to holidays some exchanges are closed on some days while others work normally – days with no quotes on all exchanges were eliminated to balance the panel. All variables are downloaded from stooq.pl online database (www.stooq.pl). Table 1 below lists the analyzed countries and their stock exchange indices.

Table 1. List of variables

Country	Index	Country	Index	Country	Index
Hungary	BUX	the USA	S&P500	the USA	VIX
Czech Rep.	PX	Germany	DAX		
Romania	BET	the United Kingdom	FTSE100		
Slovakia	SAX				
Bulgaria	SOFIX				
Poland	WIG				

Source: Own elaboration.

The bivariate relationship between stock indices and VIX was measured by the Pearson correlation coefficient. The formula for Pearson linear correlation coefficient is designated as covariance standardization and has the following form:

$$r_{XY} = \frac{\sum_{t=1}^n (x_i - \bar{x})(y_j - \bar{y})}{\sqrt{\sum_{t=1}^n (x_i - \bar{x})^2 \sum_{t=1}^n (y_j - \bar{y})^2}} = \frac{C(X, Y)}{S_x S_y}$$

in which x and y denote tested indices for the linear relationship, \bar{x} and \bar{y} are the sample means of x and y , t refers to the number of observations over time. In other words, the formula for Pearson's linear correlation coefficient is determined by covariance standardization. Covariance between the variables $C(X, Y)$ is normalized by the product of their standard deviations ($S_x S_y$). The significance of the correlation coefficients is tested with the test statistics, z :

$$z = \frac{r_{XY}}{\sqrt{1 - r_{XY}^2}} \sqrt{n}$$

in which the null hypothesis states $H_0: q = 0$, as opposed the alternative hypothesis: $H_a: q \neq 0$. The null hypothesis is rejected if the p -value is less than the significant level ($\alpha < 0.05$).

The analysis carried out in this chapter covers three periods: (i) the entire period (January 7, 2004, to October 30, 2020), (ii) the period of the stock market crash related to the spread of Covid-19 in the world and the introduction of lockdowns in

many developed countries (February 20 to April 7, 2020), and (iii) the period after the so-called Covid-19 shock (April 8, to October 30, 2020). Descriptive statistics of the indices are presented in Tables 2 and 3.

**Table 2. Descriptive statistics of the variables
(January 7, 2004, to October 30, 2020)**

	<i>BET</i>	<i>BUX</i>	<i>PX</i>	<i>SAX</i>	<i>SOFIX</i>	<i>WIG</i>	<i>DAX</i>	<i>FTSE</i>	<i>S&P</i>	<i>VIX</i>
<i>Mean</i>	6 475	24 021	1 108	303.7	620.6	46 177	8 229	6 047	1 748	18.9
<i>Median</i>	6 648	22069	1 031	313.3	520.1	47 453	7 512	6 069	1 461	15.95
<i>Maximum</i>	10 795	46 182	1936	501.3	1 952	67 529	13 789	7 880	3 581	82.69
<i>Minimum</i>	1 880	9 461	628.5	160.2	260	21 274	3 658	3 479	676.5	9.15
<i>Std. Dev.</i>	1 897	8 562	259.8	86.34	317.7	11 095	2 880	918.2	666.6	9.272
<i>Skewness</i>	-0.23	0.738	1.213	0.235	1.85	-0.45	0.253	-0.3	0.787	2.602
<i>Kurtosis</i>	2.399	2.662	3.949	1.896	6.322	2.476	1.769	2.436	2.5	12.09
<i>Jarque-Bera</i>	86.62	349.3	1 035	219.8	3772	165.5	270.2	104.3	415.7	16 733
<i>Probability</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<i>Observations</i>	3 660	3 660	3 660	3 660	3 660	3 660	3 660	3 660	3 660	3 660

Source: Own elaboration.

Table 3. Descriptive statistics of the variables (February 20 to April 7, 2020)

	<i>BET</i>	<i>BUX</i>	<i>PX</i>	<i>SAX</i>	<i>SOFIX</i>	<i>WIG</i>	<i>DAX</i>	<i>FTSE</i>	<i>S&P</i>	<i>VIX</i>
<i>Mean</i>	8 349	36 257	868.8	338.2	470	44 958	10 544	5 927	2 736	50.68
<i>Median</i>	7 882	32 994	815.7	335.9	433.4	41 625	10 001	5 636	2 659	53.54
<i>Maximum</i>	10 144	45 792	1 097	358	552.2	57 693	13 664	7 405	3 373	82.69
<i>Minimum</i>	7 039	29 464	690.4	315.7	405.8	37 164	8 442	4 907	2 237	15.56
<i>Std. Dev.</i>	1 038	5 339	122.2	14.87	58.02	6 073	1 555	749.7	314.4	17.48
<i>Skewness</i>	0.475	0.512	0.45	0.056	0.417	0.717	0.572	0.573	0.449	-0.2
<i>Kurtosis</i>	1.59	1.677	1.804	1.295	1.379	2.183	2.073	1.96	2.05	2.317
<i>Jarque-Bera</i>	3.973	3.846	3.083	4.015	4.57	3.748	2.98	3.294	2.35	0.87
<i>Probability</i>	0.137	0.146	0.214	0.134	0.102	0.154	0.225	0.193	0.309	0.647
<i>Observations</i>	33	33	33	33	33	33	33	33	33	33

Source: Own elaboration.

Table 4. Descriptive statistics of the variables (April 8, to October 30, 2020)

	<i>BET</i>	<i>BUX</i>	<i>PX</i>	<i>SAX</i>	<i>SOFIX</i>	<i>WIG</i>	<i>DAX</i>	<i>FTSE</i>	<i>S&P</i>	<i>VIX</i>
<i>Mean</i>	8 660	34 932	896.5	344	440.2	49 409	12 331	6 008	3 212	28.84
<i>Median</i>	8 706	35 051	901.2	338.9	438.2	50 104	12 618	6 020	3 246	27.78
<i>Maximum</i>	9 368	38 061	957.6	372	467.2	52 889	13 255	6 485	3 581	45.41
<i>Minimum</i>	7 722	31 582	825.1	319.7	420.3	43 573	10 250	5 549	2 737	21.35
<i>Std. Dev.</i>	312.9	1580	33.04	14.01	12.03	2507	845.4	183.9	207	5.05
<i>Skewness</i>	-0.61	-0.05	-0.08	0.326	0.277	-0.73	-1.18	-0.24	-0.53	1.069
<i>Kurtosis</i>	3.611	2.229	2.037	1.877	1.971	2.471	3.2	2.869	2.373	3.996
<i>Jarque-Bera</i>	9.311	2.991	4.735	8.353	6.774	11.89	27.64	1.262	7.56	27.56
<i>Probability</i>	0.010	0.224	0.094	0.015	0.034	0.003	0.000	0.532	0.023	0.000
<i>Observations</i>	119	119	119	119	119	119	119	119	119	119

Source: Own elaboration.

6.4. Empirical findings

The basis of international portfolio theory is that diversification opportunities exist as world stock exchanges do not move parallel with each other. In the globalized world the national economies are closely linked which can be observed in very high correlation coefficients especially among highly developed (mature) countries (Table 5). In the period from January 7, 2004, to October 30, 2020, the average correlations among DAX, S&P500, and FTSE100 were very high, ranging from 0.79 to 0.94 (Table 6).¹ During the Covid-19 crash, the bivariate relationships were almost perfect (0.96–0.99), showing a huge market synchronization of investors' behavior in this group of countries (Table 7). In the recovery period the correlations considerable decreased, and between FTSE100 index and S&P5000 they hardly ever occurred. Figure 1 shows average correlations in cases of the three indices. The general pattern shows very high correlations between the mature markets' indices strengthening during the crisis time but – despite the fact that

¹ When analyzing the correlation coefficients in the period and in the recovery periods: 20.02.2020–07.04.2020 and 08.04.2020–30.10.2020, we should remember that variables were not normally distributed in these periods, especially during the crash time (Tables 3 and 4). This can lead to the Pearson correlation coefficient to not represent the data best. Visual inspection of the scatterplots of all pairs of variables confirms, however, the linear relationship of the variables and, in principle, the absence of outliers in almost all the cases in those periods.

the developed economies are closely linked – the recovery period to create more independent price behavior of the indices, allowing for greater possibilities to use the benefits of diversification.

Smaller but still positive correlations were visible in the group of the post-transition CEE countries in 2004–2020 (Table 5). As members of European Union, CEE countries are increasingly integrated with Western Europe. Although the countries indicate strong regional links, the group is not homogenous. Much higher co-movement can be seen among WIG, BUX, and BET (0.75–0.85) compared to other CEE indices; the lowest correlation is still positive, but it amounts only to 0.1. What distinguishes CEE stock exchanges? Let us consider just two of their characteristics that show the size of market and liquidity. First, their capitalization shows that the Warsaw Stock Exchange (with WIG index) is the largest one, with USD 130.6 bln of capitalization, next come Bucharest, Budapest, and Prague with respectively USD 23.1 bln, USD 20.9 bln, and USD 20.7 bln. Bulgarian SE has USD 16.7 bln and Slovak's market capitalization is only USD 2.4 bln.² Second, stock turnover ratio which is the total value of shares traded during the period divided by the average market capitalization for the period.³ In Poland and Hungary, it amounts to 33.2% and 26.4% respectively, which means medium level of that ratio. Investors trade less in Prague and Bucharest (14.6% and 7.8%), while in Sophia and Bratislava the turnover is low (1.1% and 2.3%). Looking at these data, it should come as no surprise that foreign investors dominate stock exchanges in Poland, Hungary, the Czech Republic, and Romania. They promote through their activities stock market synchronization especially among WIG, BUX, and BET indices. The small size and low liquidity in Bulgaria and Slovakia cause these markets to behave more independent due to their small attractiveness from the viewpoint of foreign investors.

However, Table 6 shows that this distinction disappeared during the pandemic. All the indices were in many cases almost perfectly correlated, as they were in developed countries. The pairwise correlations ranged from 0.79 to 0.99. After the Covid-19 crash period, the situation returned to its long-term state. Table 7 and Figure 2 confirm this observation with one exception: SOFIX and SAX were even less correlated with the other CEE stock exchanges.

The global capital market became interrelated. The CEE stock exchanges with a large share of foreign investors, except the Czech Republic, were very high

² All data for September 2020. Source of data: <https://focus.world-exchanges.org/issue/october-2020/market-statistics> (13.11.2020) and <https://www.ceicdata.com/en/slovakia/bratislava-stock-exchange-securities-market-capitalization/market-capitalization-bsse-shares-and-units-shares> (13.11.2020).

³ <https://knoema.com/atlas/topics/Economy/Financial-Sector-Capital-markets/Stocks-traded-turnover-ratio> (15.11.2020).

correlated with mature markets in the whole period ranging from 0.71 to 0.92 (see Table 5). The different behavior of PX where there were low or even negative correlations may be puzzling (between -0.21 and 0.14). The different behavior of the PX index compared to WIG and BUX can be explained e.g. by the composition of that index. PX includes only 11 companies out of which only three have more than 60% share in it.⁴ The biggest company (CEZ; 21.8% of PX share) is controlled by the Czech Ministry of Finance, and the banking sector is strongly overrepresented (40%). Low correlations between SOFIX or SAX and mature developed indices (from -0.07 to 0.17) can be explained by the lack of much interest on the part of foreign investors due to the low capitalization of Bulgarian and Slovak stock market and very low turnover, which prevented the quick reconstruction of the investment portfolio.

**Table 5. Pearson correlation coefficients among analyzed indices
(January 7, 2004, to October 30, 2020)**

	<i>BET</i>	<i>BUX</i>	<i>PX</i>	<i>SAX</i>	<i>SOFIX</i>	<i>WIG</i>	<i>DAX</i>	<i>FTSE</i>	<i>S&P</i>	<i>VIX</i>
<i>BET</i>	1,00	0,79	0,48	0,46	0,52	0,84	0,73	0,81	0,72	-0,33
<i>BUX</i>	0,79	1,00	0,14	0,35	0,16	0,75	0,81	0,76	0,85	-0,19
<i>PX</i>	0,48	0,14	1,00	0,63	0,86	0,29	-0,16	0,14	-0,21	-0,20
<i>SAX</i>	0,46	0,35	0,63	1,00	0,72	0,10	0,00	0,05	0,09	0,06
<i>SOFIX</i>	0,52	0,16	0,86	0,72	1,00	0,28	-0,07	0,17	-0,07	-0,17
<i>WIG</i>	0,84	0,75	0,29	0,10	0,28	1,00	0,83	0,92	0,71	-0,34
<i>DAX</i>	0,73	0,81	-0,16	0,00*	-0,07	0,83	1,00	0,88	0,94	-0,26
<i>FTSE</i>	0,81	0,76	0,14	0,05	0,17	0,92	0,88	1,00	0,79	-0,51
<i>S&P</i>	0,72	0,85	-0,21	0,09	-0,07	0,71	0,94	0,79	1,00	-0,22
<i>VIX</i>	-0,33	-0,19	-0,20	0,06	-0,17	-0,34	-0,26	-0,51	-0,22	1,00

* – The null hypothesis, that there is no relationship between variables, was not rejected confirming that linear relationship between them does not exist.

Source: Own elaboration.

Interestingly, all these differences disappeared during the stock market crash in February–April this year. Correlation coefficients between the indices from developed countries and CEE countries approached almost 1, indicating a very high

⁴ <https://www.wienerborse.at/en/indices/index-cooperation/prague-stock-exchange/pX-profile-e/> (16.11.2020).

co-behavior (Table 6). In turn, in the recovery period, the correlations decreased (except for PX and SAX), which could indicate that foreign investors were less interested in emerging markets (Table 6 and Figures 1–2).

Table 6. Pearson correlation coefficients among analyzed indices (February 20 to April 7, 2020)

	<i>BET</i>	<i>BUX</i>	<i>PX</i>	<i>SAX</i>	<i>SOFIX</i>	<i>WIG</i>	<i>DAX</i>	<i>FTSE</i>	<i>S&P</i>	<i>VIX</i>
<i>BET</i>	1,00	0,99	0,98	0,90	0,98	0,96	0,96	0,98	0,97	-0,88
<i>BUX</i>	0,99	1,00	0,99	0,89	0,97	0,95	0,97	0,98	0,97	-0,89
<i>PX</i>	0,98	0,99	1,00	0,88	0,97	0,95	0,98	0,98	0,97	-0,90
<i>SAX</i>	0,90	0,89	0,88	1,00	0,94	0,79	0,80	0,83	0,84	-0,67
<i>SOFIX</i>	0,98	0,97	0,97	0,94	1,00	0,91	0,93	0,94	0,94	-0,83
<i>WIG</i>	0,96	0,95	0,95	0,79	0,91	1,00	0,98	0,98	0,95	-0,93
<i>DAX</i>	0,96	0,97	0,98	0,80	0,93	0,98	1,00	0,99	0,96	-0,94
<i>FTSE</i>	0,98	0,98	0,98	0,83	0,94	0,98	0,99	1,00	0,98	-0,92
<i>S&P</i>	0,97	0,97	0,97	0,84	0,94	0,95	0,96	0,98	1,00	-0,91
<i>VIX</i>	-0,88	-0,89	-0,90	-0,67	-0,83	-0,93	-0,94	-0,92	-0,91	1,00

Source: Own elaboration.

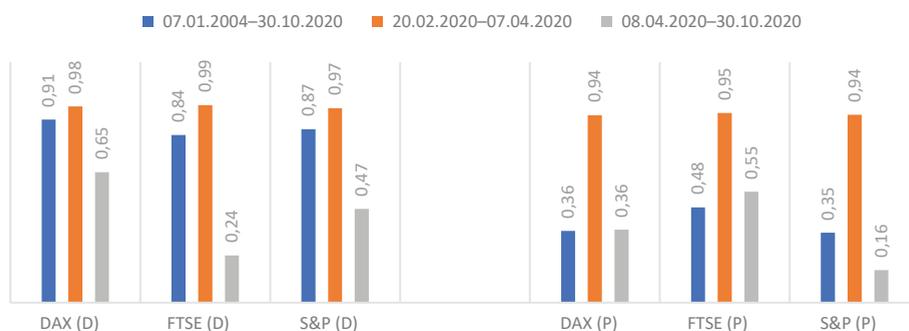


Figure 1. Average correlations between individual mature capital markets indices and other developed market indices (D) or CEE post-transition market indices (P)

Source: Own elaboration.



Figure 2. Average correlations between individual CEE capital markets indices and developed market indices (D) or other CEE post-transition market indices (P)

Source: Own elaboration.

The negative correlations between the VIX index and mature and post-transition markets indices indicate that there is a negative relationship between the risk index and the correlations in both groups of countries (Tables 5–7). This observation confirms a phenomenon described in the literature that during periods of high

Table 7. Pearson correlations among analyzed indices (April 8 to October 30, 2020)

	<i>BET</i>	<i>BUX</i>	<i>PX</i>	<i>SAX</i>	<i>SOFIX</i>	<i>WIG</i>	<i>DAX</i>	<i>FTSE</i>	<i>S&P</i>	<i>VIX</i>
<i>BET</i>	1,00	0,15	0,22	0,62	-0,33	0,51	0,78	0,25	0,74	-0,55
<i>BUX</i>	0,15	1,00	0,83	0,12	0,69	0,57	0,24	0,85	-0,05	-0,30
<i>CPX</i>	0,22	0,83	1,00	0,03	0,49	0,75	0,49	0,88	0,14	-0,41
<i>SAX</i>	0,62	0,12	0,03	1,00	0,03	0,02	0,23	0,14	0,18	-0,05
<i>SOFIX</i>	-0,33	0,69	0,49	0,03	1,00	-0,05	-0,40	0,55	-0,65	0,26
<i>WIG</i>	0,51	0,57	0,75	0,02	-0,05	1,00	0,85	0,65	0,62	-0,71
<i>DAX</i>	0,78	0,24	0,49	0,23	-0,40	0,85	1,00	0,42	0,88	-0,73
<i>FTSE</i>	0,25	0,85	0,88	0,14	0,55	0,65	0,42	1,00	0,05	-0,47
<i>S&P</i>	0,74	-0,05	0,14	0,18	-0,65	0,62	0,88	0,05	1,00	-0,68
<i>VIX</i>	-0,55	-0,30	-0,41	-0,05	0,26	-0,71	-0,73	-0,47	-0,68	1,00

Source: Own elaboration.

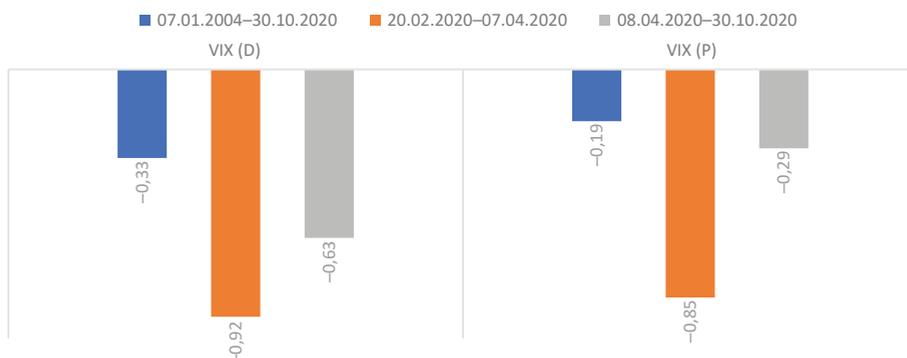


Figure 3. Average correlations between VIX and other developed market indices (D) or CEE post-transition market indices (P)

Source: Own elaboration.

volatility correlations between stock markets tend to increase (Figure 3). However, when analyzing the correlation indicators, one can notice a greater negative correlation between global risk and the development of indices in countries with mature capital markets than in CEE post-transition countries. This relationship occurs in principle in all three analyzed periods. The separate behavior of SAX and SOFIX, compared to other indices, is also confirmed. The correlation between these indices and the VIX index is very low or even positive, as in the case of the Bratislava stock exchange index; apart from the period of the highest volatility of the VIX, which took place during the Covid-19 crunch period.

6.5. Conclusions

The chapter analyzed bivariate correlations among stock indices for three mature (S&P500, FTSE100, DAX) and six post-transition CEE countries (BET, BUX, PX, SAX, SOFIX, WIG). The findings of correlations estimation in three periods (long-term, COVID-19 crash, and the following recovery) indicate that – except for a period of large volatility measured by the VIX index – lower relationships between developed and emerging stock markets persist. However, this is a case on a smaller scale than it could be expected, except for the CEE stock exchanges (Slovakia and Bulgaria) characterized by smaller capitalization and very low stock exchange turnover or by specific selection of the index (Czech Republic), which in longer-term stay low correlated with other markets.

The results of the study concerning the shaping of correlation between the stock indices and the global risk show a significant negative relationship between

them, one approaching very high level, close to 1. All the CEE stock exchanges, even those that are low correlated in the longer term, behaved very similarly during the stock exchange crunch with its epicenter in March, 2020. Huge market synchronization in terms of comovements in stock indices is bad news. As Solnik et al. (1996) notice, “when the domestic market is subject to a strong negative shock is when the benefits of international risk diversification are needed most.” Unfortunately, during that time, international portfolio theory lacks the main argument to support it: lower international correlations.

Such an observation would give also an additional argument explaining the phenomenon of home bias, which grows in the international stock market in periods of economic turbulences. After all, leaving capital abroad in periods of high global risk does not bring about diversification benefits. As a result, investors crowd out capital from foreign markets home which deepens price declines contributing to similar behavior of stock indices worldwide in times of financial turbulence.

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7. Foreign direct investment and the Covid-19 pandemic: The real economy perspective and theoretical implications¹



Marian Gorynia

Poznań University of Economics and Business
Institute of International Business and Economics
Department of International Competitiveness
marian.gorynia@ue.poznan.pl



Piotr Trapczyński

Poznań University of Economics and Business
Institute of International Business and Economics
Department of International Competitiveness
piotr.trapczyński@ue.poznan.pl

Abstract

Purpose: The objective of this chapter is to discuss the effects of the Covid-19 pandemic on the international operations of firms, with a particular focus on foreign direct investment.

Design/methodology/approach: The real economy perspective was adopted, whereby basic relationships in terms of the development of FDI flows and transactions worldwide were analyzed. In addition, primary data from a survey of internationally operating Polish firms were analyzed in order to shed additional light on the influence of the pandemic on international economic activity. In addition to formulating observations with regard to general patterns emerging from the data, an attempt has been made to outline the likely theoretical implications of the pandemic for FDI research.

Findings: In the short term, there was a significant limitation of FDI, caused mainly by the introduction of lockdowns. In the middle and long run, the current crisis will likely translate

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into a continued slowdown in FDI flows. On the other hand, as we may see from the early evidence analyzed in the chapter, the impacts on the international economic activity vary across locations at different levels of economic development, but also between different industries and business models.

Research implications: From a theoretical perspective, we must note that in the short run the existing theoretical concepts can be helpful in explaining the present phenomena. However, in the long-term perspective a number of fundamental assumptions may require several revisions outlined in the chapter.

Originality and value: The chapter includes an analysis of recent macro- and micro-level data on the effects of the pandemic on international business, along with forecasts for the post-pandemic period. Apart from the practical dimension of the analyzed primary and secondary data, the chapter also offers a number of theoretical implications.

Keywords: foreign direct investment, Covid-19 pandemic, globalization, international business.

7.1. Introduction

The Covid-19 pandemic can be treated as an unpredictable side effect of human behavior, which has led to adverse interactions between the functioning of civilization and the natural environment (Gorynia, 2020a, b, c; 2021). Its effect is a crisis of the public health system on a global scale, and the accompanying unprecedented economic crisis, also afflicting the entire world economy (Wolf, 2000). As Roubini (2020) argues, human interference with the natural environment increases the likelihood of contact with disease vectors, such as animals or frozen viruses in glaciers.

An important thread in the ongoing discussion on the economic conditions, manifestations, and consequences of the Covid-19 pandemic is globalization, which – ironically – can be treated as one of the key factors contributing to the above transformations of the natural environment. Indeed, globalization can be seen as the international exploitation of natural resources beyond their capacity, which can be symbolically summarized with such categories as *homo oeconomicus*, profit maximization, GDP growth fetish, or excessive and irrational consumption (Gorynia, 2020d, e). One of the two manifestations of globalization, alongside international trade, is foreign direct investment (FDI). In this sense, there are mutual cause-effect links between the pandemic and FDI. On the one hand, the expansion of FDI as a component of globalization may have contributed to the negative environmental consequences caused by human activity, and conversely the pandemic has far-reaching consequences for FDI flows.

The objective of this chapter is to discuss the effects of the Covid-19 pandemic on FDI. On the one hand, the real economy perspective was adopted and the basic relationships in terms of impacts on FDI flows worldwide and in Poland were outlined, taking into account the effects of this impact to date and the future outlook.

On the other hand, an attempt has been made to outline the likely theoretical implications of the pandemic for FDI research. From the methodological point of view, the text is based on a simplified, descriptive, proprietary analytical framework outlining the basic relationships between the pandemic and FDI.

7.2. The impact of the Covid-19 pandemic on FDI activity worldwide and in Poland

7.2.1. Current macro- and micro-level evidence

The essence of FDI boils down to investing in the development of business ventures outside the country of registration of the company with a view to a long-term involvement in production or service activities in order to obtain benefits most often associated with profit-making. The Covid-19 pandemic has created a global disruption that undoubtedly affects many areas of human activity worldwide (Walsh, 2020). Most country governments between March and April 2020 decided to introduce drastic measures to combat Covid-19. By the beginning of April 2020, it was estimated that more than 3.9 billion people, or half of the world's population, were ordered to stay at home by their governments (Euronews, 2020).

While it may be still too early to quantify fully the effects of the global value chain (GVC) disruptions due to the pandemic, it is clear by now that the initial decline in production in different locations has exerted a strong impact on countries further up and down the supply chain. Countries imposed restrictions on movements to combat the spread of the virus, limiting demand worldwide, while on the other hand, concerns about health and safety of employees led to factory closures, hence afflicting the supply side. This double effect was called the second shock, whereby supply bottlenecks and falling consumer demand led to a global downward spiral, which could discontinue the functioning of cross-border supply chains and afflict FDI.

No wonder that FDI inflows worldwide almost halved in the first half of 2020 as opposed to the 2019 6-month average (UNCTAD, 2020a). As it can be seen in Table 1, the decline was more pronounced in developed economies where it amounted to -75% and brought FDI inflows back to the level of 1994. Interestingly, there are differences in impacts between different modes of FDI (see Table 2). In general, greenfield FDI projects – i.e. foreign subsidiaries established from scratch – were more strongly affected, with a decline of 37% as opposed to the mere 15% for mergers and acquisitions (M&As). In line with FDI flows data quoted above, the M&A deals were clearly more resilient to the pandemic crisis in some developing countries, particularly Asia, but also in transition economies

Table 1. FDI inflows by region, H1 2020 vs. 2019 six-month average

	2019 six-month average*	2020 H1*	Percent change
World	777	399	-49
Developed economies	397	98	-75
<i>Europe</i>	203	-7	-103
<i>North America</i>	156	68	-56
Developing economies	352	296	-16
<i>Africa</i>	23	16	-28
<i>Latin America and the Caribbean</i>	83	62	-25
<i>Asia</i>	246	217	-12
Transition economies	29	5	-83

*in billions of USD.

Source: Own elaboration based on (UNCTAD 2020a, p. 2).

Table 2. Investment trends by type and region, 2020 Q1–Q3 (percent change vs. 2019)

	Cross-border M&As	Greenfield projects*	International project finance**
World	-15	-37	-25
Developed economies	-21	-17	-19
<i>Europe</i>	-5	-17	-17
<i>North America</i>	-32	-25	-34
Developing economies	12	-49	-25
<i>Africa</i>	-44	-66	-49
<i>Latin America and the Caribbean</i>	-73	-53	-34
<i>Asia</i>	60	-42	8
Transition economies	84	-58	-46

*The trend in greenfield projects refers to the first eight months of 2020. ** International project finance refers to (the trend in) the number of deals, as project values for the latest months are unavailable.

Source: (UNCTAD 2020a, p. 6).

at large. Moreover, from a sectoral perspective M&As declined by 76% in the primary sector and 27% in manufacturing (UNCTAD, 2020a). Likewise, greenfield projects declined particularly strongly in manufacturing (49% decline), particularly coke and petroleum products (89% decline).

Regarding the FDI situation in Poland, according to preliminary OECD (2020) data, FDI inflows to Poland fell to USD 5.64 bn in Q1 2020 from USD 7.73 bn in the same period in 2019. In turn, FDI outflows from Poland increased from USD 50 to 252 m, respectively. While the first quarter of 2020 covered only one month of the lockdown, it may be a preliminary sign of the relative resilience of Polish outward FDI (Gorynia & Trąpczyński, 2020).

This appears to be corroborated by firm-level evidence based on the study of N=500 Polish firms from the manufacturing sector, involved in international business (see Figure 1).² Roughly 35% of the surveyed firms reported a slight to significant decline in the number of served international markets in the period March-September 2020 as compared to the comparable period of 2019. For almost

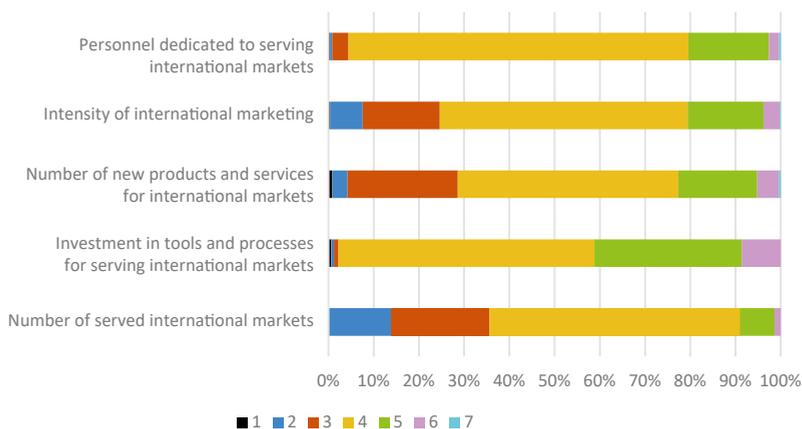


Figure 1. Change of international market involvement during Covid-19 pandemic relative to a comparable period in 2019 (N=500)

Scale: 1 – significant decrease; 4 – no change; 7 – significant increase.

Source: Own elaboration.

30% of them, the number of new products and services for international markets also declined. About 25% acknowledged a reduction of the intensity of international marketing due to a shift in priorities. On the other hand, such areas

² Data were gathered between September and November 2020. Hereby, international business is understood as all forms of foreign market involvement, some of which include FDI.

as investment in tools and processes for serving international markets and the personnel dedicated to serving international markets remained mostly unchanged.

7.2.2. Future outlook

Based on the current situation in international trade and investment, it is not unrealistic to accept that the consequences of the pandemic for FDI will be more devastating and deeper than those of the 2008 crisis (Olivie & Gracia, 2020). According to the World Investment Report 2020 (UNCTAD 2020b), FDI is projected to decrease by a further 5–10% in 2021 and to initiate a recovery only in 2022.

Considering that FDI inflows and outflows from Poland did not show a clear trend and fluctuated significantly in the past years, we can expect deepening declines or a slowdown in temporary increases due to the current situation and the unexpected extent of the second wave of the pandemic since October 2020. It can be assumed that in terms of FDI inflows, the declines in Poland will be lower than their average global level due to the relative investment attractiveness of Poland in Central and Eastern Europe, but also due to the search for new, closer locations in the period of disruption of value chains (Gorynia & Trąpczyński, 2020).

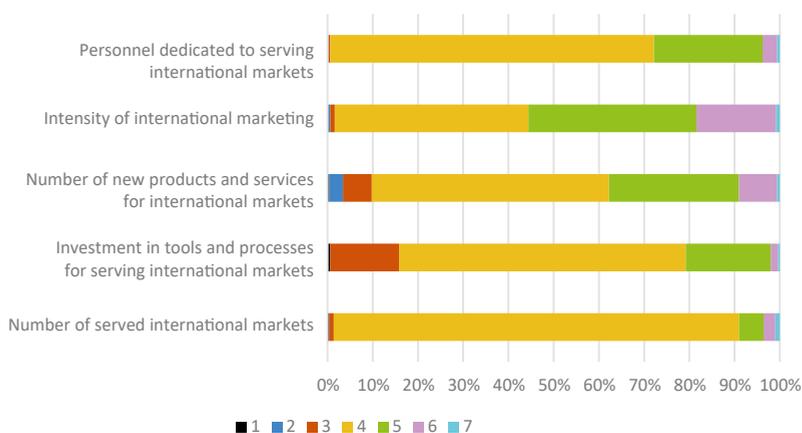


Figure 2. Expected change of international market involvement in 2021 as compared to the Covid-19 pandemic period in 2020 (N=500)

Scale: 1 – significant decrease; 4 – no change; 7 – significant increase.

Source: Own elaboration.

However, the future situation may be less favorable in the case of FDI outflows. In the conditions of falling profits and implementation of ad hoc anti-crisis

measures, decisions on many investment projects may be suspended or postponed, considering the dominance of sales motives among Polish FDI. This skepticism is voiced by the Polish firms doing international business (see Figure 2). Regarding changes in their international involvement until 2021, Polish firms see no change as opposed to the 2020 pandemic period. Moreover, they anticipate further reductions in such areas as investments in tools and processes for international markets and new product launches. In this context, the further development of outgoing FDI may strongly depend on public support instruments for foreign investors.

7.3. Implications of the Covid-19 pandemic in the light of FDI theories

7.3.1. Short-term influence on FDI theories

A number of theoretical approaches have been developed to explain FDI and the rise of transnational corporations (TNCs).³ As it is not the objective of the authors to review FDI theories in detail here, one can refer to some classification attempts, such as the one by Ietto-Gillies (2019), which includes the monopolistic advantage theory, international product life cycle theory, oligopolistic reactions, the geographical patterns of FDI, the currency areas approach, the internalization theory, Dunning's eclectic framework, the Uppsala model, evolutionary theories of TNC, and new trade theories.

In addition, Forsgren (2017) identifies six overarching TNC concepts he describes as “tales:” the Dominating multinational – a tale of market power; the Coordinating multinational – a tale of cost efficiency; the Knowing multinational – a tale of value creation; the Designing multinational – a tale of strategic fit; The Networking multinational – a tale of business relationships, and the Politicizing multinational – a tale of legitimacy and power.

Overall, it can be argued that, in the short term, Covid-19 does not fundamentally challenge any of the FDI concepts per se, because it triggers an economic crisis related to exogenous factors which do affect the real economy and economic policy. These theories, which provide complementary perspectives on FDI, its motives, modalities, and performance outcomes, can help to understand the immediate effects of the pandemic. For instance, if one regards the pandemic from the point of view of uncertainty in foreign markets, the location-centered concepts draw attention to shifts between locations to those less affected by the economic and health crisis. From the perspective of concepts exploring network

³ Due to volume constraints, these approaches can be viewed as synonymous.

relationships, the limitation of cross-border human activity and search for alternative channels fits into the existing network-related concepts. Likewise, resource- and knowledge-focused approaches to FDI hold their validity, albeit drawing attention to specific types of capabilities which generate competitive advantage in crisis conditions, such as operational flexibility, new IT solutions, or the ability to adjust business models to new market demands instead of a reactive cost-cutting approach. On the other hand, the internalization approach underlines the tendency to organize cross-border activities within company borders in order to protect know-how. It can be expected that his line of reasoning will be complemented with a transaction-cost based logic of outsourcing certain processes like manufacturing or foreign distribution in order to minimize overseas footprint and increase the reversibility of operations.

7.3.2. Long-term influence: The “new normality” in economics

With regard to the long-term effect of the pandemic on theoretical concepts of FDI, one can argue that this influence will occur indirectly due to the possible pandemic-induced evolution of general principles of economic activity, whereby the current crisis amplifies some earlier trends. For instance, profit maximization as a dominant criterion in international expansion decisions, including FDI as the most advanced form of internationalization, can likely be supplemented with the resilience logic. In fact, economic effectiveness may not materialize if there is no adequate backup against hardly predictable exogenous shocks that can disrupt FDI networks of firms. Likewise, a visible shift toward self-sufficiency may pronounce itself in the tendency of states to become more independent from international supply channels, which have recently proved fragile, adding to the co-existing trend of skepticism toward globalization and the re-emergence of nation states. At the microeconomic level, the self-sufficiency imperative will possibly express itself, at least to some extent, in a departure from hyperglobalization understood as an excessive fragmentation of value chains across highly dispersed locations (Buheji & Ahmed, 2020). The process of shortening value chains and reducing distance between the individual links is likely to induce a shift toward regionalization in international economic cooperation.

Moreover, the current developments also underline the relevance of environmental criteria in business decisions to make them more aligned with the imperatives of the so called green economy. In the same vein, the attention paid to need for consideration of the climate neutrality and a related withdrawal from pollution-generating technologies can be regarded as an important impulse to include new non-economic variables, both in decision practice and theoretical concepts. Another recommendation pertains to conducting business in ways which reduce excessive inequality at the level of the world and specific countries, whereby

international tax regulations could be among instruments supporting the implementation of these goals (Djankov & Panizza, 2020).

Among further implications for the post-pandemic economic landscape, one can also name the departure from excessive consumerism related to an irresponsible exploitation of the natural environment, pollution growth, and resources depletion, with a whole array of negative effects for individual and public health. Accordingly, the “new normality” would be characterized by a certain set of rules that is still emerging, yet whose initiation occurred before the pandemic and has been catalyzed by the present situation (Manyika, Pinkus, & Tuin, 2000). It must be noted that the modification of existing decision-making algorithms regarding FDI will not occur overnight and is likely to be a long-term process. However, if the said postulates indeed manage to materialize, then the priorities in the contemporary FDI paradigm will inevitably change. The fundamental economic category, which this change will depend on, is the *homo oeconomicus*. Without a fundamental revision of the content of this construct, the new post-pandemic reality may in fact not be free from its current deficiencies.

7.4. Conclusions

The global economic crisis caused by the Covid-19 pandemic shattered the foundations of the market economy on a global scale. In the short term, there was a significant limitation of FDI, caused mainly by the introduction of lockdowns in virtually all countries around the world, with related restrictions limiting human interactions and, therefore, economic activity. In the middle and long run, the current crisis will likely translate into a continued slowdown in FDI flows. On the other hand, as it can be seen from the early evidence reviewed in the chapter, the impacts on the international economic activity vary across locations at different levels of economic development, but also between different industries and business models. From a theoretical perspective, one must note that in the short run the existing theoretical concepts can be helpful in explaining the present phenomena. However, in the longer-term perspective a number of fundamental assumptions are likely to – or rather should – be revisited.

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8. The impact of Covid-19 on the finances of multinational enterprises from the perspective of Balance of Payments transactions



Monika Andrzejczak

Poznań University of Economics and Business
Institute of International Business and Economics
Department of International Finance
monika.andrzejczak@ue.poznan.pl

Abstract

Purpose: The analysis of the impact of the Covid-19 pandemic on the finances of economic entities from the perspective of the structure of financing, investments and dividend policy.

Design/methodology/approach: The research covered the countries of the EU, due to the specific type of ties between these countries. Research stages: 1. Classification of countries in terms of the selected IIP and the BP statistics and macroeconomic data in 2018–2019 (pre-pandemic period), average levels for 2018–2019 in relation to GDP; 2. Presentation of the development of selected monthly BP statistics during the pandemic period (from January 2020), in terms of: (i) changes in the share of GDP (first half of 2020 in relation to the first half of 2019); (ii) year on year changes. Research methodology: data source: Eurostat, annual, quarterly, and monthly data in million EUR, the collected statistics were adjusted to the Harmonised Index of Consumer Prices (HICP).

Findings: At the end of November 2020, it is difficult to identify the pattern of changes to the flows of the discussed categories based on the analysis of information from the pre-pandemic period.

Practical implications: The creation of a “new” division between the EU countries as a result of Covid-19 may result in a change in the priorities of functioning within the entire Union and in a change in the rules of redistribution of the EU funds.

Originality and value: An original way of framing decisions on capital structure, investment decisions and dividend policy through the prism of the Balance of Payments flows.

Keywords: the Balance of Payments, financial decisions, European Union, Covid-19 pandemic.

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8.1. Introduction

Corporate finance revolves around fundraising, allocating investments, and paying dividends. The accumulation of funds boils down to acquiring funds for starting and continuing operations and determining the proportion between equity and external capital, i.e. the capital structure. Investing means making decisions about acquiring resources from the marketplace to generate income. A company determines the proportions in the distribution of profit between payments due to owners (dividends) and retained earnings. The choice of a financing strategy determines investment profitability, influencing the level of generated profit and dividend policy. The dividend payout rate affects investment decisions and the capital structure. Misguided investments can lead to bankruptcy. Each of the aforementioned areas of the company's finances affect each other, and they largely depend on external factors, i.e. the company's environment that is divided into a closer micro- and further macro-environment (Bąk, 2011, pp. 26–27; Misztal, 2015, p. 68). From the point of view of entities operating in the international arena, macro-annual significance is of particular importance, which includes e.g. the level and the rate of the GDP growth, the monetary and credit policy implemented by the state, the fiscal policy, the unemployment level and the employment policy implemented by the state, but also the pace of general price increases. In addition to monitoring domestic macroeconomic factors, multinational enterprises must include in their decisions the factors of the country of investment. Increasing the free flow of production factors facilitates changes in the location of investments, but it also favors the contagion, as exemplified by the 2007–2009 crisis and many earlier ones. At the turn of 2019/2020, contagion gained special importance: the inhabitants of most countries of the world were literally infected with the Covid-19 virus. At the moment of writing these words, in November 2020, we know that the effects of Covid-19 have not only affected the health of citizens but also destabilized the functioning of most of the world's economies. Hence the need to study the impact of Covid-19 on the individual aspects of economic life.

This study attempts to present the impact of the Covid-19 pandemic on the finances of economic entities from the perspective of the structure of financing, investments and dividend policy. The assessment of changes was made through the prism of flows recorded in the International Investment Position (the IIP) and in the Balance of Payments (the BP) of the analyzed countries. The financing structure has been reduced to the structure of international capital flows, the value of which is included in the IIP, and changes in balances in the BP in the Financial Account (the FA). Investments were considered through the prism of their results, i.e. the flows of goods and services booked in the goods and services account of

the BP. The dividend policy is presented using the income and expenditure on investments, which are included in the Primary Income account (the PI) in the BP.

A particularly interesting area of research in this case are the economies of the European Union (the EU), which are economically interconnected. The aim of the study is to present the impact of Covid-19 on changes in the structure of international flows, goods and services as well as investment income from the EU countries.

The impact of macroeconomic factors on companies' financial decisions is presented in part 8.2. The presentation of the research sample and research methodology is included in the part 8.3. Parts 8.4 and 8.5 present the BP flows and macroeconomic indicators, which are the subject of further research against the background of the economic situation of the EU countries in the pre-pandemic period. Part 8.6 presents changes in international flows during the pandemic. The conclusions are presented in part 8.7.

8.2. Influence of selected macroeconomic factors on decisions concerning capital structure, investments, and dividend payments

Macroeconomic factors strongly affect the operating conditions of enterprises, which cannot change them, but must adapt to them. The role of macroeconomic factors is of particular importance in times of crises such as pandemics, which disrupt the functioning of mechanisms. The aim of this part of the study is to present the effects of the impact of selected macroeconomic factors on selected aspects of financial decisions of entities operating in the international arena, related to the shaping of capital structure, the allocation of investments, and the payment of dividends under so-called "normal conditions" of functioning, i.e. in conditions without a pandemic. Thus, the exchange rate was taken into account as the key parameter for international enterprises, GDP, monetary policy including the policy of interest rates and changes in the money supply, inflation, fiscal policy focusing on taxes, revenues and expenses of the state budget, public deficit and debt, and the situation on the labor market (unemployment, labor productivity).

Capital structure decisions are critical to the formation and survival of an entity. In international enterprises this structure may be altered as a result of changes in the exchange rate, which changes the value of components expressed in a foreign currency. A depreciation of a country's currency results in an increase in the value of liabilities denominated in a foreign currency, while appreciation produces the opposite effect. The probability, scale, and frequency of depreciation/appreciation are derived from the currency regime adopted in the countries of operation

of a given international enterprise. In floating exchange rate systems, enterprises usually have a large scope of freedom in shaping the capital structure, as these solutions are used in countries with developed financial markets. Mixed and fixed rate systems are associated with the risk of speculative attacks on the country's currency and a sudden outflow of capital that destabilizes financial markets, limiting the company's ability to finance business activities. The research results of Demirgüç-Kunt and Maksimovic (1995) indicate that with the development of the financial market, the difference in the cost of obtaining capital from various sources decreased, whereas companies gained access to a wider range of products and the share of bank loans decreased. The development of international corporations increased the possibilities of financing enterprises. Not only do they have an easier access to financing sources (various markets and financial instruments), but they can also use the so-called intra-corporate financing (mutual financing of entities related by capital, being a part of the same international corporation), which may be a source of their competitive advantage (Duliniec, 2007, p. 59).

A high GDP growth usually goes hand in hand with a recovery in the stock market. The stock market boom is conducive to planning subsequent and new issues, and also results in an increase in share prices, i.e. the value of equity capital. In the period of GDP growth and bull market on the stock exchange, the capital structure should change toward a greater share of equity, but good prospects for the economy are also associated with an increase in investments and an increase in demand for loans (foreign capital). An increase in interest rates results in an increase in the costs of obtaining debt capital. In the case of enterprises, the increase in interest amounts may be weakened by the effect of the tax shield,¹ but for its customers, it could shift consumption over time, especially in the durable goods sector. Periods of high interest rates coexist with periods of relatively high interest rates on treasury bonds, which weakens the tendency of some investors to invest in the stock market, limiting the possibility of increasing equity capital by issuing shares. This, in turn, raises the borrowing premium and results in companies' spending cuts or the search for alternative sources of financing (Białek-Jaworska, Dzik & Nehrebecka, 2014, p. 95). An increase in interest rates translates into an increase in the value of debt in the company's liabilities due to larger interest amounts, the need to refinance, or the need to consolidate various types of liabilities. As a result of the changes in costs and relations between equity and debt, the level of the weighted average cost of capital (WACC) changes: $WACC = s_e \times r_e + s_d \times r_d \times (1 - T)$ [1], in which: s_e, s_d – share of equity and foreign capital in financing the enterprise, r_e, r_d – cost of equity and foreign capital. The WACC

¹ The actual (real) cost of the debt to the enterprise (c_r) is less than nominal cost (c_n), because interest on the loan is a cost that reduces the amount of income tax (T): $c_r = c_n(1 - T)$. This phenomenon is called a tax shield.

is a parameter necessary to assess the risk of the company's operations. Those with a short history and risky business profile usually have limited opportunities to obtain capital, hence a relatively higher cost.

The impact of monetary policy may be weakened by the size of the domestic capital market, which determines the availability of alternative sources of external financing. Cecchetti (1999) suggests that interest rate movements have a greater impact on companies operating in countries with weak capital markets, where companies are more dependent on bank financing and where small banks predominate.

Inflation affects the level of the risk-free rate, determined by the yield on government bonds and, thus, the cost of capital and company valuation. The rise in inflation has effects similar to that of the rise in interest rates. Investing in a country with high inflation entails a relatively higher risk.

The fiscal policy affects the capital structure, among others through the tax channel. Thanks to the tax shield, foreign capital becomes a relatively cheaper component than own capital. However, small and micro enterprises pursue a strategy of maximizing tax deductible costs in order to minimize the amount of income tax, limiting their creditworthiness. Entities related by capital may, in order to bypass taxation, use the so-called indirect financing such as parallel and facade loans.² The transfer of capital then takes place through an independent financial institution or another unrelated company (Duliniec, 2007, p. 60).

Investment decisions of multinational enterprises come down to the choice of investment location that allows minimization of costs (or maximization of effects). Costs can be reduced by investing in a country with a relatively weak or undervalued currency. The appreciation of the currency of the country of investment results in a relative decrease in the prices of imported goods, improving the situation of importers and worsening the situation of exporters. Investment decisions are also influenced by the exchange rates in which the main commodities, such as crude oil, are denominated. Choosing a relatively cheap labor force means a location in a country with a relatively low level of GDP *per capita* and a theoretically higher growth potential.³ A high rate of the GDP growth means that there is an opportunity to increase the demand for the company's products and services. The smaller the original size of the local market, the larger its

² Parallel loans: their term allow for replenishing the amount of the loan taken; facade loans: the parent company places a deposit with a bank in its own country or in the country of the subsidiary's location and the bank grants a loan to the daughter company, the amount of which depends strictly on the amount of the deposit (Duliniec, 2004).

³ If the growth in labor productivity in a developing country exceeds the growth in prices in the economy, then in line with the Ballasa-Samuelson effect, despite the general increase in prices in the longer term, the currency should appreciate in real terms.

absorptive capacity, that is, in theory, it increases in countries with a low GDP *per capita*. The choice of an investment location may also be determined by the creation of special economic zones aimed at attracting home and foreign investors. An increase in interest rates affects the cost of financing the investment, and thus the level of the required rate of return on investment. In such a situation, when planning undertakings, the enterprise may: obtain foreign capital more expensively and include it in the investment cost, finance the investment with equity, or abandon the investment (in part or in whole). Making a decision to invest requires an estimation of the minimum required rate of return, which should exceed the WACC. Thus, an increase in interest rates usually increases the WACC and the required rate of return. The tightening of the monetary policy can result in the appreciation of the domestic currency. Producers then have limited opportunities to raise prices, as there is a substitution effect of replacing the “more expensive” domestic product with the “cheaper,” imported one.

From the point of view of an enterprise’s investment policy, an increase in inflation is associated with a greater level of uncertainty and the expectations of a higher rate of return on investment. Decisions are largely determined by the possibility of anticipating the direction and scale of price changes, as the expected rate of increase/decrease in prices translates into the remuneration and sales policy (the purchase of materials, fixed assets, and services). Deflation can lead to a situation in which the cost of purchasing raw materials exceeds the price a company can negotiate on the market for its products or services. Therefore, a fall in prices is regarded to be as unfavorable for the economy as hyperinflation.

From the point of view of the company’s situation, maintaining a competitive advantage depends on increasing labor productivity⁴ in excess of wage growth. Excessive wage demands or welfare benefits can lead to a wage growth exceeding the surge in productivity, undermining competitiveness. International enterprises operating in industry locate their investments in countries with relatively low labor costs and lower productivity. Investments requiring employees to have advanced knowledge (high productivity) are associated with the need to incur relatively higher employment costs. For this reason, enterprises diversify investment locations by adjusting the level of staff (and costs) to the needs of a given product or service.

The fiscal policy of the state affects the level of labor costs – the main component of enterprise costs, it also affects the property tax whose rates may be lowered by local authorities, and the rules and rates for depreciation (appreciation) of fixed assets and intangible fixed assets.

⁴ Labor productivity measures the efficiency of employees and is calculated as the production volume per one employee or per unit of work.

Enterprises try to minimize costs in this area by choosing locations with relatively competitive tax rates, thanks to which they can gain a cost advantage. Public investments (reconstruction or construction of infrastructure, investments related to events, e.g. sport events) play an important role in terms of investment decisions. In a market economy, the state outsources these tasks to private entities through the public procurement system. As a result, these activities stimulate economic activity at home or abroad.

The impact of changes in exchange rates on decisions concerning **dividend payments** depends on the size of the enterprise. Corporations have a greater ease when transferring profits among subsidiaries, limiting currency risk. Smaller enterprises may, in the event of unfavorable changes in exchange rates (currency depreciation causes a decrease in the value of dividends expressed in foreign currencies), limit the dividend payout rate, increasing equity.

Forecasts of a high rate of the GDP growth justify, on the one hand, greater optimism and a higher dividend payment rate. They also justify an increase in investment and the need to enlarge the amount of retained earnings. Regardless of the dividend policy adopted by the company, the possibilities of any choice in this regard are determined by the need to generate a net profit, which is more likely in good economic times.

An increase in interest rates may reduce dividend payments in favor of retained earnings, in order to increase equity and maintain the WACC at a level close to the assumptions made. Limiting investments or increasing their cost due to an increase in interest rates usually translates into a decrease in net profit, which in turn reduces dividend payments, even if the rate is kept constant.

Fiscal policy affects the profit-sharing policy. Taxing dividends results in a tax burden on a given amount of money twice: the first time for the entire enterprise $EBT - taxes = EAT$ [2], and once again for the owner receiving the dividend: $[net\ profit \times (dividend\ payout\ rate)] - income\ tax$ [3]. Taxation of dividends may force reinvestments and contribute to increasing equity capital from internal sources. On the other hand, it may contribute to shaping international transfers in large enterprises in order to minimize taxation of the distributed profit.

The discussed macroeconomic factors are interrelated. Gross domestic income can be considered a key category. The pace of changes in GDP depends on the pace of price growth, the level of interest rates, fiscal policy and the situation on the labor market. Monetary and fiscal policies affect the level of interest rates, the exchange rate and employment, which translates into the future level of GDP. In turn, the direction and instruments of these policies are determined by the levels of the past and the current GDP, but also its forecasts.

As a result, the part of the study aimed at comparing the situation of the studied countries from the period before the pandemic applies a limited set of

variables. Macroeconomic factors represent GDP per capita and the GDP growth rate (an aggregate of the remaining factors, a variable treated as a barometer of the country's economic situation).

Additionally, in order to analyze the effects of the pandemic, the unemployment rate was taken into account, as the lockdown resulted in the loss of jobs and the debt of the general government (GG) sector, as the aid programs required a future increase in this debt.

8.3. Justification for the selection of the research sample: Research methodology

The research covered the countries of the EU. This choice was dictated, on the one hand, by the specific type of ties between these countries: they are all part of the single market characterized by the free movement of goods, services, people and capital, and some of them function within the European Monetary Union (EMU) with a common currency (euro) and a single monetary policy. Disruptions in the functioning of one economy affect the functioning of the others. The Covid-19 pandemic not only disrupted the functioning of each of them separately, but it also disrupted the functioning of the single market, significantly limiting the flow of goods, services, people and capital. This had an impact on changes in the BP statistics. The surveyed countries are presented in Table 1 below.

Research stages:

- Stage 1. Classification of countries in terms of the selected BP statistics and macroeconomic data in 2018–2019 (pre-pandemic period) – part 4 and 5. The study presents average levels for 2018–2019 in relation to GDP, Eurostat data.
- Stage 2. Presentation of the development of selected monthly BP statistics during the pandemic period (from January 2020) – part 6, in terms of: changes in the share of GDP (first half of 2020 in relation to the first half of 2019); year on year changes.
- Stage 3. Confrontation of the results of stages 1 and 2
- Stage 4. Conclusions

Research methodology:

- Data source: Eurostat, annual and monthly data in million EUR.
- The collected statistics were adjusted to the HICP.

Table 1. The list of countries, their codes, and their currencies covered by the study

Country	Code	Belonging to EMU	Currency (the date of the EUR introduction)
Belgium	BE	Y	EUR (1999)
Bulgaria	BG	N	BGN
Czechia	CZ	N	CZK
Denmark	DK	N	DKK
Germany	DE	Y	EUR (1999)
Estonia	EE	Y	EUR (2011)
Ireland	IE	Y	EUR (1999)
Greece	EL	Y	EUR (2001)
Spain	ES	Y	EUR (1999)
France	FR	Y	EUR (1999)
Croatia	HR	N	HRK
Italy	IT	Y	EUR (1999)
Cyprus	CY	Y	EUR (2008)
Latvia	LV	Y	EUR (2014)
Lithuania	LT	Y	EUR (2015)
Luxembourg	LU	Y	EUR (1999)
Hungary	HU	N	HUF
Malta	MT	Y	EUR (2008)
Netherlands	NL	Y	EUR (1999)
Austria	AT	Y	EUR (1999)
Poland	PL	N	PLN
Portugal	PT	Y	EUR (1999)
Romania	RO	N	RON
Slovenia	SI	Y	EUR (2007)
Slovakia	SK	Y	EUR (2009)
Finland	FI	Y	EUR (1999)
Sweden	SE	N	SEK

Source: Own elaboration.

- Variable shares in GDP – parts 4 and 5 – Eurostat data, part 6 – own calculations: the monthly share in GDP was calculated as the quotient of the monthly BP statistics and 1/3 of the quarterly GDP.
- Statistics on international capital flows for part 4 (due to the lack of the monthly IIP data) come from the BP, which presents changes in balances of the value of capital flows in the analyzed period.

8.4. Pre-pandemic flows of international capital, goods and services, and investment income

Starting an investment activity requires acquiring sources of investment financing, i.e. the capital. Cross-border capital flows are presented in the balance of payments broken down into outgoing capital, i.e. assets (A) denoting the investments of residents abroad and incoming capital liabilities (L) denoting non-resident investments.

The difference between these flows over the period allows for the calculation of the country's net investment position included in the IIP: $IIP_{net} = assets - liabilities$ [4] and the balances of the FA in the BP: $FA_{net} = \Delta assets - \Delta liabilities$ [5].

Assets and liabilities include direct, portfolio, and other investments.⁵ **The foreign direct investment (FDI)** covers capital flows between entities related to a direct investment relationship – where one entity has the right to at least 10% of the votes in the body of the other entity. **The portfolio investment (FPI)** includes cross-border investment not classified as FDI and official reserve assets and includes equity or debt securities. **Other investments (FOI)** refer to cross-border transactions not included in the FDI and FPI categories and in the official reserve assets. They mainly include various forms of debt capital and are referred to as bank capital (IMF, 2009, pp. 99–111). Their form (FDI, FPI, and FOI) indicates the size and structure of capital flowing between multinational enterprises. Presentation of the pre-pandemic situation of the EU countries will be limited to the balances of FDI, FPI, and FOI flows from the IIP. A positive balance proves that the country was a capital donor and a negative one – a recipient.

⁵ Assets and liabilities are broken down functionally into direct investments, portfolio investments, other and derivatives and reserve assets (only assets). The IIP and the BP also account for: (1) derivative instruments that include the value of transactions between residents and non-residents in derivatives not classified as official reserve assets and employee options; (2) official reserve assets which are foreign assets controlled by monetary authorities. The purpose of their collection is meeting BP's financial needs, interventions in the currency markets, and strengthening confidence in the currency and the national economy. Reserve assets include actual currencies, instruments, and financial assets.

Investments undertaken are the result of financial decisions, and their measurable effect is the flow of goods and services. The result of the investment activity of multinational enterprises is the sale of specific goods and services in the country of investment and abroad, i.e. export. The activities of entities also require the acquisition of certain goods and services from abroad, i.e. import. The difference between exports (transactions recorded on the credit account), and imports – the debit account, affects the overall balance of the goods and services accounts: *credit – debit = balance* [6].

Cross-border dividend flows are recorded in the PI account of the BP⁶ in the part related to investment income. The income of the PI account is posted to the credit account and represents the cash flows received on the overseas assets involved, the expenses of this account show the flows paid to non-residents and are posted to the debit account.

Foreign assets give rise to amounts recorded on the credit side of the PI and liabilities on the debit side. These relations usually result in positive balances of the PI account in countries investing abroad and negative balances of the said account in countries that are capital recipients from abroad.

The comparison of the situation of countries in the period before the pandemic will be made based on the results of the balance of international capital flows from the IIP: FDI net, FPI net, FOI net, balance of the goods and services accounts, and balance of the PI account. All values were compared to GDP of the surveyed countries.

The studied countries in 2018–2019 can be divided according to the following criteria:

- Countries which were the exporters of: (1) goods – Belgium, Czech Republic, Denmark, Germany, Ireland, Italy, Luxembourg, the Netherlands, Austria, Slovenia, Finland, Sweden; (2) services – Bulgaria, Czech Republic, Denmark, Estonia, Greece, Spain, France, Croatia, Cyprus, Latvia, Lithuania, Luxembourg, Hungary, Malta, the Netherlands, Austria, Poland, Portugal, Romania, Slovenia, Slovakia, Sweden.
- Countries with a positive PI account balance: Belgium, Denmark, Germany, Spain, France, Italy, the Netherlands, Finland, Sweden.
- Countries with the share of balance above 10% of GDP: (1) trade – Ireland, Greece, Croatia, Cyprus, Malta; (2) services – Ireland, Luxembourg, Greece, Croatia, Cyprus, Malta. Greece, Croatia, Cyprus and Malta had a negative balance for goods and a positive balance for services (Ireland the opposite).

⁶ The PI account is a statement of the income and expense related to the allocation of flows due to investment entities for the performance of work, financial assets, or natural resources (IMF, 2009, pp. 184–185).

Table 2. Average values of selected categories of the international flows in the period before the pandemic

	% of GDP as 2018–2019 average					
	Goods balance	Services balance	PI balance	FDI net	FPI net	FOI net
BE	0.30	-0.15	1.05	0.12	0.21	0.04
BG	-4.75	7.70	-3.95	-0.73	0.06	-0.10
CZ	3.90	2.00	-5.20	-0.50	-0.14	-0.17
DK	4.35	2.30	2.90	0.32	0.16	0.01
DE	6.55	-0.60	2.70	0.18	0.21	0.23
EE	-3.95	7.25	-2.05	-0.57	0.40	-0.12
IE	33.45	-13.10	-21.90	-0.19	-1.43	-0.18
EL	-12.45	11.10	-0.95	-0.10	0.36	-1.77
ES	-2.30	5.15	0.15	-0.10	-0.38	-0.33
FR	-1.95	0.95	2.30	0.25	-0.35	-0.14
HR	-18.95	18.35	-1.60	-0.46	-0.10	-0.33
IT	2.90	-0.15	0.95	0.06	0.11	-0.26
CY	-21.00	21.20	-3.90	0.54	-0.20	-1.68
LV	-8.75	7.90	-1.50	-0.46	0.21	-0.33
LT	-5.45	9.00	-3.30	-0.29	0.06	-0.15
LU	4.70	35.65	-35.35	<u>12.21</u>	<u>-18.15</u>	<u>6.38</u>
HU	-1.70	5.45	-3.10	-0.34	-0.26	-0.07
MT	-12.00	26.70	-8.25	<u>-9.55</u>	<u>8.79</u>	<u>1.20</u>
NL	8.85	1.65	0.75	1.29	-0.60	0.01
AT	0.60	2.55	-0.20	0.10	-0.16	0.09
PL	-0.50	4.35	-3.95	-0.36	-0.21	-0.17
PT	-7.75	8.30	-2.40	-0.42	0.02	-0.73
RO	-7.50	4.00	-1.60	-0.39	-0.13	-0.09
SI	2.75	5.75	-1.80	-0.20	0.00	0.02
SK	-0.65	1.15	-1.95	-0.54	0.04	-0.24
FI	0.50	-0.90	0.40	0.22	-0.29	0.02
SE	2.75	0.20	2.15	0.09	-0.16	0.08

Source: Own elaboration of the Eurostat data.

- Countries with a positive FA net balance (in the IIP): Belgium, Denmark, Germany, Luxembourg, Malta, the Netherlands, Austria, Sweden. Positive balances of FDI, FPI and FOI were recorded in Belgium, Denmark and Germany.
- Countries with a balance of international capital flows exceeding their GDP: Ireland (FPI–), Luxembourg (FDI+; FPI–; FOI+); Greece (FOI–), Cyprus (FOI–), Malta (FDI–; FPI+; FOI+), the Netherlands (FDI+)

8.5. Selected macroeconomic indicators before the pandemic

The aim of the study is to present the changes caused by Covid-19 on the selected categories of international flows, representing the effects of financial decisions of entities operating in the international arena. The methodology of the conducted research needs to be supplemented with a presentation of the macroeconomic situation of the studied countries in the pre-pandemic period in order to show the sources of their potential advantages in the process of eliminating the effects of the pandemic. One of the most important parameters for comparing the situation between economies is GDP. The real GDP changes show the pace of economic development. Countries with a high development potential – usually relatively less capital-rich – are characterized by a high GDP growth rate. Typically, a high GDP growth rate correlates with a low GDP per capita level, which reflects the level of economic development. For comparison purposes, the version of GDP per capita based on PPS⁷ was used here. It shows the wealth of the country taking into account the purchasing power of its inhabitants. According to the intertemporal theory of the BP (Obstfeld & Rogoff, 1995), countries with a relatively low level of GDP per capita need an inflow of capital for further development. In theory, they should be more affected by the effects of Covid-19 on the changes in the statistics in their balances of payments.

Another variable included in the study is unemployment. Covid-19 has forced a complete lockdown or restriction of selected types of economic activity in many countries. Theoretically, this should contribute to an increase in unemployment. However, the change in the lifestyle of societies has forced the emergence of new needs and new professions, which is why some industries are flourishing.

The last variable is the GG gross debt, whose high-level forces incurring significant expenditure on debt servicing, limiting expenditure from the state budget for other purposes, including expenditure related to the fight against the effects of Covid-19.

The table below presents the average level of the discussed variables in 2018–2019. The GDP per capita is presented as a percentage of the EU average, the GDP

⁷ PPS – Purchasing Power Standards.

Table 3. Average values of the selected macroeconomic indicators before the pandemic

	2018–2019 average			
	GDP per capita in PPS	GDP real growth rate	Unemployment rate	GG gross debt
BE	117.50%	1.64%	5.70%	98.95%
BG	52.00%	5.50%	4.70%	21.25%
CZ	91.50%	5.05%	2.10%	31.15%
DK	129.00%	2.29%	5.05%	33.65%
DE	122.00%	1.19%	3.25%	60.70%
EE	83.00%	5.55%	4.90%	8.30%
IE	191.00%	8.01%	5.40%	60.20%
EL	68.00%	1.10%	18.30%	183.35%
ES	91.00%	2.22%	14.70%	96.45%
FR	105.00%	1.04%	8.75%	98.10%
HR	64.00%	3.74%	7.55%	73.55%
IT	96.00%	0.58%	10.30%	134.55%
CY	89.50%	4.56%	7.75%	96.60%
LV	69.00%	3.57%	6.85%	37.00%
LT	81.50%	4.93%	6.25%	34.80%
LU	262.00%	3.83%	5.60%	21.50%
HU	72.00%	3.99%	3.55%	67.25%
MT	99.00%	5.54%	3.65%	43.90%
NL	129.00%	2.58%	3.60%	50.55%
AT	127.50%	1.91%	4.70%	72.25%
PL	72.00%	4.97%	3.60%	47.25%
PT	78.00%	3.57%	6.80%	119.35%
RO	67.50%	4.87%	4.05%	35.00%
SI	87.50%	4.19%	4.80%	67.95%
SK	73.50%	2.65%	6.15%	49.20%
FI	111.00%	2.01%	7.05%	59.45%
SE	120.50%	-2.43%	6.60%	37.00%

Source: Eurostat (access: 13.11.2020).

growth rate has become real, the unemployment rate relates to active population between the ages of 15–74 and the GG gross debt was expressed as a share in GDP.

The studied countries can be divided according to the following criteria in 2018–2019:

- Countries with a relatively high level of GDP per capita (above the EU average): Belgium, Denmark, Germany, Ireland, France, Luxembourg, the Netherlands, Austria, Finland, and Sweden.
- Countries with a relatively high rate of economic return (a level of 5% or more was assumed): Bulgaria, Czechia, Estonia, Ireland, and Malta.
- Countries with unemployment exceeding 10%: Greece, Spain, Italy.
- Countries with the GG gross debt not exceeding 60% (Maastricht Treaty): Bulgaria, Czechia, Denmark, Estonia, Lithuania, Latvia, Luxembourg, Malta, the Netherlands, Poland, Romania, Slovakia, Finland, and Sweden.
- Countries with a relatively high rate of the GDP growth and a low GG debt: Bulgaria, Czechia, Estonia, and Malta.

8.6. Changes in the scale and directions of international capital flows, goods and services, and investment income during the pandemic

In the study, the pandemic period began in January 2020. There are several reasons: (1) the Covid-19 virus destabilized the functioning of Asian countries with which the EU is economically tied as early as at the end of 2019; (2) Covid-19 is likely to have entered the EU before it was officially identified; (3) the adoption of the period from January 2020 in the study will present changes in the studied values in the period of the first peak wave of the pandemic, i.e. in the second quarter of 2020.

Monthly data was taken into account, whereas the information on changes in the structure of international capital (section 8.6.1, 8.6.2), flows of goods and services and dividends (section 8.6.3, 8.6.4) were presented as percentage of GDP. In section 8.6.5, monthly changes in real values in 2020 were presented in relation to analogous ones from 2019. However, due to the occurrence of negative values of assets and liabilities, the analysis was limited to goods, services, and income. Due to the lack of data on monthly IIP statistics, all information comes from the BP. Since in the second quarter of 2020, all surveyed countries recorded real GDP decline, an increase in the share of a variable in the creation of GDP is not the same as an increase in its real value.

8.6.1. Changes in the share of balances of selected asset categories in GDP during the pandemic

The information contained in Table 4 below comes from the BP and shows changes in the amount of capital outgoing from the country during the pandemic in relation to GDP.

Table 4. Relationship of selected asset categories to GDP and its changes over time during the pandemic

	FDIA average share		FDIA change	FPIA average share		FPIA change	FOIA average share		FOIA change
	2019	2020	2020/2019	2019	2020	2020/2019	2019	2020	2020/2019
BE	-15.13%	-1.20%	92.10%	2.12%	14.87%	600.16%	13.01%	18.68%	43.62%
BG	0.51%	0.61%	18.06%	1.85%	4.08%	120.94%	3.04%	-7.20%	-336.33%
CZ	3.44%	0.03%	-99.20%	-0.14%	-0.02%	-83.16%	1.21%	0.17%	-85.89%
DK	-9.35%	2.39%	125.60%	6.10%	15.35%	151.76%	6.21%	12.80%	106.21%
DE	4.92%	3.34%	-31.99%	4.03%	4.31%	6.76%	4.14%	13.19%	218.65%
EE	11.64%	-0.15%	-101.33%	1.69%	31.42%	1757.56%	11.16%	0.16%	-98.57%
EL	0.14%	0.46%	221.48%	3.77%	24.20%	542.08%	-2.77%	2.47%	189.31%
ES	3.29%	2.63%	-20.20%	2.26%	8.85%	292.14%	7.55%	10.21%	35.35%
FR	2.31%	-1.01%	-143.89%	8.71%	8.22%	-5.63%	29.09%	14.31%	-50.81%
HR	0.35%	0.71%	101.14%	0.88%	0.10%	-89.16%	-2.56%	5.76%	325.18%
IT	1.55%	-0.12%	-107.61%	0.60%	5.25%	775.56%	1.75%	0.89%	-49.18%
LV	0.18%	0.44%	140.50%	1.96%	14.39%	635.94%	-1.89%	-0.52%	72.67%
LT	1.70%	0.56%	-66.70%	1.25%	0.04%	-96.85%	-5.54%	14.22%	356.73%
LU	-206.27%	-389.23%	-88.70%	164.40%	115.98%	-29.45%	222.12%	301.92%	35.93%
HU	11.50%	-3.33%	-128.99%	0.83%	0.31%	-61.96%	1.84%	-0.54%	-129.30%
MT	-45.35%	-48.40%	-6.72%	38.01%	54.43%	43.20%	24.23%	24.27%	0.19%
NL	-1.67%	-18.22%	-988.91%	4.16%	2.93%	-29.64%	7.48%	19.20%	156.75%
PL	0.67%	-0.64%	-195.54%	0.30%	0.68%	127.92%	0.14%	1.31%	838.94%
PT	0.31%	-0.72%	-334.67%	3.51%	4.84%	37.91%	-0.35%	-0.47%	-35.40%
RO	0.35%	-1.09%	-406.87%	1.13%	-0.03%	-103.01%	0.79%	1.57%	100.16%
SI	1.87%	0.94%	-50.07%	1.50%	-0.44%	-129.17%	9.06%	23.24%	156.46%
FI	1.94%	2.71%	40.10%	-2.46%	2.74%	211.34%	43.33%	24.22%	-44.10%
SE	6.47%	6.03%	-6.77%	3.25%	-3.14%	-196.40%	-7.22%	11.43%	258.26%

Source: Own elaboration of the Eurostat data.

Findings:

- Countries characterized by an increase in the share of balances of the asset categories in the creation of GDP: (1) FDI – Belgium, Bulgaria, Denmark, Greece, Croatia, Latvia, and Finland; (2) FPI – Belgium, Bulgaria, Denmark, Germany, Estonia, Greece, Spain, Italy, Latvia, Malta, Poland, Portugal, and Finland; (3) FOI – Belgium, Denmark, Germany, Greece, Spain, Croatia, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Romania, Slovenia, and Sweden.
- The countries in which the balances of all analyzed asset categories increased in relation to GDP were: Belgium, Denmark, Greece, and Latvia.

8.6.2. Changes in the share of balances of selected liability categories in GDP during the pandemic

The information in the table below comes from the BP and shows changes in the amount of capital outgoing from the country during the pandemic.

Table 5. Relation of selected liabilities categories to GDP and its changes over time during the pandemic

1H19	FDIL average share		FDI change	FPIL average share		FPIL change	FOIL average share		FOIL change
	2019	2020	2020/2019	2019	2020	2020/2019	2019	2020	2020/2019
BE	-19.59%	0.79%	104.03%	11.97%	15.85%	32.50%	8.24%	14.64%	77.56%
BG	1.69%	1.89%	11.74%	-0.24%	-0.11%	-53.53%	0.81%	-0.74%	-190.76%
CZ	4.60%	1.67%	-63.64%	5.90%	2.43%	-58.78%	-8.04%	-6.31%	21.51%
DK	-10.82%	1.13%	110.43%	7.42%	15.39%	107.51%	2.90%	18.41%	534.78%
DE	2.46%	1.84%	-24.96%	3.93%	6.54%	66.33%	2.91%	10.98%	277.59%
EE	12.98%	6.71%	-48.26%	2.95%	15.21%	414.80%	8.27%	6.86%	-17.11%
EL	2.19%	2.02%	-7.46%	5.35%	-10.37%	-293.88%	-3.31%	45.05%	1 460.46%
ES	2.39%	1.98%	-17.33%	8.74%	5.12%	-41.42%	0.01%	13.22%	91 744.58%
FR	2.35%	-1.28%	-154.31%	7.85%	13.48%	71.70%	31.29%	13.51%	-56.84%
HR	1.76%	1.72%	-2.38%	2.91%	8.35%	186.61%	5.25%	-1.89%	-136.03%
IT	1.34%	-0.36%	-126.45%	7.04%	-5.63%	-179.94%	-5.78%	11.61%	301.09%
LV	1.73%	2.19%	26.16%	6.80%	3.70%	-45.49%	-10.75%	2.94%	127.35%

Table 5 cont.

1H19	FDIL average share		FDI change	FPIL average share		FPIL change	FOIL average share		FOIL change
	2019	2020	2020/2019	2019	2020	2020/2019	2019	2020	2020/2019
LT	3.48%	0.82%	-76.49%	7.10%	0.14%	-98.03%	-15.43%	3.96%	125.66%
LU	-342.18%	-215.55%	-37.01%	250.82%	131.31%	-47.65%	287.97%	179.89%	-37.53%
HU	11.98%	0.56%	-95.31%	-0.95%	0.39%	140.78%	2.50%	3.01%	20.53%
MT	26.78%	29.65%	10.71%	1.75%	1.64%	-6.04%	-22.02%	0.14%	100.66%
NL	-4.11%	-35.93%	-773.52%	-1.73%	15.14%	973.19%	7.46%	19.84%	166.02%
PL	2.69%	1.30%	-51.65%	-1.36%	-3.73%	-173.50%	-1.44%	-1.65%	-14.54%
PT	3.38%	0.07%	-98.04%	1.77%	1.20%	-32.23%	0.85%	5.63%	565.58%
RO	2.82%	0.05%	-98.07%	1.93%	6.67%	245.89%	-0.93%	-1.20%	-29.77%
SI	4.02%	2.39%	-40.52%	-0.42%	16.77%	4140.57%	2.98%	1.81%	-39.22%
FI	3.46%	2.20%	-36.41%	18.34%	7.86%	-57.12%	22.76%	24.90%	9.42%
SE	4.30%	3.93%	-8.45%	2.20%	-0.02%	-100.78%	-2.16%	4.30%	299.16%

Source: Own elaboration of the Eurostat data.

Findings:

- Countries characterized by an increase in the importance of balances of the liability categories in the creation of GDP: (1) FDI – Belgium, Bulgaria, Denmark, Latvia, and Malta; (2) FPI – Belgium, Denmark, Germany, Estonia, France, Croatia, Hungary, the Netherlands, Romania, and Slovenia; (3) FOI – Belgium, Czechia, Denmark, Germany, Greece, Spain, Italy, Latvia, Lithuania, Hungary, Malta, the Netherlands, Portugal, Finland, and Sweden.
- The countries where the balances of all analyzed liability categories increased in relation to GDP were Belgium and Denmark.

8.6.3. Changes in the share of exports of goods and services and primary revenues in GDP during the pandemic

Exports of goods and services and primary income (including investment income) are recorded in the BP on the credit side.

Table 6. Average share of the credit account in the country's GDP in 2019 and 2020 (first half of the year)

1H19	Goods credit average share		Goods change	Services credit average share		Services change	PI credit average share		PI change
	2019	2020	2020/2019	2019	2020	2020/2019	2019	2020	2020/2019
BE	60.43%	58.44%	-3.30%	21.82%	22.69%	3.96%	14.27%	14.06%	-1.40%
BG	46.10%	43.41%	-5.83%	13.71%	10.37%	-24.34%	1.97%	1.25%	-36.23%
CZ	63.96%	57.13%	-10.67%	11.78%	11.13%	-5.51%	5.22%	5.49%	5.13%
DK	33.91%	33.98%	0.19%	23.38%	20.51%	-12.27%	9.01%	8.47%	-5.97%
DE	38.28%	34.70%	-9.35%	8.67%	8.06%	-7.11%	6.77%	6.32%	-6.61%
EE	48.64%	46.80%	-3.78%	24.04%	20.35%	-15.35%	4.82%	5.01%	3.89%
EL	17.27%	16.53%	-4.32%	16.72%	12.03%	-28.06%	3.91%	4.38%	12.00%
ES	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	4.86%	4.59%	-5.54%
FR	22.19%	18.63%	-16.05%	10.45%	9.56%	-8.46%	8.50%	8.10%	-4.72%
HR	22.98%	22.40%	-2.54%	18.61%	10.95%	-41.18%	3.51%	4.16%	18.67%
IT	25.55%	23.89%	-6.53%	5.49%	4.23%	-23.00%	4.20%	4.31%	2.53%
LV	41.09%	42.51%	3.47%	17.51%	15.03%	-14.15%	3.98%	3.73%	-6.25%
LT	52.25%	48.78%	-6.65%	23.07%	21.76%	-5.72%	1.90%	1.23%	-35.19%
LU	42.19%	34.93%	-17.22%	157.46%	153.69%	-2.39%	481.43%	401.20%	-16.66%
HU	64.38%	61.19%	-4.96%	17.58%	11.32%	-35.60%	9.42%	8.94%	-5.16%
MT	24.26%	21.09%	-13.08%	108.42%	108.54%	0.11%	71.01%	74.43%	4.83%
NL	60.85%	57.47%	-5.56%	22.14%	21.73%	-1.87%	38.24%	34.19%	-10.59%
PL	44.08%	41.72%	-5.37%	11.29%	10.60%	-6.08%	3.01%	2.64%	-12.48%
PT	27.91%	24.78%	-11.23%	14.70%	10.13%	-31.10%	3.97%	3.95%	-0.47%
RO	29.23%	24.83%	-15.07%	11.62%	10.77%	-7.32%	3.50%	3.17%	-9.47%
SI	67.74%	63.15%	-6.77%	16.19%	14.29%	-11.70%	3.74%	3.44%	-8.14%
FI	26.83%	24.44%	-8.90%	12.54%	10.58%	-15.63%	8.88%	8.70%	-2.01%
SE	33.62%	31.74%	-5.58%	13.67%	12.89%	-5.73%	11.32%	8.89%	-21.50%

Source: Own elaboration of the Eurostat data.

Findings:

- Countries that increased the share of exports in GDP: goods – Denmark and Latvia; services – Belgium and Malta.
- Countries that increased the share of revenues from investments in GDP: Czechia, Estonia, Greece, Croatia, Italy, and Malta.

8.6.4. Changes in the share of imports of goods and services and primary expenditure in GDP during the pandemic

Imports of goods and services as well as primary expenditure are recorded in the BP on the debit side.

Table 7. Average share of the debit account in the country's GDP in 2019 and 2020 (first half of the year)

IH19	Goods debit average share		Goods change	Services debit average share		Services change	PI debit average share		PI change
	2019	2020	2020/2019	2019	2020	2020/2019	2019	2020	2020/2019
BE	60.56%	58.66%	-3.14%	21.98%	22.02%	0.16%	12.64%	12.82%	1.42%
BG	50.96%	45.17%	-11.37%	8.17%	6.05%	-25.96%	5.14%	3.67%	-28.53%
CZ	58.64%	53.50%	-8.76%	9.28%	8.73%	-5.97%	9.74%	7.25%	-25.63%
DK	29.33%	28.47%	-2.93%	21.32%	19.97%	-6.35%	6.61%	5.98%	-9.48%
DE	31.89%	29.75%	-6.69%	9.01%	7.90%	-12.32%	4.63%	3.89%	-15.88%
EE	51.02%	47.06%	-7.76%	17.24%	14.00%	-18.77%	7.90%	6.14%	-22.32%
EL	29.64%	27.51%	-7.17%	9.53%	9.46%	-0.66%	3.75%	4.13%	10.38%
ES	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	4.94%	4.47%	-9.52%
FR	24.48%	22.34%	-8.73%	9.74%	9.49%	-2.51%	6.48%	5.42%	-16.36%
HR	43.68%	42.45%	-2.81%	9.05%	5.73%	-36.66%	5.49%	5.98%	8.93%
IT	22.87%	20.78%	-9.15%	5.75%	5.13%	-10.90%	3.76%	3.63%	-3.65%
LV	49.36%	47.71%	-3.36%	9.89%	8.47%	-14.34%	5.77%	4.15%	-28.16%
LT	58.05%	50.25%	-13.43%	13.61%	11.80%	-13.31%	5.76%	3.64%	-36.79%
LU	36.80%	30.62%	-16.80%	123.16%	119.06%	-3.33%	514.16%	435.69%	-15.26%
HU	64.96%	62.69%	-3.49%	12.20%	8.37%	-31.41%	13.31%	11.47%	-13.77%
MT	36.64%	31.61%	-13.75%	83.98%	91.92%	9.46%	79.22%	84.61%	6.80%
NL	52.62%	49.26%	-6.38%	20.04%	19.63%	-2.08%	38.60%	34.66%	-10.21%
PL	44.01%	39.68%	-9.83%	6.84%	6.18%	-9.64%	6.34%	4.58%	-27.82%
PT	35.66%	31.34%	-12.10%	7.93%	6.58%	-17.03%	6.91%	5.87%	-15.08%
RO	36.31%	33.06%	-8.95%	7.91%	6.53%	-17.45%	4.36%	3.71%	-14.87%
SI	64.21%	57.95%	-9.75%	11.09%	10.05%	-9.41%	5.15%	4.86%	-5.64%
FI	26.10%	23.61%	-9.52%	13.53%	12.22%	-9.65%	10.42%	8.64%	-17.12%
SE	29.84%	27.23%	-8.72%	13.80%	12.79%	-7.33%	9.47%	5.47%	-42.27%

Source: Own elaboration of the Eurostat data.

Findings:

- None of the surveyed countries increased the share of imports of goods in GDP.
- Countries that increased the share of service imports in GDP: Belgium, Malta.
- Countries that increased the share of PI expenditure in GDP: Belgium, Greece, Croatia, Malta.

8.6.5. Changes in the real volume of flows of goods, services, and income during the pandemic

Interesting information was provided by the analysis based on dynamics indicators, i.e. changes in values between the analyzed periods, covering the pandemic period: the first half of 2020 in relation to the first half of 2019. Unfortunately, due to negative values of assets and liabilities, it was only done in relation to flows of goods, services, and income. Changes in the share of value in the GDP presented in items 8.6.1.–8.6.4. were determined by changes in GDP. The analysis based on the dynamics indicators ignores this problem, pointing to increases/decreases in real figures in relation to the previous period, disregarding the impact of a possible decline in GDP (which occurred in most countries during the pandemic).

Table 8. Average dynamics indicators (first half of the year 2020/2019)

	credit average dyn y/y in 2020			debit average dyn /y in 2020		
	Goods	Services	PI	Goods	Services	PI
BE	0.91	0.97	0.92	0.91	0.93	0.97
BG	0.93	0.71	0.65	0.88	0.74	0.62
CZ	0.87	0.88	0.94	0.88	0.86	0.64
DK	0.97	0.84	0.92	0.95	0.90	0.90
DE	0.88	0.88	0.90	0.90	0.83	0.84
EE	0.96	0.83	1.00	0.93	0.77	0.75
EL	0.89	0.66	1.14	0.86	0.89	0.96
ES	n.a.	n.a.	0.84	n.a.	n.a.	0.82
FR	0.78	0.82	0.85	0.84	0.87	0.88
HR	0.90	0.65	1.20	0.90	0.60	1.05
IT	0.87	0.72	0.92	0.83	0.79	0.87

Table 8 cont.

	credit average dyn y/y in 2020			debit average dyn /y in 2020		
	Goods	Services	PI	Goods	Services	PI
LV	1.01	0.82	0.90	0.95	0.83	0.60
LT	0.95	0.95	0.62	0.88	0.91	0.68
LU	0.91	0.99	0.85	0.87	0.99	0.85
HU	0.90	0.61	0.85	0.90	0.65	0.78
MT	0.90	0.94	0.99	0.82	1.03	1.01
NL	0.93	0.96	0.83	0.93	0.97	0.89
PL	0.94	0.90	0.84	0.89	0.88	0.72
PT	0.87	0.64	0.99	0.84	0.77	0.90
RO	0.87	0.89	0.81	0.92	0.81	0.81
SI	0.91	0.82	0.94	0.87	0.85	1.01
SK	0.87	0.83	0.90	0.87	0.82	0.87
FI	0.90	0.80	0.93	0.89	0.86	0.99
SE	0.92	0.92	0.78	0.90	0.93	0.68

Source: Own elaboration of the Eurostat data.

Findings:

- Countries with at least the same real value in relation to the corresponding months before the pandemic (dynamics index ≥ 1): export – only Latvia (goods); import – only Malta (services);
- Countries with at least the same level of real PI value as in the corresponding months before the pandemic (dynamics index ≥ 1): revenues – Estonia, Greece, and Croatia; expenditures – Croatia, Malta, and Slovenia.

8.7. Conclusions

The freezing of economic activity and the temporary closure of borders due to the Covid-19 pandemic influenced the changes in the value of flows recorded in the BP with different results. In the case of the international movement of goods and services, the lockdown resulted in their sudden limitation. None of the analyzed countries recorded a real increase in the value of exports of services, whereas in

the case of goods it was only Latvia. With regard to imports of goods and services, the increase in real value was only recorded in the case of Malta (services).

In countries often referred to as peripheral, there was an increase in flows in the category of the PI: Czechia, Estonia, Greece, Croatia, and Malta; except for Belgium that showed an increase in outlays.

In the case of international capital flows, their limitation concerned mainly FDI, considered the most stable and desirable category of foreign investment, while banking capital flows usually increased in relation to GDP.

At the present stage, it is difficult to identify the pattern of changes to the flows of the discussed categories based on the analysis of information from the pre-pandemic period. In the longer term, certain types of economic activity can be expected to be limited, while others will intensify.

The EU countries are not a monolith, they are often divided into central and peripheral countries (Śliwiński & Andrzejczak, 2019), however, due to the different course of the Covid-19 pandemic and its effects, changes in the balance sheets of countries that do not fit into this classification can be expected. This is demonstrated by data covering the first wave of the pandemic. Hence, there is a need for further research on the impact of the pandemic on the financial activities of all international enterprises operating in individual EU countries. The creation of a “new” division between the EU countries as a result of Covid-19 may result in a change in the priorities of functioning within the entire Union and in a change in the rules of redistribution of the EU funds.

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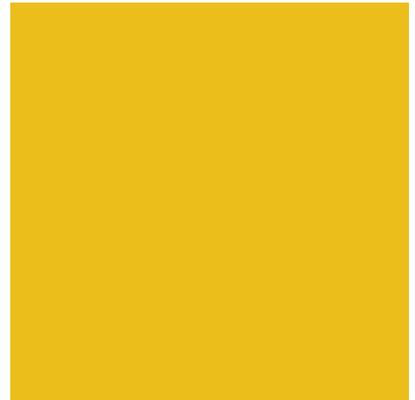
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PART

2



CHALLENGES
FOR BUSINESS SECTORS
AND INDUSTRIES



1. Internal substitution in the tourism market: Effects of the Covid-19 pandemic



Agnieszka Niezgoda

Poznań University of Economics and Business
Institute of International Business and Economics
Department of International Economics
agnieszka.niezgoda@ue.poznan.pl



Ewa Markiewicz

Poznań University of Economics and Business
Institute of International Business and Economics
Department of International Economics
ewa.markiewicz@ue.poznan.pl



Klaudyna Kowalska

Poznań University of Economics and Business
Institute of International Business and Economics
Department of International Economics
klaudyna.kowalska@ue.poznan.pl

Abstract

Purpose: The effects of the global COVID-19 pandemic are difficult to estimate, but the impact on the tourism industry is undeniable. This also applies to consumers' behavior in the tourism market, whose attitudes towards travel may change radically. The aim of this chapter is to analyze substitution processes in the tourism market caused by the COVID-19 pandemic.

Design/methodology/approach: This paper is a review in nature and includes papers on tourism economics, particularly the tourism market, as well as secondary data on changes in tourism (tourism participation and consumer behavior) due to the COVID-19 pandemic.

Findings: The Covid-19 pandemic does not have to be the factor slowing travels, as it may affect internal substitution on the tourism market. In the situation of the Covid-19 pandemic, all internal substitution options listed in the chapter were noticed on the tourism market in Poland.

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Research limitations/implications: As long as the emergency situation restricting the functioning of the tourism market continues, the results of the study cannot be definitive.

Practical implications: The results can be useful for tour operators, especially in the process of planning tourism development after the crisis caused by the pandemic.

Social implications: The chapter indicates changes in consumer behavior on the tourism market caused by COVID-19 pandemic, which may characterize tourists after the end of the pandemic.

Originality and value: The article identifies types of internal substitution that occurred in the tourism market in Poland as a result of the COVID-19 pandemic.

Keywords: tourism market, COVID-19 pandemic, internal substitution, tourist behaviour.

1.1. Introduction

The tourism market, although governed by the general laws of the market, shows many special characteristics resulting from the characteristics of the tourist product and from the nature of the demand reported by tourists (Kachniewska, Nawrocka, Niezgodna, & Pawlicz, 2012). Particularly characteristic features of this market are:

- continuous transformations on the side of tourist demand resulting from more and more diverse needs and expectations of tourists;
- increasing diversification of the tourist offer (in response to these needs);
- the influence of various interest groups, whose aspirations are not always in line with the interests of companies on the tourism market;
- changes in the environment of tourist enterprises;
- the growing number of competitors, not always clearly and unequivocally linked to the tourism industry.

As an industry that brings together many different service providers, tourism is very sensitive to shocks associated with unforeseen situations such as terrorist attacks, natural disasters, or the rapid spread of diseases. The aim of this chapter is to analyze substitution processes in the tourism market caused by the Covid-19 pandemic.

1.2. Pandemic-driven substitution processes on the tourism market: Theoretical considerations

The tourism market reacted extremely strongly to the restrictions on travel and business that were introduced to stop the disease. First, the pandemic influenced the behavior of consumers, who out of concern for their health, changed their

decisions regarding holiday trips. Second, because of the threat, governments introduced restrictions on travel and business activities. As a result, third, businesses had to adapt to changes in demand and to new legal conditions.

The Covid-19 pandemic caused potential tourists to resign from purchasing tourist goods and services in favor of other forms of recreation. This is a substitution external to the tourism market, an example of which is the conversion of a trip into one:

- passive recreation (e.g. reading books, watching TV or using offers of attractions watched with mobile devices);
- physical recreation at home;
- purchase of goods and services completely unrelated to the tourist market (e.g. fitness equipment, home and garden equipment, books, TV programs);

As Dziedzic and Skalska (2012) indicate, external substitution poses a threat to the tourism services sector. If, despite the pandemic, tourists changed their decisions about the chosen tourist product in favor of another tourist offer, internal substitution processes would occur:

- A. conversion of a tourist trip planned abroad into a similar tourist trip in the country, maintaining the required standard (e.g. stay in a foreign hotel with the all-inclusive option converted into such a stay in a resort in Poland);
- B. replacement of a tourist trip planned abroad for a trip in the country but changed in terms of standard of services and adapted to pandemic constraints, i.e. the exchange of a higher standard abroad for a lower standard in Poland (e.g. exchange of a stay in a foreign hotel with the all-inclusive option for a vacation in a camping house in Poland);
- C. replacement of a tourist trip planned in Poland with another domestic trip but changed in terms of service standard and adjusted to pandemic constraints, i.e. replacement of a higher standard in Poland with a lower standard in Poland (e.g. replacement of a stay in a Polish hotel with the all-inclusive option with a vacation in a camping house);
- D. replacement of a tourist trip planned abroad with a trip in Poland but changed in terms of the standard of services and adjusted to pandemic restrictions, i.e. replacement of a lower standard abroad with a higher standard in Poland (e.g. replacement of a stay in a foreign hotel with a stay in a higher standard hotel in Poland);
- E. replacement of a tourist trip planned in Poland with another domestic trip but changed in terms of the standard of services and adjusted to pandemic constraints, replacement of a higher standard in Poland with a lower standard in Poland (e.g. replacement of a stay in a holiday resort with a stay in a Polish hotel of high standard).

As indicated by Dziejczak and Skalska (2012) and Mazurek-Kusiak (2019), internal substitution increases competitiveness between companies in the tourism market but at the same time improves the quality of tourism services and products.

1.3. Covid-19 and the tourism market

The Covid-19 pandemic, like SARS, is considered to be a top crisis that deeply affects the world's tourism market (Polyzos, Samitas, & Spyridou, 2020; Tsionas, 2020; Ying, Wang, Liu, Wen, & Goh, 2020).

SARS is a viral respiratory disease, first recorded in 2003, which quickly moved by air from China (Guangdong province) to Europe and North America (Polyzos et al., 2020). The SARS pandemic had a significant impact on the tourism market at that time: the number of international tourists during the second and third quarters of 2003 has decreased by 42.83% and 7.24%, respectively (Feng-Yuan & Feng-Jie, 2013; Polyzos et al., 2020, p. 1). Several years later, at the end of 2019, another pandemic of the new, dangerous SARS-CoV-2 virus – known as Covid-19 – broke out in China (Wen, Kozak, Yang, & Liu, 2020). Covid-19 in a very short time spread to other countries and continents. In the first quarter of 2020, the Covid-19 pandemic caused a 22% fall in international tourist arrivals (UNWTO, 2020b). According to forecasts from the first half of 2020, the crisis caused by the Covid-19 pandemic could lead to an annual decrease of this number by 60% to even 80% compared to 2019 (UNWTO, 2020b). Scenarios presented by the World Tourism Organization (UNWTO) indicated possible declines in arrivals of 58% to 78% for the year, and such decreases in demand for international travel would translate into: loss of 850 m to 1.1 bn international tourists, loss of USD 910 bn to USD 1.2 tn in export revenues from tourism and 100 to 120 m direct tourism jobs at risk (UNWTO, 2020b).

These estimations seem to be close to reality. In October 2020 (UNWTO, 2020a) announced that in July and August 2020, the peak tourist season with the highest number of international arrivals, their number dropped by 81% and 79% respectively. Statistics from August show that there were 700 m fewer arrivals than in 2019, what translates into a loss of USD 730 bn in export revenues from international tourism and exceeds eight times the loss caused by the 2009 financial crisis (UNWTO, 2020a). Finally, according to the latest information from the UNWTO (2021), the collapse in international travel represents an estimated loss of USD 1.3 tn in export revenues. As UNWTO (UNWTO, 2020b) points out, the situation caused by Covid-19 is by far the worst crisis that international tourism has faced since records began; that is, for the last 70 years.

Although the effects of unforeseen situations are difficult to quantify both before and after they occur, as the example of the Covid-19 pandemic shows, such incidents have the potential to affect entire countries' economies and even the global economy. The experts' forecasts of the return to normality are not very optimistic. In 2020 the recovery in tourism was expected not earlier than in the third quarter of 2021 but – according to some experts – it will not happen earlier than in 2022 (UNWTO, 2020a). In process of time, the prognosis is less optimistic. In early 2021, UNWTO (2021) presented a summary in which most experts do not expect a return to pre-pandemic levels before 2023. The pandemic of the new virus has led to large drops in tourist traffic, and it seems that the period of return to the well-known tourism will take longer than originally expected.

The Covid-19 pandemic is considered to be one of the biggest crises (Polyzos et al., 2020; Ying et al., 2020), whose consequences will be particularly severe for the tourism industry (Tsionas, 2020). The pandemic is a factor that has a significant impact on the microenvironment of enterprises and may affect the formation of competitive forces in individual sectors of the economy. As a result of the limitation of international and domestic tourism, competition between entities operating on the tourism market may intensify.

1.4. Effects of Covid: External and internal substitution on the tourism market

During the first part of governmental restrictions in Poland, the slogan *#zostanw-domu* (stay at home) encouraged the society to indoor activity. Actions limiting the development of the pandemic were directed primarily at the exchange of the purchase of tourist goods and services for other goods and services. Tourism market players, fearing external substitution, began to take action to maintain consumer interest in tourism goods and services. In accordance with the recommendations issued to the tourism industry by the Polish Tourist Organization, the following actions were taken (POT, 2020b):

- tourist attractions: maintaining constant contact with tourists through social media, creating an offer of virtual walks in applications or websites, promotional films, animations, and by organizing competitions and promotional quizzes with prizes, e.g. tickets and special invitations for long-term use;
- accommodation facilities: reschedule your reservation (free of charge) and offer additional service at a promotional price or free of charge and a voucher;
- gastronomy: introduction of an offer of ready-made take-away dishes and delivery;

- tourist information: using creative forms of promotion on the Internet, emphasizing beautiful nature and natural tourist attractions in the regions, recommending outdoor walks to hikers “trapped” at home.

In the face of these limitations, the Polish society began to devote more time to the consumption of digital services. The actions taken by tourism market players were reflected in specific consumer behavior. Apart from watching films and series (73%), spending time on social networking sites (57%), watching educational films (50%), developing their interests (48%; e.g. learning to play an instrument, cooking courses, beauty academy workshops, photography), listening to audiobooks (24%), and physical exercise with video (19%), every fourth Pole took part in a remote cultural event and made a virtual visit to a museum (Sas, 2020).

These tools and initiatives such as the Poland-wide campaign *#ZmienTerminNieOdwoluj* (Change the Date, Don't Cancel) or the online campaign of the Polish Tourist Organization and the Ministry of Development *#WybierzVoucher* (Choose the Voucher) are to encourage tourists not to cancel their reservations and not to withdraw their payments. These are the actions that support tourism industry entities, which suffered during the pandemic, but it should be emphasized that they did not limit external substitution.

In the next stage of the pandemic, when the restrictions were relaxed and it was possible to actively participate in tourism, Polish tourism companies took creative actions as part of internal substitution on the tourism market.

The results of a survey conducted at the turn of May and June by the Centre for Public Opinion Research (CBOS) indicate that as many as 80% of Poles planning a summer holiday were only considering a domestic trip. The foreign trip planned at the beginning of 2020 was marked by 38% (10% only foreign) and now indicated by 16% of respondents (5% only foreign; CBOS, 2020).¹ Thus, we see a change in preferences toward abandoning foreign trips and choosing domestic trips. It is worth noting, however, that this may have been associated with restrictions still in force: the suspension of international passenger air traffic to and from Poland and mandatory quarantine and restrictions in other countries. Interestingly, the results of the same survey show that respondents indicating a significant impact of the pandemic on changing their holiday plans are more likely to plan their holidays abroad than those who have not made such changes at all (19% against 11%). According to the research, the most willing to go abroad are young, well-educated people, earning more than 3000 PLN (ING, 2020)². Despite the growing interest of Poles in using the offer of the national tourist base and a huge opportunity for

¹ The study was carried out from May 22 to June 4, 2020, N = 1308.

² The survey was conducted in June 2020 as part of the Think Forward Initiative by IPSOS BN, N = 1002.

the development of domestic tourism in the period of July–August 2020, only 5.9 million tourists stayed in Polish tourist accommodation facilities, i.e. 29.3% less than a year ago (Statistics Poland, 2020). Domestic tourists accounted for almost 90% of the total number of tourists in that period, but there were less of them by 19.6% compared to the previous year, the length of stay of domestic tourists increased only slightly (3.4 overnight stays, 2019: 3.3) (Statistics Poland, 2020).

Tired of being “locked up” in their homes but fearing for their safety, most Poles were looking for places away from other tourists, places off the beaten track, cottages, or guesthouses by the lake or by the sea. The most popular places in the Google search engine were those that can be visited near the tourist’s place of residence, located close to nature – national parks and mountains – while the number of searches for places that were extremely popular in recent years decreased, i.e. large clusters of people such as theme parks or popular tourist destinations – (wGospodarce, 2020). Large cities, so far focused mainly on business tourism, saw a large drop in tourist arrivals. According to the Statistics Poland data e.g. in July the largest decrease in the number of overnight stays was recorded in the Mazowieckie Voivodeship (by 54.5%), while the smallest in the Warmińsko-Mazurskie Voivodeship (by 9.8%; Statistics Poland, 2020).

Changes in tourists’ behavior also concerned the choice of means of transport and accommodation, almost 60% of Poles indicated avoiding public transport in favor of their own car. Hotels were still chosen as the main accommodation, but more than 50% of tourists when asked about changes in travel during the pandemic indicated avoiding large hotels (ING, 2020). This is confirmed by an analysis of trends in Google: increased interest in holiday rentals (from 13% to 16% in relation to 2019) and an increase (by 45%) in searches with the phrase “agritourism” (wGospodarce, 2020). In addition, within the framework of hotel facilities, the improvement in the situation on the hotel market in August compared to July this year was influenced primarily by hotels located outside cities or those with a dominant leisure segment (IGHP, 2020).

The pandemic situation and the need to maintain safety did not significantly affect the criteria for selecting a holiday destination. The issues of increased sanitary standards are indicated by less than 30% of Poles, the most important choice factor for both domestic and foreign holidaymakers, while economic issues remained the same (POT, 2020a).³ Almost half of all Poles have a smaller budget than usual (ING, 2020). It can therefore be said that Poles have chosen cheaper solutions. The situation was changed by the tourist voucher (in August 2020), which was supposed to provide financial support for Polish families and help the tourism

³ The study was carried out by PBS Sp. z o.o. at the request of the Polish Tourist Organization, from 15 to 17 June 2020, N = 1000.

industry weakened by the pandemic. Tourists, in a way, could take advantage of the situation to rest in a facility of a higher standard than they had planned (the change of a lower standard in Poland and abroad, to a higher standard in Poland).

The national quarantine introduced in Poland from December 28 to January 31 prevented Poles from participating in domestic tourist trips. Additionally, restrictions were introduced by most countries, which also closed the possibility of foreign trips. However, Poles tired of the restrictions and longing for trips are showing great willingness to return to tourism, as evidenced by the level of their interest in trips shortly after the government's decision to reopen hotels. In the first week of February 2021, Travelist.pl saw a huge increase in requests for hotel stays, more than double that of the last week of January 2021 (+123%!). Dominated by inquiries and reservations for stays in the mountains, tourists want to make up for lost holidays, so they plan extended weekends in the south of Poland. In the TOP10 were, among others, the Opawskie Mountains, Szklarska Poręba and Karpacz, but also two seaside towns: Kołobrzeg and Gdańsk (Hotelarz, 2021). One might be tempted to say that the pandemic has not reduced the demand for travel.

1.5. Conclusions

As indicated by the attached data, the Covid-19 pandemic does not have to be the factor slowing travels, as it may affect internal substitution on the tourism market.

Tired after the first stage of the lockdown but fearing for their safety, Poles were looking for places away from other tourists, places off the beaten track, cottages or guest houses by the lake or by the sea. Large hotels were often (but not always) avoided, and foreign trips were replaced by domestic ones. Due to the reduction of family budgets in almost half of the households there was a change to cheaper travel options. However, the introduction of the holiday voucher by the government led to the development of tourist traffic in August 2020, some noted that other segments of tourism – instead of business tourism, there appeared families with children – benefited from higher standard tourist facilities. Therefore, in the situation of the Covid-19 pandemic, all internal substitution options listed in the introductory part of the chapter were noticed on the tourism market in Poland.

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2. Effects of the Covid-19 pandemic on sport, video game, and tourism industry: Sentiment analysis of press, internet articles, and Twitter data



Lukasz Bryl

Poznań University of Economics and Business
Institute of International Business and Economics
Department of International Economics
lukasz.bryl@ue.poznan.pl



Justyna Majewska

Poznań University of Economics and Business
Institute of International Business and Economics
Department of International Economics
justyna.majewska@ue.poznan.pl



Szymon Truskolaski

Poznań University of Economics and Business
Institute of International Business and Economics
Department of International Economics
szymon.truskolaski@ue.poznan.pl

Abstract

Purpose: The chapter examines the extent and level of the pandemic impact on sport, video game, and tourism industry by analyzing the emotional narration of articles related to Covid-19 effects on these industries so as to assess and predict the situation of industries during the pandemic and in the following years, but also to explain sources of positive sentiment for a given industry.

Design/methodology/approach: The study provides a sentiment analysis of the global disclosure of the Covid-19 pandemic in the press, online articles, and social media (Twitter) with

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the use of three independent R packages. The final sample consisted of 142 articles; the oldest was published on January 23, 2020, whereas the newest one on October 14, 2020.

Findings: Sentiment analysis revealed that the emotional tinge of the articles is much more positive for video games and soccer than in the case of tourism. In the case of video games and soccer, positive emotions such as “trust” or “anticipation” prevailed over much more common emotions of “fear” and “sadness” used about tourism. The impact of the pandemic was similar for video games and soccer, which was a mixture of negative and positive events.

Research limitations/implications: Further research should use other resources such as the mass media or other data sources in addition to social media information and include a long-term analysis divided into stages of the pandemic as reactions and moods have been changing over time. Moreover, the factors influencing the perception of situations in different sectors of the economy should be identified in future research.

Practical implications: The use of sentiment analysis shows that such quantification may be performed for new social phenomena before any hard (e.g., financial) data are available.

Social implications: An approximation was obtained for quantifying the societal “general feeling” with regards to specific sectors affected by the pandemic.

Originality and value: The chapter compares the response to the pandemic crisis of different sectors that reveal the sentiment contributing to the growth or difficulties of a given industry. The use of sentiment analysis enabled us to assess and predict the situation of industries during the pandemic before the hard and comprehensive data will occur.

Keywords: pandemic, sentiment analysis, sport, video game, and tourism industry.

2.1. Introduction

Covid-19 is a humanitarian crisis on a global scale that affects the global economy and continues to threaten jobs, businesses, and the health and well-being of millions. An unprecedented decline in global GDP was estimated in the first half of 2020 at around 13% (OECD, 2020). As the impact of the pandemic is significant and multi-dimensional, global news spread rapidly in traditional and social media. Numerous posts, tweets, and comments were published by e.g. firms, governments, organizations, and citizens. Although the nature of the crisis following the pandemic is in general negative, its disclosure does not need to be necessarily negative and may depend on the industry. Sport and tourism count among the hardest hit industries due to e.g. the cancellation of events worldwide, the closure of borders, tourist attractions, restaurants. On the other hand, the video game industry (incl. esports) seems to benefit from the lockdown. The response to the crisis of the pandemic in industries reveals a sentiment contributing to the growth or difficulties of an industry for which the pandemic and related restrictions are a turning point in long-term development.

The analysis of sentiment in publicly available streams enables us to measure the public sentiment as a good measure of the quantitative assessment of the phenomenon before hard data like financial data are available, as indicated by previous studies, including those on public perception of the Covid-19 pandemic on Twitter (Boon-Itt & Skunkan, 2020; Samuel et al., 2020). However, not only social media can provide a subject rich in data for sentiment analysis. In fact, any published document may be analyzed in terms of the level of emotional content. Consequently, sentiment analytics provides a significant arsenal of tools to better understand the expectations of the society.

The purpose of this chapter is to examine the extent and level of the pandemic impact on sport, video game, and tourism industry using emotional narration of articles related to Covid-19 effects on these industries. Specifically, the study provides a sentiment analysis of the global disclosure of Covid-19 pandemic in the press, online articles, and social media (Twitter) in order to assess and predict the situation of industries during the pandemic and in the following years, but also to explain sources of positive sentiment for a given industry.

2.2. Literature review

2.2.1. The impact of pandemic on the economy and industries

The Covid-19 outbreak causes negative consequences for many industries as consumers stay at home and economies are shut down (Tucker, 2020). The sport and fitness industry was one of the most restricted during the pandemic: gyms, swimming pools, and water parks were closed, sport mega-events were postponed or canceled, and soccer games were held without spectators. While some businesses are struggling, others are thriving, e.g. Internet-based businesses (Donthu & Gustafsson, 2020). Video game industry is the most dynamically developing industry included in the so-called creative sectors for at least several years. Thriving under lockdown, video games are something between a sport and a social network (*E-sports: Legends in lockdown*, 2020). Even before the pandemic, there was an increasingly frequent trend of seeking entertainment in the virtual world, which was only strengthened during the pandemic.

An extremely strong trend supporting the development of this industry is e-sport; the most qualified alternative to answer the needs of sportsmanship in the digital age and Covid-19 situation of reduced outdoor activities (Hulaj et al., 2020). According to the definition of the Cambridge Dictionary, e-sport is defined as playing video games against other rivals on the Internet, which is often watched by others and done for profit. According to the SuperData Research report, the value

of the electronic sports market is USD 1.5 bn, and by 2020 it will grow by 26%, as the estimated number of e-sports players will be 250 million people worldwide (*E-sports: Legends in lockdown*, 2020; Marta, Prasetya, Laurensia, Stevani, & Syarnubi, 2020). E-sports began to cooperate with traditional sports, which could improve the situation of traditional sports during the pandemic time. There are 196 sports teams involved in e-sports, 150 of which are soccer clubs (Kamiński, 2019). However, the most popular e-sports have no connection to traditional sports; there are e-sports that follow “traditional” sport (e.g. FIFA) and “non-traditional” sport. Although e-sports are not immune to the effects of the pandemic as a sector, it is certainly less affected than traditional sports and has seized opportunities to gain mainstream publicity. However, the lasting effects on the growth of the sector will depend on how governments respond to the pandemic and whatever is in store for the global economy (Grossobel, 2020).

Tourism industry has experienced similar restrictions as the sport sector. Since many tourism and leisure activities can contribute significantly to the spread of SARS-CoV-2, as tourism and leisure activities rely on people from distant locations coming into contact, corresponding business activities must endure a comprehensive and long lockdown: mostly the closure of borders and the closure of attractions and restaurants. As a result, according to the UNWTO (2020), the massive drop in international travel demand over the period of January–June 2020 translates into a loss of 440 million international arrivals and about USD 460 bn in export revenues from international tourism. Europe is the second-hardest hit of all global regions, with a 66% decline in tourist arrivals in the first half of 2020. The Americas (-55%), Africa and the Middle East (both -57%) suffered as well. However, Asia and the Pacific, the first region to feel the impact of Covid-19 on tourism, experienced the hardest hit with a 72% fall in tourists for the six-month period.

The response options of industries to the lockdown are limited (see Airey et al., 2020a). The impact of the pandemic will likely last longer for international tourism than for other affected industries, and the tourism industries should not only recover but also reimagine and adapt itself to the coming economic order (Donthu & Gustafsson, 2020).

2.2.2. Content and sentiment analysis in social reporting research

The use of content analysis in social research has a long history that evolved over time (Vourvachis & Woodward, 2015). Recent developments affected the validity and reliability challenges that researchers face when executing the method, which received significant contribution from the increasing availability of computer tools and archived online texts. Hence, the possible scope for the further application of content analysis seems vast. Content analysis turned out to be particularly useful

in social media (e.g. posts on Twitter) and in research on the perception of social and economic phenomena and processes (e.g. Gao, He, Chen, Li, & Lai, 2020). Content analysis is used in wide array of journal groups, finding application in the perception of the pandemic and the associated socioeconomic effects. Unlike text analysis, sentiment analysis gives insight into the emotions behind the words.

For example, Samuel et al. (2020) perform descriptive analytics to study public reactions and sentiments to tweets during the consequences of the pandemic. Similarly, relying on Twitter data from 100 NASDAQ firms, Sharma, Adhikary, and Borah (2020) with text analysis tools generate themes regarding the issues faced by firms and strategies they adopt. They found that firms are facing challenges in terms of demand-supply mismatch, technology, and the development of a resilient supply chain. Sentiment analysis was also used to identify trends in the discussion about the Covid-19 pandemic and alternative perspectives to investigate the pandemic crisis on social media, which created concern and raised public awareness about Covid-19 (Boon-Itt & Skunkan, 2020). Thus, content and sentiment analysis offer considerable opportunities for the preliminary assessment of the pandemic crisis from different research perspectives.

2.3. Method, sample, and sources of data

Sentiment analysis was adopted as a research method of this study. Also described as opinion mining, sentiment mining, opinion extraction, subjectivity analysis, or emotion analysis, sentiment analysis is the field of research that studies people's sentiments, feelings, and appraisals of entities, events, and topics usually gathered in large sets of documents (Ignatow, Evangelopoulos, & Zougris, 2016). Researchers indicated that this provides a relatively new avenue for future studies, with little large-scale text-based research performed on people's sentiments and opinions before 2000 (Liu, 2010). Sentiment analysis adopts machine learning techniques aimed at the evaluation and classification of attitudes and opinions in a given field of interest (Rambocas & Gama, 2013). The method utilizes standard lexicons of positive and negative sentiment terms. However, we should note that the meaning of sentiment phrases depends on various factors such as context, the use of irony, humor, or sarcasm. By extracting emotions from a text and classifying them into specific areas, the analysis puts final meaning into predefined, mutually exclusive categories (Liu, 2012). Dichotomous classifications of emotions (positive and negative) are typically represented by numeric values for further statistical purposes.

In this study, the process of sentiment analysis was automated. The analysis was performed in the R environment with the help of three independent R packages:

syuzhet (supported with the *dplyr* script), *SentimentAnalysis*, and *sentimentr*. The conceptual framework of the study is presented in Figure 1 below.

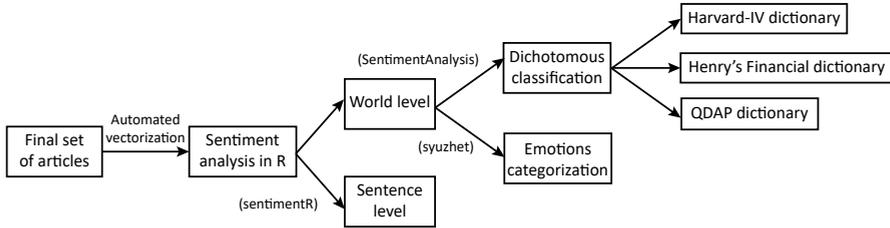


Figure 1. Study design

Notes: phrases in brackets indicate the names of the adopted R scripts

Source: Own elaboration.

The study encompassed a two-staged analysis. In the first part the analysis focussed on the level of separate words, which means that the script searched for words only and ascribed to them numerical values and categorized by emotions. In the second step, the sentence level was adopted in order to better capture the emotional polarity of entire phrases. The sample consisted of articles listed in the references of the three following Wikipedia sub-pages:

- 1) *Impact of the Covid-19 pandemic on the video game industry;*
- 2) *Impact of the Covid-19 pandemic on association soccer;*
- 3) *Impact of the Covid-19 pandemic on tourism.*

The articles were collected in November 2020. The final sample consisted of 142 articles. The oldest article was published on January 23, 2020, whereas the newest one on the October 14, 2020. As a result, the study covered a relatively significant period of the ongoing pandemic.

SentimentAnalysis

The *SentimentAnalysis* script conducts a sentiment analysis of textual contents by utilizing various existing dictionaries like Harvard IV or finance-specific dictionaries. The Harvard-IV dictionary contains a list of 1316 positive and 1746 negative words according to the psychological Harvard-IV dictionary. Score values are binary. The Henry's finance-specific dictionary contains a list of positive and negative words. It is quite small, since it contains just 53 positive words and 44 negative words. The QDAP dictionary contains the 1280 positive words and 2952 negative words.

Consequently, the result of the study is a two-level factor outcome with “positive” and “negative” levels. Sentiment scores are divided into positive and negative ones and presented on a scale from 0 to 0.5, in which 0 means no emotional

content and 0.5 means the highest possible negative/positive score. The final score is calculated as the difference between positive and negative score. The greater the value above zero the more positive the final score. Similarly, the greater the value below zero, the more negative the final score.

Syuzhet

The *Syuzhet* script extracts sentiments and sentiment-derived plot arcs from text using a variety of sentiment dictionaries conveniently packaged for R. Implemented dictionaries include:

- “syuzhet” (default) developed in the Nebraska Literary Lab;
- “afinn” developed by Finn Arup Nielsen;
- “bing” developed by Minqing Hu and Bing Liu;
- “nrc” developed by Mohammad and Turney.

For the purpose of the study, the utilized dictionary was the “nrc,” as the nrc lexicon does not only investigate the polarity of a text (by reporting positive or negative words) but also identifies sentiment type using eight additional categories: anger, anticipation, disgust, fear, joy, sadness, surprise, and trust. The dictionary encompasses 13,889 words distributed among the abovementioned eight different sentiment categories.

The script counts the occurrence of a word appearing in one of the categories in the text. If a sentence contains three words listed in the list of words for e.g. anger, the score for that sentence in the anger category will be 3. When using the “nrc” lexicon, rather than receiving the algebraic score due to positive and negative words, each sentence receives a score for each sentiment category. This is a major upgrade compared to the *SentimentAnalysis* script.

Sentimentr

The *sentimentr* package is a sentence level script that seeks sentences in a text. By disaggregation into sentences as a studied unit, the script determines the level of positivity/neutrality of the entire sentence. The dictionary contains 11709 words whose individual scores may take one of 19 values in the [-2, 1] range. The significant advantage of this package is the ability to evaluate the score of an entire sentence and not just of separate words.

2.4. Results

The first step of the study was devoted to the analysis of the polarity of single words by using the *SentimentAnalysis* script. Table 1 and Figure 2 below summarize the results.

Table 1. Polarity of single words by industries based on the *SentimentAnalysis* script

	Soccer	Video games	Tourism
SentimentGI*	0.110	0.111	0.031
NegativityGI	0.080	0.091	0.104
PositivityGI	0.190	0.202	0.136
SentimentHE**	0.006	0.006	-0.007
NegativityHE	0.005	0.006	0.017
PositivityHE	0.010	0.012	0.010
SentimentQDAP***	0.117	0.093	0.023
NegativityQDAP	0.033	0.047	0.060
PositivityQDAP	0.150	0.140	0.083

Notes: * GI – Harvard-IV dictionary; ** HE – Henry’s Financial dictionary (Henry 2008); *** QDAP dictionary.

Source: Own elaboration.

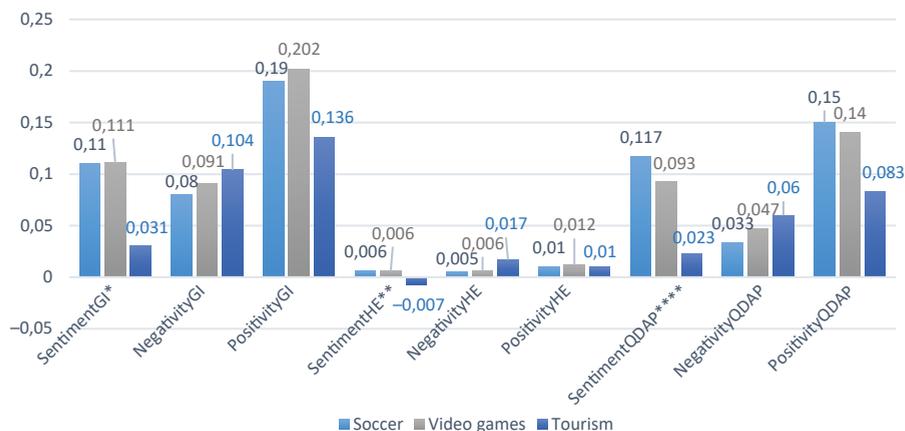


Figure 2. Distribution of polarity of single words between industries based on the *SentimentAnalysis* script

Source: Own elaboration.

The data in Table 1 show that the average level of positivity in articles concerning the impact of Covid-19 is lower in the group of articles on tourism than in articles referring to sport. Consequently, the mean level of negativity was greater in articles concerning the impact of pandemic on tourism than those about sport.

These phenomena were observed in the case of two dictionaries (Harvard-IV and QDAP). The Henry’s Financial dictionary did not provide significant differences. The plausible explanation is the fact that this lexicon contains a limited number of words, thus identifying large disproportions may prove difficult. This fact questions the usefulness and appropriateness of adopting this lexicon in social sciences research. The basic polarity of the analyzed articles was further developed by the sentiment content division into eight different categories. Table 2 and Figure 3 present the results.

Table 2. Breakdown of the various sentiment counts

	Soccer	Video games	Tourism
Anger	66	111	211
Anticipation	278	388	536
Disgust	40	67	135
Fear	167	191	406
Joy	137	190	277
Sadness	120	159	350
Surprise	81	139	201
Trust	368	455	669
Total	1 257	1 700	2 785

Source: Own elaboration.

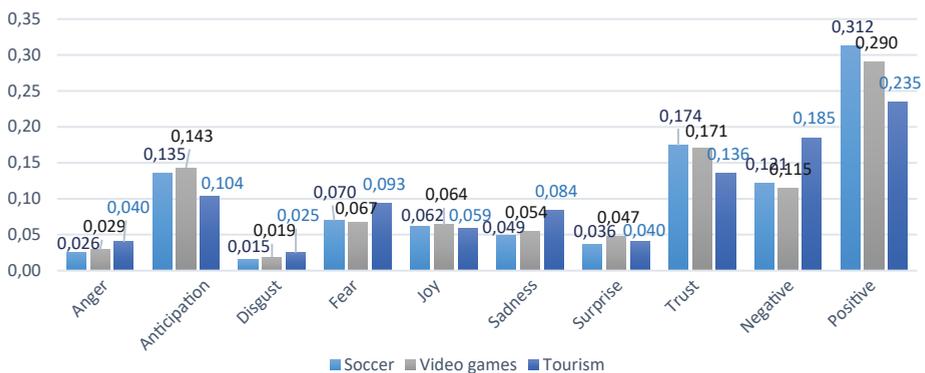


Figure 3. Shares of emotions with category breakdown (mean values)

Source: Own elaboration.

Data in Table 2 show that the general sentiment content – measured as the total score of eight categories – is the greatest in the group of articles devoted to the impact of Covid-19 on tourism. Articles devoted to tourism outperform other articles also when considering the level of separate types of sentiment. Therefore, the comparative analysis of scores of various emotional categories should be performed in relative measures (Figure 3).

Figure 3 provides a breakdown on the shares of eight various sentiment scores. In general, four can be classified as positive (anticipation, joy, surprise, trust) and four as negative (anger, disgust, fear, sadness). In the positive sentiment group, the average shares of scores were lower in the tourism than in the sport industry articles, with the greatest differences observed in terms of anticipation and trust. Meanwhile, in the negative sentiment group the average shares of scores were greater in the tourism than in the sport industry articles. The greatest differences were identified in terms of anger, fear, and sadness. Relatively similar scores in three groups of studied articles were determined in the case of disgust, joy, and surprise.

In the second step of the study, the analysis focused on the sentence level. Table 3 summarizes the results.

Table 3. Sentiment analysis: sentence level

	FT clubs	Video games	Tourism
Means score	0.081	0.073	0.002
No. of sentences	606	886	1 396
No. of positive sentences (score>0)	334	480	588
No. of negative sentences (score<0)	182	286	571
No. of neutral sentences (score=0)	90	119	236

Source: Own elaboration.

The highest sentiment score was observed in the articles referring to the impact of Covid-19 on soccer, followed by articles devoted to video games. The lowest score was found in the group of articles concerning the influence on tourism. Moreover, the greatest number of positive and negative sentences was observed in articles about tourism. Therefore, the analysis was subsequently performed with the help of relative measures (Figure 4).

The highest share of positive sentences was identified in soccer and video games articles, whereas the lowest one in tourism articles. In turn, negative sentences were relatively more abundant in tourism articles than in the other studied group. Additionally, the ratio of positive to negative sentences was lower in the tourism group (1.03) than in the sport (1.84) and video games group (1.68).

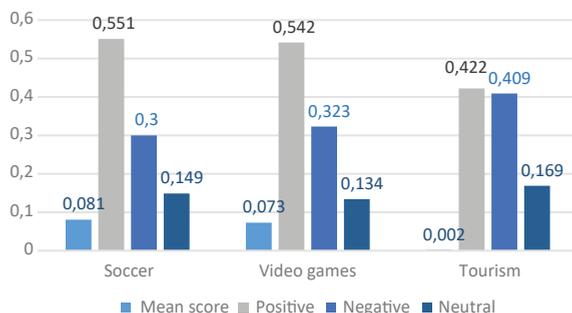


Figure 4. Mean scores, shares of positive, negative, and neutral sentences

Source: Own elaboration.

The results gathered in previous analyses provide an insight suggesting that, among other things, the sentiment score measured by various approaches in the soccer and gaming industries during the Covid-19 pandemic is relatively similar. This evokes further interest in the topic and calls for further research of the phenomenon. As indicated in the theoretical part of the article, numerous sentiment analysis studies were performed on the sample of tweets published during the period of pandemic. Hence, as an extension of the initial aim of the article, the sentiment analysis of tweets of the wealthiest soccer clubs and e-sports teams was conducted. Each group consisted of 20 entities selected from publicly available ranks. The purpose was to determine the possible similarity or difference between both groups by adopting a different sample, however still associated with the original set of industries. The total number of tweets amounted to 25,299 in the soccer group and 12,864 in the video games group. Tweets were collected with the help

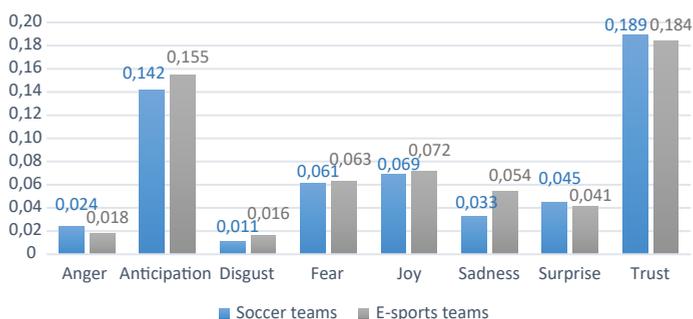


Figure 5. Sentiment breakdown of tweets among wealthiest soccer and e-sports teams

Source: Own elaboration.

of *rtweet* script available for the R environment. Similarly to the initial study, the *syuzhet* package was employed for the purposes of the tweets sentiment analysis. Figure 5 below shows the results.

Data presented in Figure 5 confirm our previous results. The level of similarity of various sentiment categories is relatively high. There can be observed some differences between both groups in certain sentiment categories, however they should not be perceived as significant. Hence, the results on tweets sentiment analysis in the soccer and gaming industry are in line with the conclusions derived from the article's initial study based on the Wikipedia articles.

2.5. Conclusions

The study consists of a comparison of three sectors of the economy differently impacted by the Covid-19 pandemic. Moreover, the three sectors differ from the perspective of “general feeling” about the impact of the pandemic.

The video game industry is often believed not to be impacted negatively by the pandemic but even to “profit” from stay-at-home and lockdown orders that made many people turn to video games as their pastime activity. Sport industry (soccer in the case of the article) is assumed to be impacted negatively, as many of its fixtures were postponed or canceled and held without spectators, i.e. without revenues from ticket sales. Tourism industry is generally seen as a symbol of an industry particularly severely hit by the pandemic, as people were forced to refrain from traveling by coronavirus mitigation regulations.

The sentiment analysis of press and online articles published in 2020 – chosen as references from Wikipedia entries on the impact on the pandemic on video games, sport, and tourism – shows that the emotional tinge of these articles is much more positive in cases of video games and soccer than in the case of tourism. After further breakdown of general positivity/negativity into several emotion categories, the data show that in the case of video games and soccer, positive emotions such as “trust” or “anticipation” prevail over much more common emotions of “fear” and “sadness” used about tourism. While these results may be seen as not particularly groundbreaking, they prove that sentiment analysis is a good approximation for quantifying the societal “general feeling.” The main advantage of the methods using sentiment analysis is that such quantification may be performed about new social phenomena before any hard (e.g. financial) data are available.

The sentiment analysis also can highlight some of the more hidden phenomena: the sentiment of articles on video games and soccer are quite similar (positive in both cases), which may be seen as contrary to the “general feeling.” Although, by the time of writing this article, detailed financial statistics on the impact of the

pandemic on the sectors selected for analysis are not available, some relatively scarce and scattered data begin to surface. According to that data, the impact of the pandemic was similar for video games and soccer, and it was a mixture of negative and positive events.

In 2020, the sales of videogames increased by 34% as a whole, but it was mostly driven by major AAA titles (games produced by the biggest developer studios), while many smaller developer studios postponed or canceled their projects as the pandemic decreased their abilities to secure external financing. E-sports events were postponed or canceled, similarly to soccer fixtures. Almost all game shows planned for 2020 were canceled which was a severe hit for smaller companies in the sector, as game shows are the most important marketing channel in the industry, except for the biggest players.

On the other hand, soccer clubs are relatively secure in case of losing revenues from gate receipts as the majority of their revenues are broadcasting payments. In the case of smaller clubs in major leagues, broadcasting payments constitute 70–90% of revenues due to equal share payments rule (e.g. 50% of the UK broadcast revenue is split equally between 20 clubs). Although the share of broadcast revenue is lesser in the case of top clubs, ticket sales do not exceed 30% of clubs' revenue; the third revenue source being sales of collectibles and club gadgets. Broadcast revenues are typically contracted in 3–5 years cycles and the terms are negotiated several years in advance. Thus, the 2019/2020 season did not show significant decrease in major league clubs' revenues as the payments were set long before the pandemic. Taking this into consideration, the revenue of 20 top European clubs increased in 2020 by 11% compared to 2019.

These numbers are in a stark opposition to tourism industry. According to the UNWTO, the massive drop in international travel demand over the period January-June 2020 translates into the loss of 440 mln international arrivals and about USD 460 bn in export revenues from international tourism. Travel has been a function of possibilities, not preferences. The response of tourism businesses to limit the economic impact, revealed some avenues of possible innovations such as: the innovative use of scarce existing physical infrastructure, move to digital for e-services and delivery services, preparing for a reopening under strict hygiene regulations and therefore capacity restrictions. This leads to small steps and drawbacks toward a temporary new “normal” (Airey et al., 2020a, 2020b). Stimulating aspects of the crisis caused by Covid-19 – like the need for innovation – are addressed from international business perspective (Marinov & Marinova, 2021).

This research collected data from selected press and online articles, along with Twitter. Further research should use other resources such as the mass media or other data sources in addition to social media information and include a long-term analysis broken down into stages of the pandemic as the reactions and moods

are changing over time. Such an approach will enable a quantified assessment of sentiment in sectors of the economy in connection with the response of companies and governments that limit the negative effects of the pandemic on the society and the economy. Additionally, it is cognitively interesting to identify the factors influencing the perception of situations in different sectors of the economy, and which of these aspects were crucial for the assessment of sentiment and the attitude on the market.

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3. Goods road transport sector facing pandemic crisis



Piotr Banaszyk

Poznań University of Economics and Business
Institute of International Business and Economics
Department of Logistics
piotr.banaszyk@ue.poznan.pl



Sylwia Konecka

Poznań University of Economics and Business
Institute of International Business and Economics
Department of Logistics
sylwia.konecka@ue.poznan.pl



Anna Maryniak

Poznań University of Economics and Business
Institute of International Business and Economics
Department of Logistics
anna.maryniak@ue.poznan.pl

Abstract

Purpose: The aim of the study is to indicate the scope and intensity of the COVID-19 pandemic impact on the goods road transport companies' performance and to indicate how the dedicated "support system" should work.

Design/methodology/approach: The research was conducted with the use of a structured electronic questionnaire, primarily via the Intranet. In order to obtain high-quality research, the respondents were guaranteed anonymity and the data was presented in a collective agreement.

Findings: On the basis of the conducted research, we found that as a result of the crisis situation the most destabilized became the transport carried out in the international space. The most important problems – out of the eighteen assessed – include a decrease in orders and a reduction in shipping rates, which with the low profitability of the industry, resulted in:

Suggested citation

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serious problems in financial liquidity; retaining employees; and low levels of cooperation in the supply chain, especially concerning smaller service providers. In order to strengthen the competitiveness on the market, future strategies will focus more on the differentiation of transport services in terms of products and geography and on the regionalization of activities. We should assume that all previous predictions from month to month will be increasingly optimistic, and there will be a noticeable dynamic increase in road transport, driven by the growing demand of all sectors of the economy in need of logistics services and resulting also from the broader entry of non-European markets.

Research limitations/implications: The research was conducted using the survey method, i.e. based on the opinions of respondents. The responses were often emotional in nature.

Practical implications: The text includes proposals for the expected external support for the transport industry.

Originality and value: The results are one of the first studies of the transport industry in Poland during the pandemic crisis. Information may be important to industry and central government representatives.

Keywords: road transport, supply chains, logistics, COVID-19, crisis.

3.1. Introduction

Currently, the market is experiencing a difficult and, at the same time, economically interesting crisis situation that arose from the spread of the Covid-19 coronavirus. There are more and more studies in the literature on the causes of the pandemic (medical approaches), its consequences in relation to the competitiveness of economies, entities, and industries (macro-, micro-, and mesoeconomic approaches), and also for the society (sociological and psychological approaches). There is also more and more literature dealing with the Polish market.

Among others, Drozdowski et al. (2020) describe the results of empirical research on the impact of the pandemic on social behavior, Lubosz (2020) presents research on restrictions during the pandemic and its economic effects in the mining industry, McKinsey&Company (2020) presents changes in demand for products and services, Statistics Poland inform on the development of production of protective gear against Covid-19 (Statistics Poland, 2020c) and assess the decline in employment during the pandemic threat (Statistics Poland, 2020d). In the context of the pandemic, there are also studies on supply chains (Gray, 2020; Ivanov, 2020; Paché, 2020; Pinto, 2020; Trautrim, Schlepe, Cakir, & Gold, 2020), but they hardly refer to the issues of road freight transport (Loske, 2020) and Polish conditions (Włoch, 2020).

The chapter discusses the considerations that complement the previously discussed perspectives and are related to them, because they concern the transport market, perceived as the bloodstream of industries significant for the economy.

Among others, the PwC research (2020) shows that Covid-19 has significantly limited production in the commercial, industrial, and construction sectors. Based on own calculations and empirical data of the economic cycle research carried out by Statistics Poland (2020b), we may conclude that the pandemic had serious or very serious consequences for the continuity of activities in a significant group of enterprises (data from August 2020). In manufacturing, a negative impact was recorded among 35% of respondents, in construction – 34%, in wholesale – 33%, in retail – 38%, in accommodation and catering – 54%, and finally in transport and warehouse management – 44%. Besides the hospitality industry, transport was the most affected by the negative effects of the coronavirus pandemic – defined as threatening the company’s stability – and only fewer than 5% of respondents reported no negative effects.

The so-called “general economic climate indicator” (NSA) in the section “transport and warehouse management” was shaped in April at the level of minus 48.3 (Statistics Poland 2020b); the indicator was calculated based on questions about the impact of the pandemic on the company’s situation, changes in order levels, investment plans, impact of the pandemic on the availability of employees, etc. In August 2020, this indicator decreased to –12.7, and in the same period of the previous year, it was 1.9 (August 2019). Micro and small entities (up to 49 employees) assessed the economic situation most unfavorably.

Because stagnation in various industries affects the flows in supply chains and, above all, the transport market, the aim of the study is to indicate what effects in transport companies result directly from Covid-19 and how the dedicated “support system” should work.

3.2. The road transport industry characteristics

In addition to shipping and logistics, transport is the main source of income for the largest economic entities on the TSL market (Figure 1), but also for thousands of smaller enterprises. Among the entities included in the ranking of the sixty largest enterprises in terms of revenues (24th edition of the TSL ranking, 2019), 30% form companies for which transport is the basis of their activity; including two in the area of rail transport and the rest in road transport. Among the entities listed in the ranking, none provides only transport services, as most combine them with shipping services, while a large part also performs a certain range of logistics services. Therefore, we may notice that among the leaders of the TSL market, transport activity is the core that supporting other products. The ranking includes various categories of the main activity, such as logistics services, transport, road forwarding, sea forwarding, air forwarding and the dynamics of revenues from

TSL. Table 1 lists the largest players in the road transport category with their characteristics. Of course, there are also companies on the market that indicate logistics as the basis for their activities. They also play a dominant role in the transport market, regardless of whether they carry them out through their own fleet or through subcontracts. According to the amount of revenues, this group includes the Raben Group, DPD Poland Ltd, Schenker Ltd, Grupa DSV, FM Logistic, HEGELMANN TRANSPORTE Ltd, ROHLIG SUUS Logistics, GEFECO Poland, PEKAES Group, and KUEHNE + NAGEL Ltd (25th edition of the TSL companies ranking; 2020).

Table 1. Transport companies with the highest revenues in the category of declared main activity: road transport

No.	Company name	Position in the ranking of all TSL activities	Presentation in the ranking as:	Revenues in 2019 [PLN]	The main source of income from the activity	
					type of cargo	geographic area
1.	HEGELMANN TRANSPORTE Ltd.	6.	single company	1,095,721,239	full truck loads	Europe
2.	GEFECO Poland	8.	single company	874,265,174	full truck loads	Poland
3.	LINK Ltd.	17.	single company	532,643,559	full truck loads	Europe
4.	SKAT Transport Ltd. Sp. k.	20.	single company	493,478,000	full truck loads	Europe
5.	Fresh Logistics Poland	23.	single company	416,014,281	general cargo	Poland
6.	CAT LC Poland Ltd.	24.	single company	370,858,471	full truck loads	Poland
7.	TPG / Trans Polonia Group	31.	group of companies	261,612,000	dangerous goods	Poland
8.	REGESTA S.A.	34.	single company	282,593,737	full truck loads	Europe
9.	Krotrans Logistics Ltd.	39.	single company	159,268,000	full truck loads	Europe
10.	Trans Logistyka Ltd. Sp. k.	44.	single company	106,737,779	full truck loads	Europe

Source: Own elaboration of (the 25th edition of TSL companies ranking, 2020, p. D9).

The situation is different among smaller entities. We may conclude that with the transfer of analyses to smaller entities, the share of enterprises that only carry out transport activity increases, while the scope of services provided and the level of profitability decrease.

The increase in revenues does not automatically guarantee an increase in profitability, as the margins in the basic services business are low and amount to 1–3%, which makes it difficult to accumulate capital (23rd edition of the TSL 2018 ranking). Moreover, the average value of income from activity in the case of foreign companies and companies with mixed capital is higher than in the case of Polish companies. There is a similar difference in profitability. The highest increase in revenues from TFL activity is observed in the group of companies employing over 49 employees.

The transport services market and the entire TSL market are very fragmented despite the observed concentration processes. This affects its competitiveness (expenditure on digitalization processes, offer breadth), but also reactions of entities in crisis situations (bankruptcy dynamics).

In recent decades, a dynamic increase in the transport activity of carriers registered in Poland can be observed. Among others, the PwC research (2019), analyses conducted by the Warsaw School of Economics (23rd edition of the TSL companies ranking, 2018), and the materials of Statistics Poland (2019) indicate the good condition of the car transport market and its good development prospects in the future. These works also emphasize that the Polish road transport industry is at the peak of its growth (with higher dynamics of international transport than domestic transport) and that in terms of tonnage of transported goods in the road transport industry, there was a total increase in volumes by nearly 23% in 2018–2022 (23rd edition of the ranking of TSL companies, 2018). The report also considers the negative impact of legislative changes on the cost competitiveness of Polish carriers. This is related to the obligations resulting from the mobility package, e.g. forced return of the driver and the vehicle to the base, the issue of the minimum wage, the issue of weekly rests outside the vehicle, consequences of changes in the regulations regarding posted workers, growing environmental requirements, the increase in toll costs, and the shortage of drivers (Klaus, 2019). Cabotage and cross trade are covered by the foreign minimum wage in the mobility package (excluding transit and bilateral transport) and therefore entrepreneurs who carried out a major part of their orders as part of transport among EU countries or in the transport of goods from one place to another within the borders of a given country may have a problem with achieving the current level of profitability.

In April 2020, a simulation of the potential impact of the pandemic crisis on the results of the road transport sector was carried out (Banaszyk, Konecka, Maryniak, & Paprocki, 2020). It established that the quantitative break-even point in the sector is 126,218 million t-km. In the scale of the entire road transport sector,

this means that a decrease in transport performance by more than 28.2% will lead to the collapse of this sector. Therefore, it is not surprising that owners and managers of transport companies expect support from state or local government bodies. The more so that the decrease in transport performance in excess of these 28.2% should be treated as a catastrophic threat to the existence of a significant number of carriers. We should remember that road transport plays a dominant role in the transport of goods (cargo) on the territory of Europe and individual countries, including Poland. On the domestic market, Polish carriers employing several hundred thousand drivers and couriers fully satisfy the needs of cargo transportation. All producers, trade organizations, and other entities conducting economic and non-economic activity, but also consumers using the logistics services of electronic commerce (e-commerce), are served to an increasing extent. On the international market, Polish carriers occupy a key position both in bilateral transport (handling export and import), along with in cross-trade (between third countries) and cabotage (internal in another country). Since 1989, a huge success of this group of entrepreneurs was gaining the position of an important exporter of services in Europe, which provides jobs to several hundred thousand drivers employed in Poland and driving abroad (Statistics Poland, 2020a). The revenues of these carriers constitute a significant stream of supplying the Polish economy with foreign currencies. The lack of aid programs or their insufficient scope may threaten the liquidation of the transport potential to such an extent that after the economic recovery, transport will become a bottleneck of the Polish and even European economy. In this situation, maintaining liquidity and, consequently, jobs and the transport potential of the industry should be the overriding value of economic policy, even if the aid was to be repayable.

3.3. Methodology

The subjects of the research were road transport companies operating on foreign and Polish markets, registered in Poland, and that primarily offer transport services, then shipping, storage, and logistics services. Half of the surveyed entities support Less-than-Truck-Load and Full Truck Load transport (56% of responses). Some offers refer to loose, liquid, or gaseous bulk materials (10% of indications in total). In the field of specialized services, one-fifth of entities offer transport at a controlled temperature, 16% provide services in the field of transporting hazardous materials, and only 3% deal with oversized loads. The time scope of the research is April-June 2020 and the local scope is Poland.

In total, 83 units of various sizes were examined, with enterprises employing less than 49 people (65% of respondents). The research was carried out with the use

of a structured electronic questionnaire, primarily via the Intranet of the Association of International Road Carriers. In order to obtain high-quality research, the respondents were guaranteed anonymity, and the data was presented in a collective agreement.

The structure of the chapter in the empirical plane consists of three main threads. The first part presents the effects of the pandemic in the service and location dimension, while the second part shows the financial, information-strategic, and operational-commercial dimensions. The last part identified from whom the examined entities received support and what support system is appropriate in relation to the crisis situation.

Because the marked area of research is very poorly explored, the presented results may constitute the foundations for benchmarking analyzes and theoretical contribution to the discipline of management and quality sciences. Since empirical research has not been carried out in the adopted thematic structure so far, the presented content cannot be related to already existing studies, let alone peer-reviewed analyses. The results presented in this chapter are only part of a larger study. Among others, the broader context of the research covered the level and structure of transport, profitability of enterprises, legislative, and economic conditions, including profitability and the structure of operating costs.

3.4. Changes in services: Empirical research results

According to the respondents, the pandemic negatively affected the sale of all basic transport-related services. On average, three-fourths of the respondents indicated that import, export, cross-trade, and cabotage services were affected by the effects of the pandemic (“definitely yes” or “rather yes” answers), with the largest number of such indications in the field of export services (82% indications; Figure 1).

The reduction of the level of transport between and within foreign countries carried out by Polish transport companies was already anticipated in previous publications and industry meetings, in connection with the mobility package adopted by the European Parliament. It was believed that it would also reduce the competitiveness of Polish market entities, as transport companies registered in Central and Eastern European countries carry out a significant part of cross-trade transport between European Union countries (especially on the France and Germany line) and cabotage transport (in France, Germany, Italy, Sweden). However, it was not expected that this effect would be significantly amplified by the pandemic. The same can be said about transports to and from Poland.

The already quoted PwC report (2019) emphasizes that a significant shift in demand toward domestic services can be expected due to the country’s economic

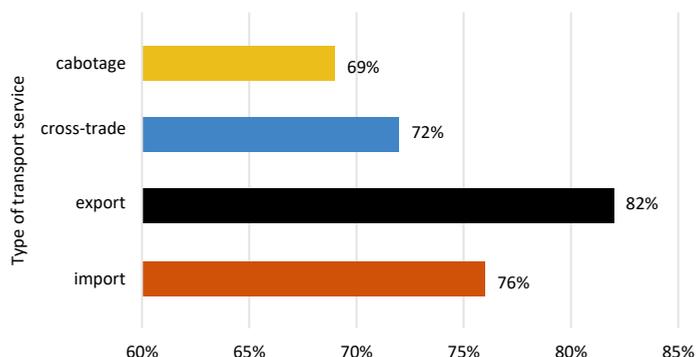


Figure 1. International transport services most affected by the pandemic according to respondents

Source: Own elaboration.

growth and the economic slowdown in Western Europe. The conducted research also confirms these forecasts, but they have a completely different background. In the future, we should expect that the geographic shift vectors will change even more. According to the respondents, in order to protect against the possible negative effects of the pandemic, companies accepting the contract of carriage will in the future first apply strategies of geographical differentiation of the target group of served customers (46% of responses “definitely yes” or “rather yes”). The relocation of supply chains due to Covid-19 (Ambroziak, Chojna, Gniadek, Kępka, & Strzelecki, 2020) and their regionalization (Hoek, 2020) will also affect the changes in geographic services.

The respondents indicated that due to Covid-19 they will extend their offer to include other services such as forwarding or warehousing (36% of responses “definitely yes” or “rather yes”). It is a process that has been going on for many years and is now likely to intensify. On the other hand, one should not expect a dynamic expansion of activities consisting of entering new industries/services that are not directly related to the core business. The respondents also commented on the changes in the scale of outsourced transport tasks to external companies by production and trade companies (Figure 2).

In the short term, the development of outsourcing of transport services may be limited. This is evidenced by the obtained data, according to which 84.3% of the respondents believe that the scope of outsourced tasks will not change or will decrease. The same tendency can be observed regarding the limitation of external transport services by logistics companies in the research carried out by DGC on behalf of the Eurologistics publishing house (DGC, 2020).

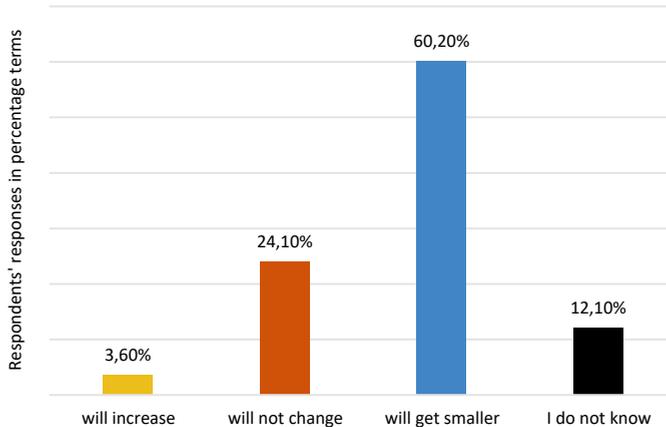


Figure 2. Change in the scope of outsourcing of transport services

Source: Own elaboration.

3.5. The multi-dimensional negative effects of Covid-19 on road transport

The respondents were also asked to specify (first in the form of an open-ended question, and then a closed question) the most significant negative impact of the Covid-19 pandemic on transport activities. The respondents pointed to a general decline in revenues and profitability resulting from a decline in demand for orders, a decline in the volume of transported loads in contractual and occasional exchange relationships, and difficulties in obtaining return loads. In addition, the following have become a big problem: prolonged payments over 60/90 days and more, long debt collection procedures due to a weak judicial apparatus, unfair practices related to alleged bankruptcies, general stagnation caused by small amounts of cargo. Similar problems were also identified in Resolution No. 87 of the employees' and employers' websites of the Social Dialog Council of September 30, 2020, on the provision by the state of necessary assistance to transport companies. Resolution 87 also notes that there was little chance of using any element of any of the anti-crisis shields. Moreover, the Resolution emphasizes that a major obstacle is the fall in prices for transport services, including a drastic lowering of even contract prices, lowering rates for transport services by forwarders and other intermediaries, the use of dumping prices by carriers who have so far served industries most affected by Covid-19, such as the automotive, wedding, event, and gastronomic industries. Among the answers, a problematic issue was also the reduction of employees'

wages in order to limit layoffs, the inability to use the existing rolling stock potential, reluctance to perform tasks by the older generation's staff, uncertainty, and even fear. The described factors reinforce each other. For example, as a result of too few loads, prices fall below the break-even point. Disturbances in the liquidity of enterprises prevent the repayment of current receivables and undertaking investments aimed at increasing the competitiveness of enterprises.

The most frequent remarks concerned the lack of orders and the reduction of freight rates. Questions about problematic issues were clarified and expanded by specifying 18 scaled factors. First, the surveyed entities pointed to a lower number of orders, disruptions in flows in international supply chains, and the need to retain employees who cannot be outsourced (Figure 3).

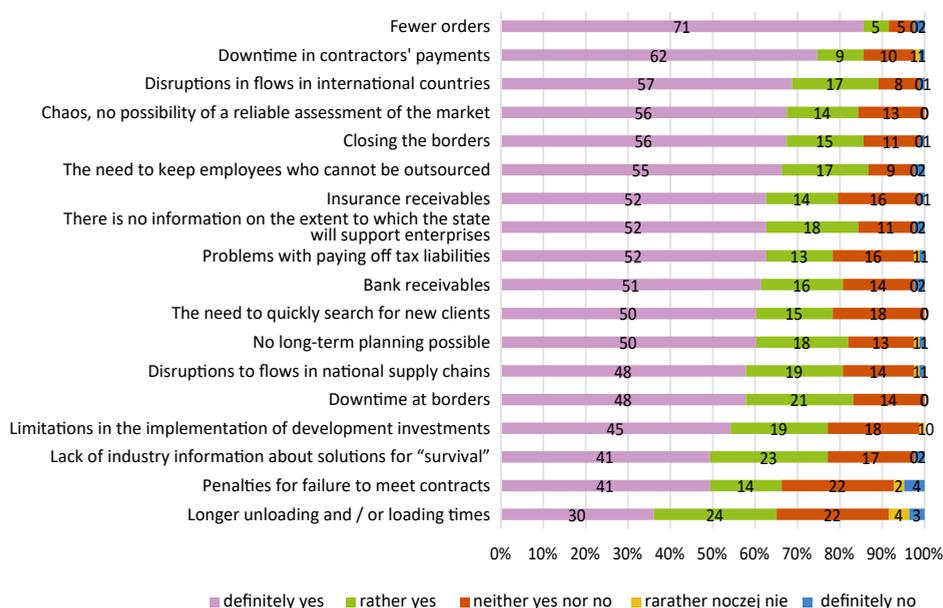


Figure 3. Issues important during a pandemic

Source: Own elaboration.

Considering the financial consequences, the respondents first pointed to the above need to keep employees who cannot be commissioned, delays in paying contractors, but also the need to pay insurance and tax liabilities. In the group of operational and commercial factors, the first mentioned (already marked) lower number of orders and disruptions to flows in international supply chains, as well as border closure and downtime at borders. On the other hand, the information and strategic aspects included, first, the lack of information on the extent to which

the state will support enterprises, chaos and the inability to reliably assess the situation on the market, and the inability to plan long-term. The analysis shows that the highest percentage of responses was attributed to operational and commercial effects, which have their consequences in terms of the economy of operations, but in all basic groups the percentage of responses was high.

Operational problems related to supply chain disruptions are highlighted in the PwC report (2020). The research concludes that “disruptions in the supply chains are the greatest challenge in the trade and industrial sectors... Industry has also been most affected by the effects of border closure, which corresponds to the opinion that the current pandemic is a big challenge for globalization” (PwC, 2020). It is significant that the given factors include those that are independent of the crisis, but of systemic solutions in the field of reliable information about possible activities dedicated to the transport industry.

3.6. Support from third parties and expected sources of support

So far, state authorities have primarily reacted to arising problems. Little support was received from participants in the supply chain (Figure 4). It is significant that some entities did not respond to this question. Probably the support they received was insufficient.

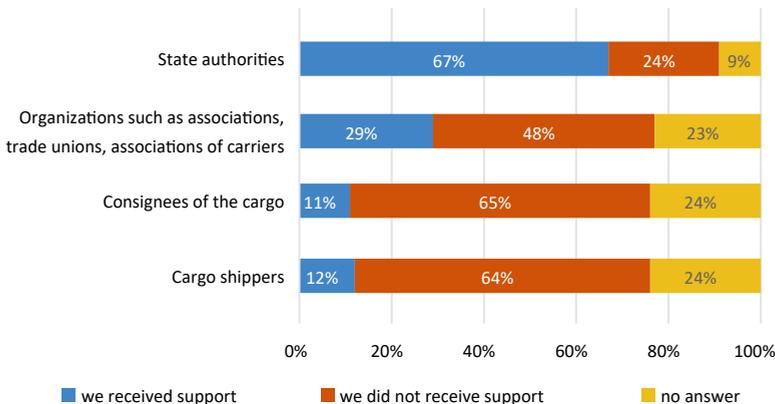


Figure 4. Sources of support for transport operators during the Covid-19 pandemic

Source: Own elaboration.

By asking the respondents about the sources and scope of the support received, we decided to examine the relationship between the size of the enterprise and the source of the support received. For this purpose, an analysis was made by creating cross tables (tab. 2). They show that the state aid was granted mainly to small enterprises, often they declared that the aid was too small, but it was small enterprises that were mainly beneficiaries of state aid. On the other hand, the aid from the suppliers and recipients of cargo was used mainly by large enterprises. This may indicate better cooperation within the supply chain between large entities, which in a crisis are aware of the need to maintain continuity of flows in the supply chain.

At the same time, participants of the transport market outlined the expected support model in terms of dimensions and sources. In a pandemic situation, transport companies need support on several levels, and in their opinion, the financial dimension is crucial (Figure 5).

Companies expect support from the state, EU funds, banking, and insurance organizations (Figure 6). What follows is that enterprises expect system solutions at higher levels. On the other hand, they count less on the help of closer environment such as industry organizations, the strongest market players, or contractors who are parties to cargo transportation.

Table 2. Relationship between the size of the enterprise and the source of the aid received

			What is the employment level in your company?					
			1–9 employees	10–49 employees	50–249 employees	over 250 employees	in total	
From which entities did your enterprise receive or could receive support ... in relation to the negative effects of the Covid-19 pandemic?	from the state authorities (SA)	N	8	6	1	1	16	
		%	25.81	27.27	6.67	14.29	21.33	
	from the SA, but too small	N	20	12	5	3	40	
		%	64.52	54.55	33.33	42.86	53.33	
	we did not receive it from the SA, although we could	N	0	1	2	0	3	
		%	0.00	4.55	13.33	0.00	4.00	
	we did not receive it from the SA	N	3	3	7	3	16	
		%	9.68	13.64	46.67	42.86	21.33	
	in total		N	31	22	15	7	75
			%	100%	100%	100%	100%	100%

Table 2 cont.

			What is the employment level in your company?					
			1–9 employees	10–49 employees	50–249 employees	over 250 employees	in total	
From which entities did your enterprise receive or could receive support ... in relation to the negative effects of the Covid-19 pandemic?	from the sender of the cargo (SC)	N	1	1	0	3	5	
		%	4.17	5.56	0.00	42.86	8.06	
	from the SC, but too small	N	2	0	2	0	4	
		%	8.33	0.00	15.38	0.00	6.45	
	we did not receive it from the SC, although we could	N	5	2	3	0	10	
		%	20.83	11.11	23.08	0.00	16.13	
	we did not receive it from the SC	N	16	15	8	4	43	
		%	66.67	83.33	61.54	57.14	69.35	
	in total		N	24	18	13	7	62
			%	100%	100%	100%	100%	100%
			What is the employment level in your company?					
			1–9 employees	10–49 employees	50–249 employees	over 250 employees	in total	
From which entities did your enterprise receive or could receive support ... in relation to the negative effects of the Covid-19 pandemic?	from the consignees of the cargo (CC)	N	0	0	2	2	4	
		%	0.00	0.00	15.38	28.57	6.35	
	from the CC, but too small	N	1	1	1	2	5	
		%	4.00	5.56	7.69	28.57	7.94	
	we did not receive it from the CC, although we could	N	3	1	1	0	5	
		%	12.00	5.56	7.69	0.00	7.94	
	we did not receive it from the CC	N	21	16	9	3	49	
		%	84.00	88.89	69.23	42.86	77.78	
	in total		N	25	18	13	7	63
			%	100%	100%	100%	100%	100%

Source: Own elaboration.

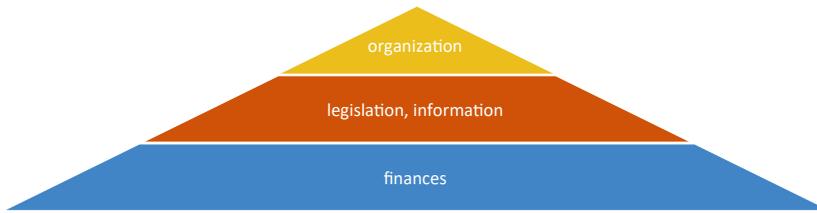


Figure 5. Hierarchy of importance of the needs of transport companies during Covid-19

Source: Own elaboration.

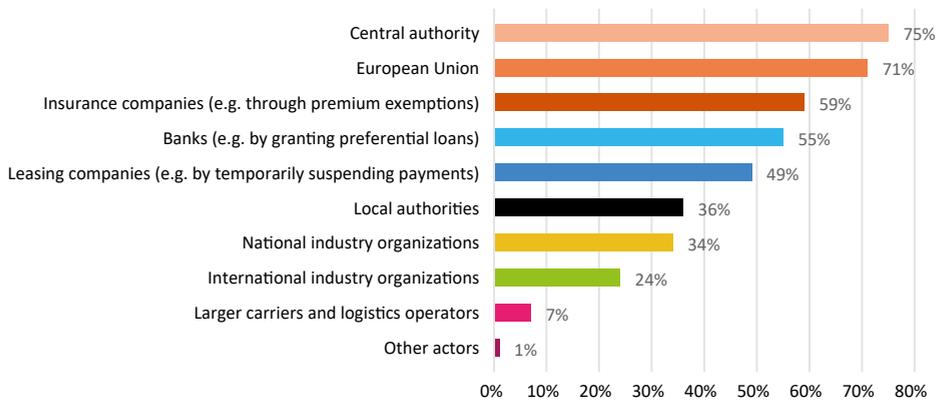


Figure 6. Sources of expected financial help for carriers in a pandemic situation

Source: Own elaboration.

On the other hand, responsibility for guaranteed wages for employees (according to the respondents) should be primarily borne by employers. Information on aid for transport was also collected by Statistics Poland. These are general data in the “Transport and warehouse management” section. Forms of help and facilitation were examined under the so-called Anti-Crisis Shield: payroll fees, loans or subsidies, exemptions and deferrals for the payment of taxes and social security contributions, parking services for people running a business, facilitating and simplifying administrative procedures, facilitating and simplifying management within the enterprise (Statistics Poland, 2020b). These data show that companies benefited to the greatest extent from tax exemptions and deferrals due to payment of taxes and social security contributions (38%) and to the least extent from stand-still benefits for people running a business (1.6%).

3.7. Limitations and future research directions

Transport tasks are characterized by the fact that they are often entered in the register alongside other types of activities, especially in a situation where the transport service is carried out on one's own. Therefore, in the Statistics Poland registry, transport activity is also assigned to entities in which transport is not the primary sphere of activity. In the presented research, this type of enterprise was not considered, but their market perspective and feelings related to its competitiveness may bring new, interesting insights and knowledge. Because the research was carried out at a very difficult time in the operations of enterprises, during the development of the pandemic, and immediately after numerous restrictions imposed by Polish authorities and other countries, many of the open responses were marked by a high degree of emotions, therefore some could not be quoted. The answers provided show the difficult and sometimes even dramatic situation of many entities.

Another important aspect influencing the behavior of transport companies during the Covid-19 pandemic is the assessment of the extent to which modern technologies will help build their resilience and thus the resilience of supply chains. Hence, extending research on the potential of IoT, cloud computing, Blockchain, 5G, and AI in crises is an urgent and needed research direction (Deloitte, 2020; Končar, Grubor, Marić, Vučenović, & Vukmirović, 2020; Konecka & Maryniak, 2020). In addition, we should remember that transport in individual industries not only has different effects in terms of volume but also different standards in terms of product protection and sanitary requirements (Rizou, Galanakis, Aldawoud, & Galanakis, 2020) during transshipment, consolidation, deconsolidation, or packaging; hence, there is a need to expand empirical work in this direction.

The rhetoric encountered in the literature on the pandemic has clearly negative connotations. In the conducted research process, in addition to these negatives, positive aspects related to Covid-19 were also noticed, such as a drop in fuel prices, more effective cost analysis, the reduction of leasing installments, smooth entry into online work, the acceptance of invoices and delivery documents in electronic form. All these elements will remain on the market of modernly managed companies that will successfully compete in the coming years. We also paid attention to relations in the supply chain and relations with employees. According to the respondents, the crisis verified the reliability of contractors (equipment suppliers, service technicians, etc.) and increased the level of respect for work by employees who faced the threat of losing their jobs. In addition, drivers were relieved of the loading and unloading processes, in which they were previously involved to a greater extent.

In-depth research to capture these types of insights in the transport industry could help actors see more opportunities to grow and treat the situation as a need for management training. All the more so that the road transport sector will probably face a considerable investment effort. It is because the growing costs of transport caused by the sanitary regime and changes in formal and legal regulations, the growing shortage of drivers and the increasing requirements of customers. The answer to these challenges may be the digitalization of transport processes, in particular the need for ongoing tracking of transport units and means of transport, transparency of freight rates and the use of digital platforms coordinating transport, and even environmentally friendly autonomous vehicles. On the other hand, it is an opportunity to renew transport fleets due to the zero-emission criterion and to adjust transport potential to forecasted demand. Although the financial condition of transport companies is not the best, optimism may be built both by the possibility of using government assistance, but also as the monetary policy of central banks to keep interest rates low.

3.8. Conclusions

On the basis of the conducted research, we found that as a result of the crisis situation, the transport carried out in the international space was the most destabilized. In order to strengthen the competitiveness on the market, future strategies will focus to a greater extent on the differentiation of transport services in terms of products and geography and on the regionalization of activities. The observed forecasts regarding the reduction of the scope of outsourcing of transport services can be considered as temporary and unlikely in the long run. In a crisis caused by a pandemic, the surveyed entities expect systemic solutions at the central and EU levels. It seems that in the future, solutions should be developed to a greater extent at the levels of specific supply chains and industries.

The disruptions in transport so far were mainly of a regional nature and resulted from a natural disaster, political unrest, and economic situation. The pandemic is not limited to a specific region or time (Ivanov & Das, 2020). Supply markets can simultaneously become paralyzed with overlapping time windows in procurement, shipments to distribution centers, and ship-to-unit shipments. The scale of emerging problems requires re-engineering of existing emergency plans, analytical modeling of supply chain resilience (Queiroz, Ivanov, Dolgui, & Wamba, 2020), and building disruption scenarios (Golan, Jernegan, & Linkov, 2020). So far, the existing adaptation plans for threats in supply chains have failed in the pandemic (Hoek, 2020), mismatch in demand and supply, technology, and the development of a resilient supply chain (Sharma, Adhikaryb, & Borah, 2020)

have an impact on the chaotic behavior of transport companies. The Covid-19 pandemic has disrupted or broken transport links and distribution mechanisms between suppliers, manufacturing facilities, and customers (Kumar, Luthra, Mangla, & Kazançoğlu, 2020).

Nevertheless, despite the often-emotional statements about the condition of the industry, we should assume that all previous predictions from month to month will be more and more optimistic, and there will be a noticeable dynamic increase in road transport driven by the growing demand of all sectors of the economy requiring logistics services, resulting also from a broader entry of non-European markets. We should note that in the pandemic it is difficult to apply for funds, as the situation changes dynamically and already in the second half of 2020, the sentiment among entrepreneurs may be more optimistic. In addition, profitability and other indicators may remain at the same level, but it would be necessary to examine what effort the managers of transport companies had to put in to achieve this, e.g. by changing the structure of transported cargo, changing the scope of services provided, changing the directions of transport, and seeking new partners. Of course, these are all questions for further research.

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4. The Polish logistics real estate market as a link in international supply chains during the Covid-19 crisis



Waldemar W. Budner

Poznań University of Economics and Business
Institute of International Business and Economics
Department of Logistics
waldemar.budner@ue.poznan.pl

Abstract

Purpose: The aim of the study is to determine the emerging trends of changes related to the situation of uncertainty and increased risk in supply chains, and at the same time limiting the negative effects of the epidemic on the logistics industry.

Design/methodology/approach: The study focuses on the analysis of changes in the logistics real estate market in Poland. The analysis period covers the years 2004–2020. The data used here comes from reports from real estate advisory companies and Statistics Poland.

Findings: The last dozen or so years has been a period of dynamic development in the Polish market of logistic space and facilities. The year 2019 turned out to be a record year in the history of the market in terms of the increase in warehouse space and Poland has become the sixth biggest warehouse market in Europe. The year 2020 and SARS-CoV-2 has brought a lot of uncertainty about the future, and the recession has become a fact.

Practical implications: More than half a year after the outbreak of the pandemic, several emerging trends of changes related to the situation of uncertainty and increased risk in supply chains, as well as approaches to limit the negative effects of the epidemic on the logistics industry, can be observed. These include: an increase in e-commerce preferences in relation to traditional trade; increase in stock levels; relocation of production sites.

Originality and value: The observed phenomena indicate moderate optimism and the resilience of the logistics industry in the medium term. In turn, in the long run, production can be expected to be relocated to closer areas (domestic or European) in order to shorten the supply chain.

Keywords: logistic, real estate, supply chains, Covid-19, Poland.

Suggested citation

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4.1. Introduction

It is difficult to imagine the activity of industrial, commercial, and agricultural enterprises without logistic services. They are supported by various warehouse and logistics facilities called “centers:” warehouse, distribution, logistics, and logistics parks. They play an important link in supply chains with storage as the basic process carried out within them. However, warehouse management is a concept that covers a wide range of activities, primarily technical, economic, and organizational. In a broad sense, the term warehouse management refers to the construction of functional real estate, equipped with the necessary machines and devices and in accordance with accepted standards logistics, also referred to as warehouses in general. Coyle, Bardi, and Langley (2010) believe that with the popularization of the logistics supply chain concept, warehouses began to play a strategic role in achieving such logistic goals as lower inventory levels, lower costs, better customer service, and shorter order fulfillment cycles.

The warehouse market in Poland has been developing very well since the beginning of the twenty-first century, changing the landscape mainly around large agglomerations. Not only quantitative changes are noticeable in the growth of objects and warehouse space (surface). The warehouses themselves, their equipment, functions, internal structure, and shape are also changing. It is a response to the growing needs of logistics services, which consequently leads to the transformation and improvement of entire supply chains with an international and even global reach.

The aim of the considerations is an attempt to define the threats to the logistics real estate market in Poland posed by the Covid-19 pandemic, and to identify the trends that shape the conditions of functioning on this market during the pandemic. The background of these considerations is a description of changes in the logistics market in Poland. The data used here comes from reports from real estate advisory companies: Colliers International, Jones Lang Lasalle, Prologis Research, and Statistics Poland.

4.2. Development of the warehouse market in Poland

The last dozen or so years has been a period of dynamic development in the Polish market of logistic space and facilities. The breaking point here was 2004, i.e. the moment of Poland’s accession to the European Union. Joining the EU resulted in the increase of political credibility and triggered changes in the legal framework that delineated the rules for conducting business activities, which positively

affected the mood of foreign investors. Since then, there has been an increased and uninterrupted inflow of foreign investments, which significantly stimulated economic growth, the creation of new enterprises and commercial facilities. It was supported by the program of expanding expressways and motorways. This, in turn, created conditions and triggered needs for logistics services, contributing to an avalanche of growth in facilities and warehouse space (see Figure 1).

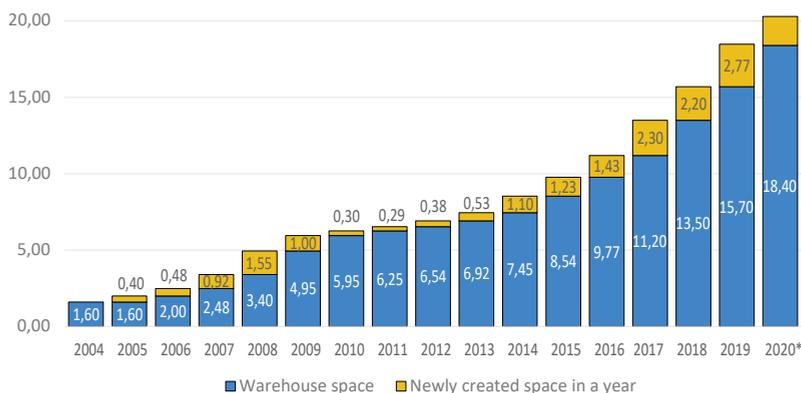


Figure 1. Existing warehouse space in Poland (in mln sq. m)

Source: Own elaboration of (Jones Lang LaSalle, 2020, and Colliers International, 2019).

The economic crisis of 2008–2009 caused a slowdown in the growth rate of the logistic real estate market in Poland, which was delayed in 2010–2011. This proves that the macroeconomic situation and its dynamics of changes have a significant impact on the warehouse market. Further economic growth – especially noticeable in industry, trade, and transport – stimulated high demand and supply for the growth of investments in the warehouse market since 2014. During this period, each year brought new records in demand, and the supply increased from 7.5 mln sq. m at the end of 2013 to 18.4 mln sq. m at the end of 2019 (Figure 2). In the following years (2014–2019), the growth rate of warehouse space remained at a very high level of over a dozen percent and amounted to 14.7%, 14.4%, 14.6%, 20.6%, 16.3%, and 14.6% each year. The year 2019 turned out to be a record year in the history of the market in terms of the increase in warehouse space. New supply exceeded 2.7 mln sq. m. According to Jones Lang LaSalle, compared to the European Union, Poland has become the sixth biggest warehouse market in Europe, following Germany, the Netherlands, France, Belgium, and Spain. In turn, in the first half of 2020, with a 15% share in new supply, Poland was the third most active warehouse market in Europe (Jones Lang LaSalle, 2020).

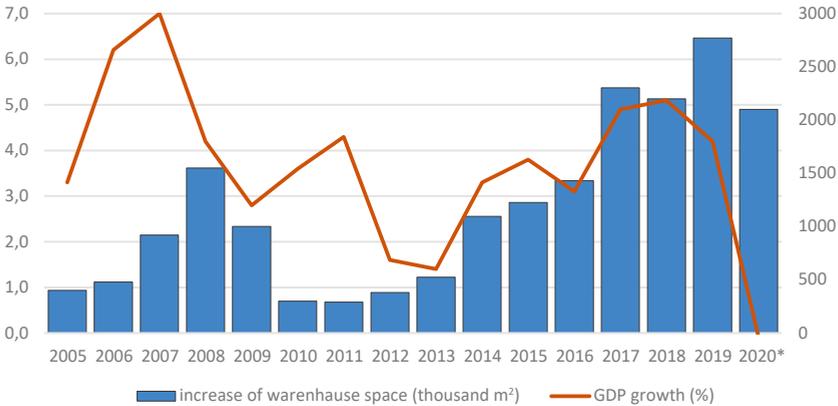


Figure 2. The growth of warehouse space in Poland and GDP dynamics

Source: Own elaboration of (Jones Lang Lasalle, 2020; Colliers International, 2019; Macroeconomic Data Bank, 2020).

4.3. New trends shaping the conditions for the functioning of the logistics real estate market

The year 2020 brought a lot of uncertainty about the future in Poland and in the world, and the recession caused by the Covid-19 pandemic has become a fact. The threats posed by the crisis affect all spheres of life and economy, including the logistic real estate market. The increase in uncertainty is reinforced by the unknown scale of the negative impact of Covid-19 and the duration of the pandemic.

After ten months from the outbreak of the pandemic (i.e. March 2020), we notice several emerging trends of changes related to the situation of uncertainty and increased risk in supply chains, while limiting the negative impact of the pandemic on the logistics industry. These may translate into increased optimism and demand on the logistic real estate market:

Increased preferences in e-commerce in relation to traditional trade. In times of the pandemic, online shopping has become a more practical and safer solution than shopping in traditional stores. This form of trading has become very popular.

According to Prologis Research (2020), only in 2019 there was a 16.7% increase in online purchases worldwide. It seems unlikely that after Covid-19 the trend will be reversed, and people will move away from the consumer behavior acquired during the pandemic, i.e. online shopping with home delivery. This trend should stimulate demand, especially in industries related to fast-moving consumer

goods (FMCG), footwear, clothing, and electronics. The increase in sales in the e-commerce sector should accelerate the development of the last mile warehouse market.

Increase in inventory levels. While supply chains seek to minimize inventory to lower costs and commodity prices, in conditions of uncertainty it becomes more important to maintain an adequate level of inventory to maintain the continuity of supply. The lack of stock in warehouses and lost revenues make resilience more important than efficiency in supply chains. Fluctuations to which supply chains are exposed necessitate flexible inventory planning to ensure business continuity. In the pandemic, companies assess safe inventory levels by reviewing business continuity plans. The increase in the level of inventories stimulates the demand for additional warehouse space.

Relocation of production sites. Covid-19 revealed threats to long-term global expansion and excessive concentration of production in China. The dependence of the world economy on the situation in China may reduce the resilience of economies and the security of countries. In turn, this may lead companies to consider relocating their operations to new, closer locations in the near future. It is in line with the change in the supply chain strategy of some companies that move their operations back to their home country (reshoring or backshoring) or locate their new production investments there (onshoring). The purpose of such moves is to minimize the risk of liquidity loss in the supply chain. The expansion of producers' activities indirectly generates demand for logistics real estate thanks to supplier networks and the consumer market.

4.4. Conclusions

The Covid-19 pandemic caused the most serious crisis in the history of the economy. In a globalized world of economic interconnection, the crisis has exposed disruptions in supply chains. When analyzing the current market situation and the trends emerging in the logistics industry, we may conclude that the logistics real estate market shows a relative resilience and an ability to adapt to changing operating conditions.

On the one hand, the logistic real estate market in Poland will suffer in the short term, although its scale is difficult to determine due to the unrecognized scope and duration of the Covid-19 pandemic. Restrictions on the activities of companies are and will be most severely felt in areas with many infections. There is a high probability that in the short term there may be an increase in the availability of warehouse space due to a decrease in demand. The increase in vacancy rates may be particularly noticeable in facilities of lower standard and worse location.

Industry developers will decrease their activity. In turn, this will reduce the number of new investments, especially those built for speculative purposes, which will be postponed to a later date. However, most investments started earlier will probably be completed. This means a further increase in the volume of warehouse space, although lower than in the previous year.

On the other hand, we may point to moderate optimism related to the emerging immunization of the industry. Despite the ongoing Covid-19 pandemic, the logistics real estate industry has proved very resilient to its effects. In the current perspective, this should be associated with the growing popularity and turnover of e-commerce (among others, FMCG products) and inventories, as an increase in inventories translates into an increase in demand for space, as well as the good condition of the economy as a whole (relatively low GDP decline compared to other countries in the region). In the long term, production can be expected to be relocated to closer areas (domestic or European) in order to shorten supply chains and minimize the risk of liquidity loss. These trends may translate into an increase in demand for logistic real estate.

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5. Disruption of European agri-food markets due to Covid-19: The case of Poland



Magdalena Śliwińska

Poznań University of Economics and Business
Institute of International Business and Economics
Department of European Studies
m.sliwinska@ue.poznan.pl



Rafał Śliwiński

Poznań University of Economics and Business
Institute of International Business and Economics
Department of International Management
rafal.sliwinski@ue.poznan.pl

Abstract

Purpose: The chapter describes the economic impact of Covid-19 on the agri-food market in Poland and its influence along food supply chains by discussing demand accommodation and alterations in supply channels.

Design/methodology/approach: The study delivers a critical literature review, analyzes secondary data, and utilizes available statistics.

Findings: The chapter shows the impact of Covid-19 on the various branches of agri-food sector like cattle meat, cereal, poultry, pork, milk, and horticulture. It shows quantitative information, time period, the level of sales decreases and increases, and price fluctuations caused by the coronavirus pandemic. Furthermore, the study scrutinizes consumer reactions to the first and latter period of economy lockdown in respect to the food products. Food demand adjustments were shown in respect to types of food product, shopping frequency, and the use of alternative delivery channels.

Practical implications: The analysis of the agri-food market reaction to the Covid-19 pandemic allows us to find bottlenecks in the system and design support programs to help farmers, intermediaries, and delivery channels of food to build resistance to similarly extreme situations.

Suggested citation

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Originality and value: The chapter presents in a short and complex manner the Polish agri-food market's reaction to the coronavirus pandemic. The reactions of particular branches and the entire agri-food sector can be of interest to academics, governmental institutions, administration officials, and students.

Keywords: agri-food sector, food supply, Covid-19, coronavirus pandemic.

5.1. Introduction

The appearance of the Covid-19 pandemic has caused disturbances in the functioning of the European economy on an unknown scale and caused a shock to the European economy. Big concerns were related to the agri-food sector because of its crucial importance, especially in the context of ensuring food security. Therefore, this chapter aims at answering what was the reaction of Polish agri-food markets to the first wave of the pandemic, which in the case of Poland, can be perceived as the period from March to August 2020. Such an analysis is particularly important because Poland is a relatively large EU Member State and this sector plays an important role in its economy, being at the same time an important exporter of agri-food products. The analysis of the effects of the pandemic for this sector is equally important in the face of the new strategy for agriculture adopted by the European Commission, whose implementation – as it is currently estimated – may result in a decline in agricultural production in the EU by about 20%.

5.2. Decrease of export

According to Statistics Poland, in April and May there was a decrease in the value of production of agricultural and food products sold in Poland respectively by 12.7% and 6.8% (AGROFAKT 2020a). Before the outbreak of the pandemic, a significant part of Polish meat production was exported abroad, mainly to the EU (e.g. 80% of beef and approx. 50% of poultry). The first wave of the pandemic caused the Polish export of meat to drop significantly (i.e. beef by 30–50%, pork by 22%). The most important cause is seen in the closure of the HoReCa market throughout the European Union, which meant that precious meat parts such as sirloin, roast beef, and entrecôte stopped selling. Polish poultry producers also found themselves in a dramatic situation. In March and April, the export practically stopped, the demand dropped (closure of HoReCa in Poland and in the EU), the frozen inventory rose, and prices fell even by 60% (AGROFAKT, 2020b). After removing the economy lockdown, the branch started to revive, but in comparison to the year 2019, the decline in foreign demand for Polish meat (March-September

2020) fell approx. by 30% for turkey and 6% for chicken (MARD, 2020a; MARD, 2020b). In the period of March to June 2020, foreign sales of dairy products and eggs also decreased (-8.1%), as did those of fish and seafood (-12.4%) (AGROFAKT, 2020a). In general, producers were only partially able to compensate for the loss of exports with sales on the domestic market, however e.g. the export of milk and cream in the period January-August in comparison to the year 2019 has lowered in volume by app. 4%, but increased in value by 16%.

Despite the defrosting of the economy between May and September of 2020, the HoReCa sector continued to develop slower than before the outbreak of the pandemic and the situation is worsening because of its second wave and the resulting restrictions. Only a few percent of the sector's capacity is currently used. Everything seems to indicate that food demand will not return to "normal" levels in the coming months. This unfavorable trend will be felt especially by the meat producers, the dairy sector and the producers of processed fruit and vegetables. It concerns both producers for the domestic market and exporters. In many cases, pandemic-induced decline in demand has driven prices down, which further reduced profitability and deepened losses (AGROFAKT, 2020b). The price consumer index in Poland shows the general drop in prices from the March onwards. The increase of CPI in June was instable, what presents the drop of CPI in July on Figure 1.

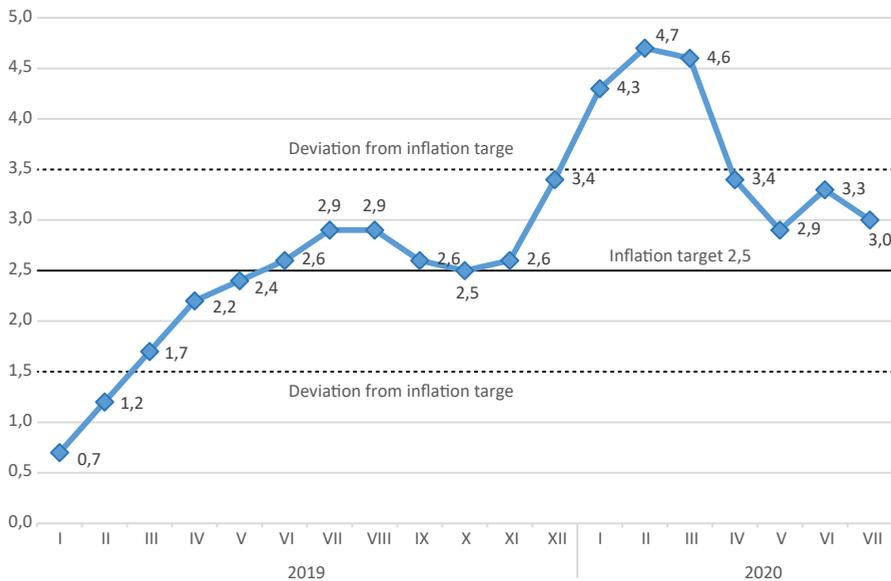


Figure 1. Consumer price indices in July 2020

Source: (Statistics Poland, 2020).

5.3. Consequences for and challenges to individual industries

The analysis of information (AGRONEWS, 2020) from member organizations of the Federation of Industry Associations of the Agricultural Producers and from the integrated agricultural market information system of the Ministry of Agriculture and Rural Development show the following consequences and challenges in individual industries.

Cereal Plant Market. In the first phase of the pandemic (March–April), one of the immediate effects on the cereal producers was the full or temporary closure of buying points, but during the harvest season they reopened so that purchase was carried out smoothly. The pandemic had a paralyzing effect on logistics in the market of mineral fertilizers and plant protection products. In the first months, farmers had big problems with the availability of these goods, and orders were processed with a delay of several weeks. This created huge problems in the normal functioning of farms due to the inability to meet the recommended dates of the application of these fertilizers and plant protection products. Limitations in their supply also increased the prices.

The opening of the economy after the first phase of the pandemic caused the wheat exports in the period of January to August 2020 to become four times higher (2.9 mln t) than in the previous year (977 thous. t). Responsible for that were mainly Saudi Arabia, South Africa, Germany, and Algeria, which most probably was the will to increase the storage level for the case of potential food shortage caused by the Covid-19 pandemic. However, the Polish imports in the similar period were also higher in 2020 (561.5 thous. t) than in 2019 (388 thous. t). It may be explained by lower prices abroad. The situation was similar for barley (export 2020 – 222.8 thous. t vs. 2019 – 66.5 thous. t; import 145.6 thous. t vs. 2019 – 152 thous. t) and maize, whose imports, however, decreased slightly in 2020 (export 2020 – 707 thous. t vs 2019 – 513,8 thous. t; import 2020 – 145.6 thous. t vs 2019 – 152 thous. t; MARD, 2020c).

Meat Cattle Market. The meat and dairy industry are responsible for 40% of the revenues of the Polish food sector and 32% of food exports from Poland (WH, 2020). For this reason, they are particularly important for the Polish agri-food industry. In the beef cattle industry, significant problems arose with the export of Polish beef, especially to Italy and Spain, which fell by 30–50% (AGROFAKT, 2020b).

Moreover, as it can be seen in the Figure 2, beef cattle prices in 2020 were significantly lower in the period March–June compared to 2019, however from June to September they exceeded the levels from 2019. We may observe that the prices were also significantly lower throughout 2020 compared to 2018 and 2017, which constitutes a significant problem for cattle producers. If the crisis deepens, interventions on the beef market may be necessary.

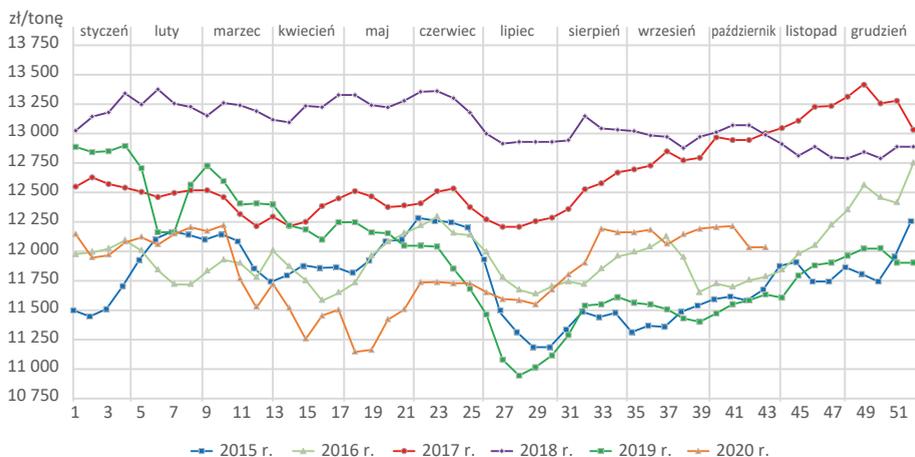


Figure 2. Average prices of beef cattle in the period 2015–2020

Source: data from (Ministry of Agriculture and Rural Development, 2020).

Poultry Producers Market. The industry was particularly hard hit by a significant drop in the live poultry prices for both chickens and turkeys, which ranged from 6–30% depending on the category (e.g. carcasses, breast fillets). Polish exports of poultry meat in the period from January to August 2020 decreased in value by 8.2% compared to 2019, while imports decreased practically by half in the same period (MARD, 2020b). This market operates on low margins, so lower turnover with lower prices constitutes a serious threat to the poultry sector.

Pork Producers Market. Since March 2020, the industry has recorded price drops which, falling from a higher level than in 2019, in April 2020 equalled the prices of 2019. Since May, however, the decline in prices has deepened, reaching in end of October a level lower than in 2019 and 2017, close to 2018. Exports in terms of weight suffered the most. In the period January–August comparing to the same period in 2019, they decreased by 22%. In the same period, imports decreased by 4.6%. In terms of value, however, counting in thousands of euro, the exports were slightly lower (PLN 2.265 mln) in 2020 than in 2019 (PLN 2.412 mln), due to the increase in prices on foreign markets (MARD, 2020d).

Milk Producers Market. The biggest turmoil related to the spread of the coronavirus in the Polish milk sector was with milk powder. Its price has fallen in the period of January to July 2020 by almost 32%. Poland is the sixth biggest producer of skimmed milk in the world (NationMaster, 2020a) and seventh in the milk powder (NationMaster, 2020b) and, therefore, the drop of prices is influencing the milk sector a lot. It can be observed that the prices for milk have dropped by 4.5% in the period January–May. The Covid-19 pandemic also affected the prices of butter (–12% in January–July) and cheese (–6 to –10% in January–July). However,

the prices at the end of October were almost the same as at the beginning 2020. The vast majority of these products are exported. The coronavirus has not influenced the volume of milk export (January–August 2020), and its value was higher by 1.5% than in 2019 (January–August). The import was in the same period by 1% higher looking at the value and 6% lower looking at the volume (MARD, 2020e).

Horticultural Market. The flower industry was alarming about a real catastrophe caused by the coronavirus pandemic. The growers suffered huge losses because they could not sell them in the period of March to May 2020. Flowers deteriorate quickly, which forces producers to bear the costs associated with their disposal. From March to May, the trade was completely stopped, which hit gardeners and flower growers, but also wholesale and retail companies. The Polish floristic industry in this period suffered huge losses. Preliminary analysis based on data obtained from seven out of 24 wholesale markets participating in the Polish Wholesale Markets Association (SPRH) showed that the pandemic means losses in the period of March to May 2020 exceeding PLN 300 mln per month. If the pandemic were to continue for longer, the industry was in danger of a complete collapse and liquidation of many companies. Similar black scenarios were outlined by the Polish Horticultural Association. Its data (March–April) show the losses of about 5000 flower-producing farms operating in the country already reached PLN 1 bln (about EUR 250 mln; SADYOGRODY, 2020).

5.4. Impacts along food supply chains

The OECD forecasts that Poland's GDP will decline by 7.4–9.5% (OECD, 2020) and Fitch – by 3.5% (WBJ, 2020). It is also expected that the crisis entry and exit curve will most likely not have the shape of the letter V but rather the letter U. A significant part of those who lose their jobs will probably not be covered by aid programs, if only for formal reasons. Therefore, experts expect a marked decrease in the purchasing power of the society, which can last for at least two to three years. This will have a very strong impact on the condition of the food economy, despite the considerable stiffness of demand in this market. Adverse effects are expected primarily for industry and agri-food trade and production. Changes in the demand structure are anticipated – sales of more expensive food will decrease, and sales of cheaper, basic food will increase.

With the outbreak of the pandemic, the food market in Poland experienced a temporary shock, but during the first wave there was no acceleration in general food price growth (Statistics Poland, 2020). Due to the spread of the coronavirus in March, consumers rushed to stores en masse, buying out meat, fish cans, groats, rice, pasta, and other food products. However, even then, individual consumers

did not experience any serious disturbances in the functioning of the food market, and the greatest difficulties were considered to be the regulations limiting e.g. the number of customers in the store.

Food demand is generally rigid, but consumption patterns change. For example, due to the abovementioned purchases for stock, the sale of products with a longer shelf life increased. Demand for canned food, pickles, milk, flour, groats, ready meals, and feeds grew, while demand for meat, sea fish and bread decreased. The shopping habits of Poles also changed. Today, people buy more at once, but less often – once a week or even every two weeks – to minimize the frequency of visiting shops where they can meet other people who are potential carriers of the disease. This also applies to the June-July period, when the spread of the coronavirus significantly slowed, and the economy restarted at a normal pace. The lower frequency of shopping causes e.g. serious problems for fresh fish and fresh pressed juices markets.

The pandemic also changed distribution channels. Increase in the popularity of small shops, visible in some agglomerations, at the expense of retail chains, is probably temporary. However, the increasingly popular online shopping with home delivery may become permanent. It seems that its scale could already be much larger, but it is limited by the organizational possibilities of suppliers. It is also possible that the importance of home delivery of ready meals will become permanent. Some restaurants run or expand this business especially after new restrictions imposed in October, which allow restaurants to prepare food only for take away or direct home delivery. The success of this strategy depends, among other things, on the level of delivery costs, but it is hardly possible to compensate for losses caused by the closure or limited operation of premises (Wielkopolska, 2020).

The wholesale trade in agri-food products has lost important sales channels. The overnight closure of hotels, restaurants, and cafes, along with schools and kindergartens, was a serious blow not only to the owners and employees of these enterprises but also to entrepreneurs specializing in supplying food to these places. A ban on organizing wedding parties – until end of May and again from October 24, 2020 – was and still is very painful for the Polish HoReCa industry. The importance of weddings for this sector was the reason for allowing wedding parties to be arranged for up to 150 people from May 30, 2020, even though they were often the source of new outbreaks. The situation in the HoReCa industry improved temporarily during the summer thanks to the huge number of tourists who spend this year's holidays in the country, however it suffers a lot under the new restrictions caused by the second wave.

At the end of the first wave of pandemic the most important sales channels were functioning as before the outbreak. The purchase of animals for slaughter and milk took place normally and e.g. lower purchase prices of milk were mainly the result of an increase in deliveries to dairies. Wholesale markets like Bronisze

(Warsaw), Franowo (Poznań), and others most important intermediaries between farmers and retail trade in fruit and vegetables also operated without major disruptions, despite the rumours about their closure circulating in the first period of the pandemic. Moreover, local marketplaces – an important part of trade in both large and small towns – were not closed despite many hygienic and sanitary concerns (Rowiński, 2020). The first few weeks of the second wave show that the main sectors of the agri-food industry – including dairy and meat industries – ensure regular supplies, although they experience various organizational problems.

5.5. Conclusions

The food industry in Poland is based mainly on domestic agricultural raw materials and food products supplied by Polish farmers, and their production is higher than internal consumption. Therefore, the food security of the country due to the pandemic was not threatened and the availability of agri-food products remained good. This also translated into the retaining of the earlier price level. However, prices decreased for some products as a result of the decline in exports. One of the reasons why the food economy has not suffered major financial losses so far was the fact that – despite various, usually minor, sometimes troublesome restrictions – retail trade in these articles worked relatively normally, unlike in many other industries. However, there are some demand adjustments and changes observed in consumption patterns. Going as dry as possible through the beginning of the pandemic does not mean that its second wave will not worsen the financial condition of enterprises along food chains. There also emerges the question of how the gradual accumulation of negative economic effects of the pandemic will influence the market. The Polish agri-food sector will survive without a doubt, but the question remains: in what condition? This depends mainly on exporting possibilities, consequences of European economy lockdown during the second wave of the pandemic, and the adjustments of whole value chains to the new situation.

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6. Consumer acceptance of AR Technology in e-commerce in the light of the Covid-19 pandemic: A conceptual perspective



Malgorzata Bartosik-Purgat

Poznań University of Economics and Business
Institute of International Business and Economics
Department of International Management
malgorzata.bartosik-purgat@ue.poznan.pl



Tomasz Grzegorzcyk

Poznań University of Economics and Business
Institute of International Business and Economics
Department of International Management
tomasz.grzegorzcyk@ue.poznan.pl



Wiktoria Rakowska

Poznań University of Economics and Business
Institute of International Business and Economics
Department of International Management
kzm@ue.poznan.pl

Abstract

Purpose: The main objective of the chapter is threefold: to conduct literature review, to develop a model of consumer acceptance of augmented reality (AR) in e-commerce, and research hypotheses. The model will emphasize the factors (motives and risks) affecting the acceptance of AR technologies by e-commerce consumers.

Design/methodology/approach: The study used inductive research approach whose results will be the key basis for primary research. The main research method was literature review: the meta-synthesis method.

Findings: We developed a model of factors influencing the acceptance of AR technology in e-commerce based on the Unified Theory of Acceptance and Use of Technology (UTAUT2).

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The following factors were included into the proposed model as predictors of acceptance: performance expectancy, effort expectancy, hedonic motivation, perceived AR risk, privacy risk.

Research limitations/implications: The main limitation of this research is its conceptual character. Future research should aim to empirically verify the proposed model.

Practical implications: By showing the possibilities and actual acceptance of AR's use in selected countries, the research might contribute to the development of a set of guidelines for enterprises in the e-commerce branch and, eventually, improve their international competitiveness, e.g. by guiding product and promotion strategies.

Originality and value: Based on the literature review, this chapter proposes a novel research model of consumer acceptance of AR in e-commerce, which can be verified in the future research.

Keywords: Augmented Reality, consumer acceptance, e-commerce, covid-19.

6.1. Introduction

The development of digital technologies led both producers and consumers to changes in their preferences and activities. The Covid-19 pandemic that exploded at the end of 2019 in China also changed consumer behaviors and attitudes in terms of shopping. One of the rapid effects was an increase of online shoppers' number regarding to different categories of products; even those that have been purchased only offline so far.

Interactive technologies are transforming retailing by e-commerce development and increasing the competitiveness of local and international companies (Caboni & Hagberg, 2019). One of such technologies is augmented reality (AR), whose use has increased especially during the Covid-19 pandemic. Augmented reality is a digital technology that could be considered impactful in redefining the concept of retail stores. It shapes a new space where physical and augmented/virtual objects are integrated (Flavián Ibáñez-Sánchez & Orús, 2019). Increasingly, retailers rely on interactive technologies to improve consumers' shopping experiences. For example, dedicated interactive devices like kiosks and smart mirrors can configure and recommend products and explain their features. Moreover, applications are installed on a consumer's own device for the same purpose. In all cases, AR can improve consumer experience by placing virtual content in a real environment (Rese, Baier, Geyer-Schulz, & Schreiber, 2017).

Consumers have different attitudes and preferences toward AR technology use. Their acceptance (understood as the intention to use) of AR in e-commerce may be shaped by different factors associated both with AR's advantages and risks. The research related to the problem of consumer acceptance of AR technology in e-commerce is still at its early stage and is rarely presented in the literature.

The main objective of the chapter is threefold: to conduct literature review, develop a model of consumer acceptance of AR in e-commerce and research hypotheses. The model will emphasize the factors (motives and risks) affecting the acceptance of AR technologies by e-commerce consumers. Authors used inductive research approach and the results will be the key basis for primary research. The main research method was literature review: the meta-synthesis method.

6.2. Model and hypotheses development

The Covid-19 pandemic shapes new life and work styles, business models, and our attitudes to the environment. The things and behaviors (e.g. online working, teaching, and learning, mostly online shopping) that recently seemed impossible became standard. The Covid-19 pandemic contributes to the destruction of many types of businesses in various industries, e.g. tourism, gastronomy, hospitality, and airlines, but it also leads to an increase in the number of online transactions. The technology that helps in making online purchasing decisions is augmented reality (AR).

Despite the diverse possibilities of AR application and its advantages (e.g. better product selection, fewer online shopping returns), AR is still not widespread in e-commerce. One of the reasons is the cost of AR implementation, while other reasons are consumer acceptance of new technologies and associated risks. However, during the Covid-19 pandemic and its immediate aftermath, e-commerce is likely to flourish. For a long time, it was highly likely that consumers will prefer to buy products online rather than go shopping in crowded shopping malls. According to Kissler, Tedijanto, Goldstein, Grad, & Lipstich (2020) prediction of different scenarios of post-pandemic behavior, one of the main conclusions is that people would maintain social distancing over a long time. Hence, traditional shopping will likely become more often replaced by online shopping. The AR technology allows consumers to mitigate the drawbacks of online shopping by giving the possibility to try on a product by e.g. showing a pair of glasses on a consumer's face or showing how a new wardrobe fits in the bedroom. Another reason for AR's growing popularity is the forthcoming introduction of high-speed mobile Internet thanks to the 5G standard, which will allow many industries to greatly benefit from introducing AR. Some e-commerce specialists like Nate Smith (Group Manager of Product Marketing for Adobe Analytics) say that "right now, as consumers increasingly use digital methods to prepare for a possible emergency, retailers need to ensure smooth, frictionless, and fast experiences on their e-commerce websites and mobile applications. Meeting your customers' needs and expectations at a time like this is imperative: it could either make or break your brand" (Abramovich, 2020).

AR technology offers many solutions that are difficult to achieve in traditional online shopping, e.g.:

- AR allows the customer to visualize the experience of using the product before buying it, which solves the issue of lack of physical contact;
- AR in e-commerce can reduce the number of returned products ordered online (which is very costly for online stores);
- AR gives an opportunity to see other variants of the product (color, size, texture, etc.) and compare them easily with each other without having to visit a stationary store;
- AR facilitates product selection while reducing the risk of dissatisfaction after purchase (returns, exchanges, complaints); the product can be viewed in conditions similar to a real store visit;
- AR allows companies to post additional information about the product and to present it more accurately; the seller can describe the item using virtual, interactive texts, graphics and video formats that appear when the customer focuses on the selected product.

In the past ten years, studies all over the world investigated AR's attractiveness, mainly in the sectors of education or tourism (Yuen, Yaoyuneyong, & Johnson, 2013; Buhalis et al., 2019). These studies often present AR as a device delivering customer value (Dacko, 2017). However, these are mainly conceptual articles that present literature studies with proposed theoretical models to be empirically tested in the future. Empirical studies researching consumer behavior or attitudes toward AR are quite rare (e.g. Ha & Jang, 2013; Grzegorzczuk, Sliwinski, & Kaczmarek, 2019).

This chapter presents a conceptual consideration that can be treated as pre-research study before empirical measurement, in which the main aim will be to identify the significance of factors (motives and risks) that affect the acceptance of AR technologies among e-commerce consumers. The theoretical background of the project refers to the consumer behavior and motivation theories, Technology Acceptance Model (TAM) and its subsequent developments such as the Unified Theory of Acceptance and Use of Technology (UTAUT) and the theory of perceived value. In 2016, Venkatesh et al. adapted the UTAUT to consumer use by creating UTAUT2. According to the UTAUT2, technology acceptance is determined by performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, and habit, while being moderated by age, gender, and experience. However, lately many studies do not directly use TAM and its successors to study the acceptance of a particular technology but instead combine them with other theories and variables. Authors decided to follow this approach as it allows us to consider the characteristics of a specific innovation.

Authors noticed similarities between the concept of user acceptance and perceived consumer value. One of the main ideas behind the latter is that perceived value consists of both positive and negative elements (benefits and costs; Zeithaml, 1988). Consequently, authors decided to introduce the factors negatively influencing user acceptance into conceptual model. To that end, authors used the concept of perceived risk that is “the expectation of losses associated with purchase and acts as an inhibitor to purchase behavior” (Peter & Ryan, 1976). Another common point between the UTAUT2 and the theory of perceived value is that many of the factors from the UTAUT2 bear significant similarity to the four elements of value in accordance with the PERVAL model (Sweeney & Soutar, 2001), based on the theory of consumption values (Sheth, Newman, & Gross, 1991).

For the purposes of this study, authors developed a model of factors influencing the acceptance of AR technology in e-commerce based on the UTAUT2 (Figure 1). The literature review allowed us to formulate the research hypotheses that should be verified in the empirical stage of research process. Authors do not consider personal factors, although authors are aware of their importance.

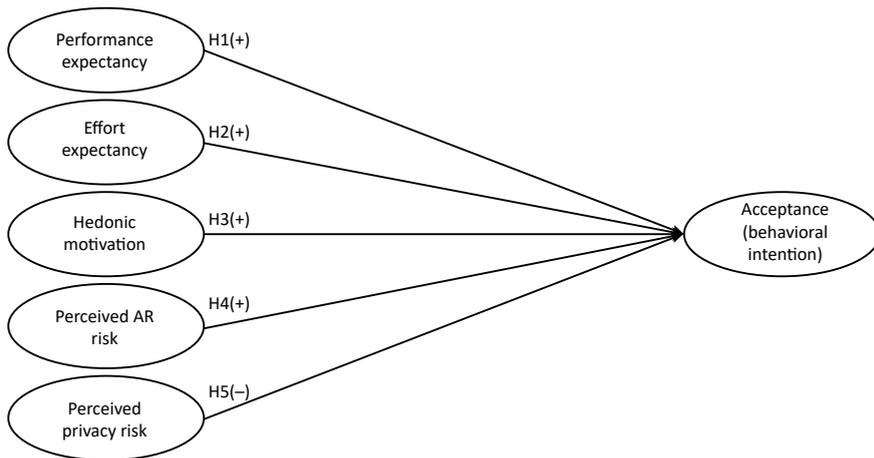


Figure 1. Conceptual model presenting factors influencing customer acceptance of AR technology in e-commerce

Source: Own elaboration.

Almost every acceptance model includes a construct responsible for the functionality aspect that usually turns out to be the most important one in terms of various technological innovations (e.g. Gao & Bai, 2014; Morosan & DeFranco, 2016). The performance expectancy factor answers the question whether consumers deem AR useful, worthy of their attention, and improving their productivity.

While the majority of research (e.g. Hilken, De Ruyter, Chylinski, Mahr, & Keeling, 2017; Rese et al., 2017; Yim, Chu, & Sauer, 2017) finds that the utilitarian aspect of AR is the most important predictor of AR acceptance in e-commerce, Bonnin's study (2020) presents surprisingly mixed findings. This underlines the need for further studies and clarification of previous research findings. Authors believe that AR's application in e-commerce brings significant functional benefits to consumers which they consider. Therefore, authors hypothesize that:

H1: Consumers' performance expectancy has a positive effect on their acceptance of AR in e-commerce.

Effort expectancy also stems from the UTAUT2, and it measures how easy it is to use AR in e-commerce (Venkatesh, Thong, & Xu, 2016). Consumers often resist new, undiffused technologies due to their fear of lack of technological proficiency. The role of the ease of use in the acceptance of various technological was confirmed multiple times (e.g. Su, Wang, & Yan, 2018). The significance of the ease of use was confirmed by Huang and Liao (2015), Rese et al. (2017), and Spreer and Kallweit (2014). Authors believe that consumers' effort expectancy of AR is especially important at the current low stage of diffusion of AR, as most consumers still have not had any previous experience with AR. Therefore, authors hypothesize that:

H2: Consumers' effort expectancy of AR's use has a positive effect on their acceptance of AR in e-commerce.

Hedonic motivation also stems from the UTAUT2, and it measures the degree to which users perceive using AR in e-commerce as enjoyable; similar to emotional value from the PERVAL model. Previous research shows that it plays a significant role in the acceptance of various technologies (e.g. Ingham, Cadieux, & Mekki Berrada, 2015; Yang, Yu, Zo, & Choi, 2016). Moreover, in the area of AR research, hedonic motivation and similar factors (e.g. enjoyment) are confirmed to influence both AR's acceptance in e-commerce (e.g. Hilken et al., 2017; Rese et al., 2017) and similar measures such as user experience or attractiveness (e.g. Bonnin, 2020; Grzegorzczuk et al., 2019; Poushneh, 2018). Authors believe that hedonic motivation is crucial for AR's acceptance in e-commerce, as traditional online purchases may lack the "thrill" associated with the shopping process linked with a greater degree of contact with the offered goods and the possibility of trying them on. AR in e-commerce may mitigate this issue to some extent and imitate the thrill of shopping. Therefore, authors hypothesize that:

H3: Consumers' hedonic motivation has a positive effect on their acceptance of AR in e-commerce.

One of the main ideas behind the theory of perceived value is that it consists of both positive and negative elements (benefits and costs; Zeithaml, 1988). Consequently, authors decided to introduce the factors negatively influencing user acceptance into our model. To that end, authors used the concept of perceived risk, which is “the expectation of losses associated with purchase and acts as an inhibitor to purchase behavior” (Peter & Ryan, 1976).

Various facets of perceived risk are distinguished in literature: psychosocial risk (harm to identity or self-esteem), financial risk (loss of money), time risk (loss of time because of late delivery for example), social risk, physical risk, privacy loss risk, and product/service risk (when the expectations about the product or service are not met; Aghekyan-Simonian, Forsythe, Suk Kwon, & Chattaraman, 2012; Nepomuceno, Laroche, & Richard, 2014). Bonnin (2020) found that perceived product risk negatively influences attractiveness of AR store and its patronage intention. These findings are interesting as AR is a tool aimed at decreasing the risk of unwanted online purchase by allowing to get a better sense of product features and its fit (Beck & Crié, 2018). Authors believe that similar results can be achieved when analysing the influence of perceived AR risk on AR’s e-commerce acceptance. Authors define perceived AR risk as the risk of not being satisfied with the product purchased in an online store evaluated with the use of AR. Therefore, authors hypothesize that:

H4: Perceived AR risk negatively impacts consumers’ acceptance of AR in e-commerce.

As mentioned, another dimension of perceived risk is the vulnerability in terms of possible loss of consumer’s personal information (data privacy risk). Research on a variety of technological innovations (e.g. Gao, Li, & Luo, 2015) shows that this factor may negatively influence technology acceptance. The use of AR requires access to the device’s (e.g. laptop’s or smartphone’s) camera and employs facial recognition or spatial tracking functionalities, which increases the amount of data sent and stored – and their significance – making AR especially vulnerable to attacks on data security. Furthermore, consumer concerns about marketers collecting and using personal data seem to be a relevant issue (Martin, Borah, & Palmatier, 2017), particularly in relation to AR technologies (Dacko, 2016). Future AR users expect AR applications to protect their privacy. Consumer’s awareness of privacy practices influences the process of decision making in relation to online shopping with AR’s use (Hilken et al., 2017). However, there currently is a scientific debate on the privacy paradox: while online consumers are concerned over their privacy, they fail to take adequate precautions or abstain from disclosing information (Bandara, Fernando, & Akter, 2020). In terms of AR, it is still unknown if consumers are generally aware of privacy risk and, if yes, whether they actually

care to such an extent that it would influence AR's acceptance. Authors believe that this may be the case. Therefore, authors hypothesize that:

H5: Perceived privacy risk negatively impacts consumers' acceptance of AR in e-commerce.

6.3. Conclusions

The created and verified in the future conceptual model will have a cognitive significance as input into consumer behavior and motivation theories, but also as the use of the theory of perceived value in relation to innovations such as AR. The empirical results will provide valuable practical information for e-commerce enterprises, those already competing in foreign markets and those which are preparing to operate internationally. The findings might be of substantial benefit to the e-commerce branch, which deals with constant changes due to hypercompetition, along with mega- and microtrends (e.g., technological development, globalization, consumer preferences). The findings will aid decision-makers in the inclusion of AR technology and its scope. By showing the possibilities and actual acceptance of AR's use in selected countries, the research might contribute to the development of a set of guidelines for enterprises and, eventually, improve their international competitiveness e.g., by guiding product and promotion strategies. The main limitation of this research is its conceptual character. Future research should aim to empirically verify the proposed model.

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7. Challenges for innovation cooperation in the biopharmaceutical industry during the Covid-19 pandemic¹



Lukasz Puślecki

Poznań University of Economics and Business
Institute of International Business and Economics
Department of International Management
lukasz.puslecki@ue.poznan.pl

Abstract

Purpose: This chapter seeks to verify the development of new partnerships and R&D alliances in the biopharmaceutical industry during the Covid-19 pandemic, but also to present the related challenges for innovation cooperation.

Design/methodology/approach: The main method applied in this research was scientific study, meaning that the study applied descriptive, comparative, documentation, and desk research methods, along with deductive and inductive forecasting.

Findings: The text presents new partnerships undertaken by biopharma companies (in and outside the industry) in order to face the pandemic and to discover and deliver a new vaccine for SARS-CoV-2 to the market. Moreover, the chapter describes the research projects in the European Union focused on the Covid-19 pandemic defeating. Thanks to more flexible and open cooperation, companies will greatly support the possibility to defeat the Covid-19 pandemic faster.

Practical Implications: We should consider that due to the current situation caused by the Covid-19 pandemic, the cooperation of companies and all entities in the biopharmaceutical R&D innovation ecosystem is even more challenging than before. Moreover, we should re-

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member that the organizational fluidity of open innovation initiatives and multiparty relations increases the complexity of alliance management. The use of an open innovation model can significantly hasten the production process of new drugs and vaccines.

Originality and value: Biopharma-university alliances can significantly increase the likelihood of creating better medical therapies for patients. Results of such cooperation enable a number of innovative projects, given the significant pressure on innovativeness and challenges caused by the pandemic. Using the latest IT technologies will allow physicians to even better monitor, diagnose, and care for patients with a focus on the patient-centered approach.

Keywords: COVID-19 pandemic, innovation cooperation, open innovation, R&D alliances, patient care.

7.1. Introduction

The main aim of the chapter is to verify the development of new partnerships and R&D alliances in the biopharmaceutical industry during the Covid-19 pandemic. The author will present new partnerships undertaken by biopharma companies (in and outside the industry) in order to face the pandemic and discover and deliver a new vaccine for SARS-CoV-2 to the market. We should remember that due to the current situation caused by pandemic, the cooperation of companies and all entities in the whole biopharmaceutical R&D innovation ecosystem is even more challenging than before the Covid-19 pandemic. Biopharma-university alliances can significantly increase the likelihood of creating better medical therapy for patients. In addition to partnerships within the industry, biopharma companies establish relationships with universities or research institutes as well as more often cross-industry alliances and public-private partnerships. This cooperation enables several innovative projects and allows significant synergy effects, given significant pressures on innovativeness and challenges caused by the pandemic.

7.2. Development of modes of cooperation in the biopharmaceutical industry

Biopharmaceutical (pharma and biotech) companies have developed cooperation with universities for many years. At the beginning, it was mainly focused on individual projects, from small research projects to large clinical trials. Later, the companies developed alliances with individual academic institutions, including a wider range of cooperation through research programs, clinical trials, and translational research. Companies also increasingly began to use different models of R&D alliances, from individual links in research projects to multilateral agreements involving multiple research projects, including various models for

open innovation (Chesbrough, 2003). According to the latest definition by Chesbrough, open innovation is “a distributed innovation process based on purposively managed knowledge flows across organizational boundaries, using pecuniary and non-pecuniary mechanisms in line with each organization’s business model” (Chesbrough & Bogers, 2014, p. 17). This concept can be developed in bilateral and multilateral alliances. In comparison to traditional alliances, the open innovation model is more dynamic because partners in an alliance are not identified in the conventional, purposeful way. Cooperation is focused more on the exchange of knowledge and ideas during the period preceding the creation of the alliance. The main purpose of open innovation alliances is to support the free flow of knowledge and ideas leading to the creation of partnerships aimed not only at joint innovation but also risk and profit sharing (Wilks & Prothmann 2012). The results of research on open innovation show how firms manage both the inflows and outflows of knowledge and how they seek partners and innovations (Culpan, 2014; West, 2014; Chesbrough, 2019). We can also observe how companies in specific industries (like biopharma) use the model of open innovation to establish open innovation alliances not only with firms from the same or other industry but also with universities, individuals, communities, and other organizations (Wilks & Prothmann, 2012; Deloitte, 2017). We should consider that the organizational fluidity of open innovation initiatives and multiparty relations increase the complexity in the alliance management. The use of open innovation model can significantly speed up the production process of new drugs and vaccines, which are in demand on the market because of Covid-19 pandemic (Chesbrough, 2020b). More interdisciplinary academic teams can also accelerate and support this process (Wilks & Prothmann, 2012). Open innovation was implemented by companies in several ways, including innovations for users, crowdsourcing, the creation of joint development alliances, and through building innovative ecosystems (Deloitte, 2017; Hanson, 2015; Puślecki, 2015, 2016; Puślecki & Staszków, 2015; Wilks & Prothmann, 2012).

7.3. Characterizing the biopharmaceutical R&D innovation ecosystem

Innovation cooperation developed in biopharmaceutical R&D ecosystem enables important scientific breakthroughs in novel diagnostic technologies and the definition of molecular targets for the development of personalized medicines. These advances impact the current development of new drugs during the Covid-19 pandemic and improve health care. Biopharmaceutical companies involved in cooperation can develop targeted therapies and drugs needed to treat serious diseases and unmet medical needs (Gomes-Casseres, 2014; Deloitte, 2017, Chesbrough, 2020a)

and have better innovation cooperation performance (Trąpczyński, Puślecki, & Staszów 2018). The biopharmaceutical R&D ecosystem is composed of a varied group of stakeholders (Figure 1), which makes it possible for them to achieve together what would be difficult for individual entities.

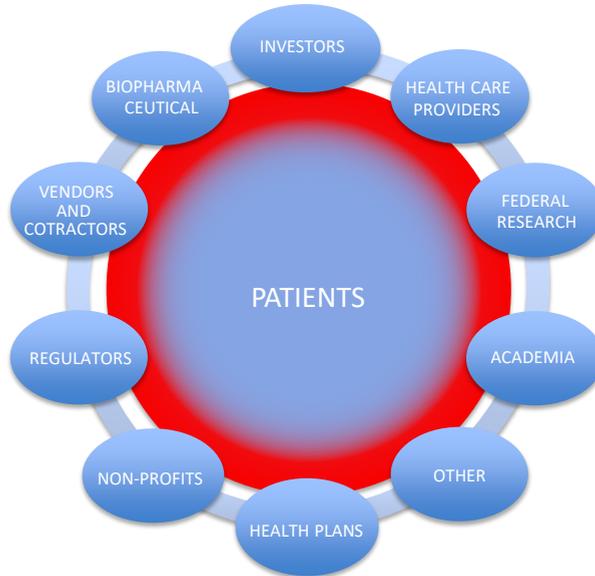


Figure 1. Illustrative biopharmaceutical R&D innovation ecosystem

Source: Own elaboration of (Deloitte, 2017, p. 11).

In the R&D ecosystem biopharma companies are responsible for two functions: they are contributors and integrators of the ecosystem. They gather diverse stakeholders offering distinct characteristics and contributions with a common goal of improving patient health outcomes. Patients are positioned as the hub of the ecosystem, as both key participants in driving *patient-centered innovation* and recipients of the value created as a result of cooperation in the ecosystem (Deloitte, 2017).

7.4. Growing diversification of partnership models and approaches in R&D cooperation: Covid-19 vaccines and research projects

When analyzing examples of partnerships in biopharmaceutical industry, we observe different modes of cooperation: R&D alliances, open innovation alliances,

public-private partnerships, consortia, pharma-university alliances, cross-industry alliances (especially with the IT industry), along with different entities involved in cooperation such as governments, universities, research institutes, foundations, funds, banks, and other organizations. As multiparty alliances, these partnerships require even greater competencies and skills of alliance, managers and appropriate alliance management tools. Thanks to significant synergy effects, participation in an R&D innovation ecosystem gives its partners access to huge innovative potential and more market opportunities, which helps them to innovate, accelerate growth, and expand into new promising markets (Fraser, 2014; Burke, 2020; De Man, 2018, 2020; De Man & Luvinson, 2019; De Man, Koene, & Ars, 2019).

Taking into consideration current challenges impacting the biopharmaceutical R&D environment – the Covid-19 pandemic – the development of collaborative relationships can help partners to obtain scientific and technological advances and offer new innovations like new vaccines and drug to patients faster (Table 1). Like drugs, potential vaccines must pass through stages of clinical trials. It is very important for their safety, even during the Covid-19 pandemic. Currently, scientists are testing 50 candidate vaccines in clinical trials on people. Additional 150 candidate vaccines are in preclinical development, including animal and laboratory testing. In China and Russia, six vaccines received limited or early approval (before the completion of phase 3 clinical trials), which raised concerns about their safety (Healthline, 2020).

Table 1. Selected ongoing Covid-19 vaccine projects

Name/Partners	Description	Results
Moderna/ National Institutes of Health	The company began testing its two-dose messenger RNA (mRNA) vaccine in March 2020 in phase 1 clinical trial to promising results. In late July 2020, Moderna began phase 3 clinical trials of the vaccine.	In mid-November 2020, Moderna officials reported that their vaccine achieved the effective rate of 94 percent in initial phase 3 trial results. Experts said more testing and more information is needed.
Pfizer / BioNTech / Fosun Pharma	Drugmaker Pfizer teamed up with the German biotech company BioNTech and Chinese drugmaker Fosun Pharma to develop a two-dose mRNA vaccine.	On November 9, 2020 the company announced that its vaccine had been more than 90 percent effective in clinical trial participants. A few days later, company officials announced they were applying for an emergency use authorization from the FDA for their vaccine. It was the first regulatory approval in the United States for a Covid-19 vaccine. The officials said the vaccine could be available to high-risk groups as early as mid-December 2020.

Table 1 cont.

Name/Partners	Description	Results
Johnson & Johnson	Drugmaker Johnson & Johnson announced in late July 2020 that it began a phase 1–2 trial in people after their adenovirus vaccine had shown promising results when used on monkeys.	In mid-November, Johnson & Johnson officials said they expected their vaccine to be ready for FDA approval by February 2021.
AstraZeneca/ the University of Oxford	A phase 1 clinical trial at the University of Oxford began in late April. The vaccine is based on a chimpanzee adenovirus, which shuttles coronavirus proteins into cells.	In August 2020, AstraZeneca began phase 3 trials in Brazil, South Africa, and the USA. These trials were halted in September when a study volunteer developed a rare spinal inflammatory disorder called transverse myelitis. The trials were restarted a week later in Brazil and the United Kingdom. In late October, the FDA authorized the US trial to resume. In mid-November 2020, company officials said their vaccine had produced a strong immune response in a clinical trial that involved people over the age of 70.
Sanofi / GSK / TranslateBio	Drugmaker Sanofi pursues two vaccines. The company is working with drugmaker GSK on a vaccine based on proteins from the coronavirus. When combined with another compound, called an adjuvant, the proteins elicit an immune response.	They expect results from a phase 2 trial in early December 2020, after which they will begin a phase 3 study. Sanofi is also working with biotech company Translate Bio to develop an mRNA vaccine. They expect to start clinical trials in December 2020.
CanSino Biologics	Scientists at this Chinese company are also working on a potential vaccine that uses an adenovirus known as Ad5 to carry coronavirus proteins into cells.	The Chinese military approved the vaccine in June 2020, allowing the vaccine to be given to its armed forces. In August, the company began phase 3 trials in Pakistan, Saudi Arabia, and Russia.
Gamaleya Research Institute	This Russian institute developed a vaccine that includes two adenoviruses, Ad5 and Ad26.	Russian officials said the vaccine received a “conditional registration certificate.” Results of a phase 1–2 trial found that the vaccine elicited an immune response with mild side effects. Phase 3 trials are currently under way in Russia, Belarus, the United Arab Emirates, and India.
Beijing Institute of Biological Products / Sinopharm	Sinopharm is testing a second inactivated virus vaccine developed by Beijing Institute of Biological Products.	Phase 3 trials began in June 2020 in the UAE and in September 2020 in Argentina. In September 2020, the UAE approved the vaccine for use on health care workers even before the results of the phase 3 trials.
Sinovac Biotech	This Chinese company launched phase 3 trials of its inactivated virus vaccine in Brazil in July, Indonesia in August, and Turkey in September 2020.	In August 2020, the Chinese government issued emergency approval for the vaccine for use on high-risk groups.

Source: Own elaboration based on (Healthline, 2020).

Due to the challenges caused by Covid-19 pandemic we can also observe the development of new research projects on coronavirus diagnostics and treatments financed by the Innovative Medicines Initiative (IMI) with the total amount of EUR 72 mln (IMI, 2020) but also by the European Commission (2020). Until September 2020, the EU already invested EUR 458.9 mln from Horizon 2020 in 103 research projects specifically targeting the Covid-19 pandemic, also including partners from the Central and Eastern Europe (CEE) region (Table 2).

Table 2. Selected research projects on coronavirus diagnostics and treatments and vaccines including also partners from the CEE region

Acronym/ Title	Description	Project coordinator	Partners	Funding body
PREPAREDNESS AND RESPONSE				
I-MOVE-Covid-19: Multidisciplinary European network for research, prevention and control of the Covid-19 Pandemic	To obtain epidemiological, clinical and virological information on coronavirus and infected patients through the I-MOVE surveillance network spanning 11 countries.	Epiconcept (FR)	25 partners: Albania , Germany, Spain (5), France (5), Ireland, Lithuania , Netherlands (2), Portugal (2), Romania , Sweden, UK (5)	Horizon 2020
HERoS: Health Emergency Response in Interconnected Systems	To improve the effectiveness and efficiency of the response to coronavirus outbreak by providing guidelines for improved crisis governance.	Svenskhandelshögskolan (FI)	11 partners: France, Finland (2), Italy, Netherlands (2), Poland (3) , UK, US	Horizon 2020
EXSCALATE4CoV: EXaScale smart platform against pathogens for the coronavirus	To exploit powerful computing resources to identify molecules capable of targeting coronavirus and develop an effective tool to counter future pandemics.	Dompéfarmaceutici (IT)	18 partners: Belgium, Switzerland (2), Germany (2), Spain, Italy (10), Poland , Sweden	Horizon 2020
DIAGNOSTICS				
Covid-RED: Covid-19 infections – remote early detection	The project will combine expertise in clinical epidemiology with digital devices (such as wearables and mobile apps) to rapidly and reliably detect Covid-19 cases so that they can be prioritized for testing.	Universitair Medisch Centrum Utrecht, The Netherlands	9 partners from Denmark, Lithuania , the Netherlands, Switzerland, UK	Innovative Medicines Initiative (IMI)

Table 2 cont.

Acronym/ Title	Description	Project coordinator	Partners	Funding body
DRAGON: Rapid and secure AI-imaging-based diagnosis, stratification, follow-up, and preparedness for coronavirus pandemics	The project will apply artificial intelligence and machine learning to deliver a decision support system for improved and more rapid diagnosis of Covid-19 and prognosis. Citizens and patients will be involved in the development of the system.	Oncoradiomics, Belgium	21 partners from Belgium, China, Italy, the Netherlands, Switzerland, UK	IMI
RAPID-Covid: Robust automation and point of care identification of Covid	While the world focuses on Covid-19, other infectious diseases with similar symptoms continue to circulate. The RAPID-Covid project aims to develop a diagnostic test that can simultaneously detect SARS-CoV-2 as well as 30 other common respiratory bacteria and viruses.	GeneFirst Limited, UK	5 partners from France, Slovenia , Spain, UK	IMI
CoronaDX: Three Rapid Diagnostic tests (Point-of-Care) for Covid-19 coronavirus, improving pandemic preparedness, public health and socio-economic benefits	To deliver three complementary diagnostic tools, including one point-of-care diagnostic that can be used with minimal training	Danmarks Tekniske Universitet (DK)	8 partners: Austria, China (2), Denmark (2), Italy (2), Sweden	Horizon 2020
TREATMENT				
CARE: Corona accelerated R&D in Europe	The goal is to deliver treatments for the current Covid-19 outbreak as well as future coronavirus outbreaks. To do this, they will identify candidates among existing drugs that could be effective as treatments for the Covid-19 pandemic (drug repurposing), and develop new drugs specially designed to tackle the SARS-CoV-2 virus.	Institut National de la Santé et de la Recherche Médicale (INSERM), France	36 partners from Belgium, China, Denmark, France, Germany, the Netherlands, Poland , Spain, Switzerland, UK, US	IMI
SCORE: Swift Coronavirus therapeutics Response	To develop a combination of anti-viral treatments for patients infected with the coronavirus.	Academisch Ziekenhuis Leiden (NL)	10 partners: Belgium (3), Switzerland, Germany (2), France (2), Netherlands (2)	Horizon 2020

Table 2 cont.

Acronym/ Title	Description	Project coordinator	Partners	Funding body
MANCO: Monoclonal Antibodies against 2019–New Coronavirus	To develop and evaluate monoclonal antibodies as treatments against coronavirus.	Erasmus Universitair Medisch Centrum Rotterdam (NL)	8 partners: Germany, Spain, France (2), Netherlands (4)	Horizon 2020
VACCINES				
OPENCORONA: Rapid therapy development through Open Coronavirus Vaccine Platform	To develop a vaccine that can also be used as a therapy against the coronavirus using a DNA vaccine platform.	Karolinska Institutet (SE)	7 partners: Germany, Italy, Sweden (5)	Horizon 2020
Prevent-nCoV: Prevention of 2019 nCoV infection through development and clinical testing of a novel Virus Like Particle (VLP) vaccine	To develop and evaluate a potential vaccine that uses virus-like particles to expose coronavirus proteins to the immune system	Københavns Universitet (DK)	6 partners: Germany, Denmark (3), Netherlands (2)	Horizon 2020

Source: Own elaboration based on (IMI, 2020; European Commission, 2020).

These research projects focus on the development of diagnostics, treatments, vaccines, epidemiology, preparedness, and response to outbreaks, socioeconomics, production, and digital technologies, but also the infrastructures and data resources that enable this research. The involvement of many different partners in innovating cooperation, including biopharmaceutical companies and academia, can contribute to the faster overcoming of challenges related to the Covid-19 pandemic.

7.5. Conclusions

Biopharmaceutical companies involved in innovation cooperation with academic institutions – especially in the model of open innovation alliances – can significantly reduce the risk and cost of research, use the resources, competencies, technology, and knowledge from partners, and thus easier respond to changes in the dynamic environment and most of all, quickly launch new biotechnology or pharmaceutical products (new vaccines and drugs), along with better diagnostics and treatment of patients that are now desired because of the Covid-19 pandemic.

Stopping the growing pandemic requires speed, agility, and cooperation. Openness mobilizes knowledge from many different places, making science

progress and accelerating our progress in the fight against the disease. Openness unleashes a volunteer army of scientists working in their own facilities, in different time zones, and in different countries. Openness uses human capital available in the world to fight the disease, but it also utilizes access to already existing physical capital (such as factories and equipment) to begin the rapid testing of possible solutions. Open innovation can speed up action. More than 50 vaccine candidates under consideration are already approved drugs for other medical uses (being repurposed). This means that the baseline safe dosage levels for any candidate in humans have already been established. This allows for testing to begin in the middle of the normal drug development process, with phase 1 of clinical trials safety protocols already completed. Making all relevant medical research available at the same time in a machine-readable form allows for rapid learning by anyone who wants to look at it, which enables scientists around the world to contribute to the fight against the pandemic (Chesbrough, 2020a, b).

Nevertheless, finding a vaccine is not enough. We must think about logistic issues regarding the transport of vaccines (mRNA vaccine) in proper temperature and about the distribution and delivery of vaccines to millions of people. Mass vaccination is a giant logistics operation. Some airlines (Air France-KLM) prepare Covid-19 vaccines airlift in order to deliver the vaccines in the right way, by using dry ice. Openness could help here as well: we may learn from each other and use good practices, which could be further applied by other airlines in the vaccines' delivery.

Companies must be more open to cooperation (Chesbrough, 2020a, 2020b.), change their business models (Puślecki, 2020; Chesbrough, 2020b), and use local potential and partners to develop better therapies for patients in times of the pandemic, e.g. the use of ECMO to support patients with Covid-19 (Czekajlo, Dabrowski, Puslecki, Drozd, & Szarpak, 2020). Moreover, we should consider whether the pandemic brings a decrease or an increase in cooperation between companies. The answer is not clear cut. It seems that in the long run, the consequence of the pandemic on some companies will be the increased interest in the development of cooperative behavior. The challenges of the Covid-19 pandemic may become a development opportunity and have a positive impact on R&D and pro-innovation activities. The crisis caused by pandemic shows that companies have real opportunities to contribute to social welfare and, by acting so, they can obtain the economic benefits of such actions (Gorynia & Jankowska, 2020).

The Covid-19 pandemic contributed to the development of new strategic partnerships in the biopharmaceutical industry, also in the open model (open innovation alliances). Additionally, we observe the involvement of many companies from biopharma in cooperation with IT companies in order to develop diagnostic tools using the latest technologies: IoT, AI, Machine Learning, and Blockchain,

along with the progressive digitalization of health care such as telemedicine, med-Health, and digitalHealth. Since the end of the 1980s, the world has seen more and more non-equity R&D alliances in the biopharmaceutical industry (Puślecki, 2012), which provide greater flexibility in the selection and possible change of partners, and they also enable a faster change of technology than traditional equity alliances. This trend is also visible in Central and Eastern Europe (CEE). The results of quantitative research conducted within research grant entitled “Analysis of Open Innovation Alliances and Strategic Partnerships in the Biopharmaceutical Industry in Poland and CEE countries” show that over 80% of companies from the biopharmaceutical industry from 18 CEE countries carried out mainly R&D non-equity alliances in the development of innovation cooperation in years 2015–2017. Thanks to more flexible cooperation and business models, it will be possible to defeat the coronavirus pandemic faster.

The “new normal” after Covid-19 will be different, we will be different, richer in knowledge and experience from the current coronavirus, which will allow us to prepare for future pandemics through better care for our health, faster diagnoses, and better treatments. Having vaccines for the current coronavirus will make it easier to work on possible new drugs and vaccines in the event of future pandemics as part of expanded R&D innovation ecosystems and the involvement of many partners in the cooperation. Using the latest IT technologies will make it be possible to even better monitor, diagnose (DigitalHealth), and care for patients with focus on the patient-centered approach: “Good ideas can come from anywhere, making openness is an imperative in these times of crisis. Global public health simply works better – and faster – when we open up” (Chesbrough, 2020b, p. 413). Through our involvement in cooperation, the evolution of our pandemic-induced behavior, we can further contribute to the building of the common good (Thaler, 2015; Mruk, 2018).

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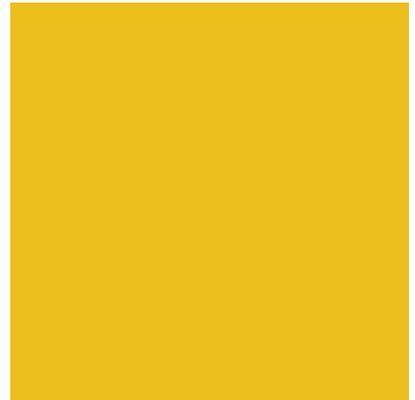
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PART 3



CHALLENGES
FOR COMPANIES



1. The adoption of Industry 4.0 solutions as a remedy against the pandemic crisis – the case of Polish companies¹



Barbara Jankowska

Poznań University of Economics and Business
Institute of International Business and Economics
Department of International Competitiveness
barbara.jankowska@ue.poznan.pl



Ewa Mińska-Struzik

Poznań University of Economics and Business
Institute of International Business and Economics
Department of International Economics
ewa.minska-struzik@ue.poznan.pl

Abstract

Purpose: The authors aim to briefly present the adoption of Industry 4.0 technologies among Polish companies in the realm of the VUCA world. These solutions may work as measures that increase the resilience of companies against the Covid-19 crisis and support the recovery in “the new normal” reality.

Design/methodology/approach: The paper combines literature studies with an empirical investigation in the form of computer-assisted telephone interviews conducted among 400 Polish manufacturing companies.

Findings: Polish industrial manufacturing firms lag in implementing I4.0 technologies compared to their Western European counterparts.

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Research limitations/implications: The empirical part of the study was conducted among Polish companies. Similar studies among firms from other CEE countries will be necessary to conclude about this part of the world's readiness to adopt 4.0 technologies.

Practical implications: The pandemic era and increasing I4.0 adoption pose particular tasks for companies. They should revise their contractual arrangements with IT service providers and focus on data privacy and security topics, but also industry-specific regulations. Triggered by the Covid-19 crisis, these actions may contribute to developing companies' comprehensive digital strategy in the "new normal" reality.

Originality and value: The chapter contributes to the discussion on the readiness of companies and economies to adopt the Industry 4.0 technologies. It also provides the level of the adoption of these solutions in the context of a post-transition economy.

Keywords: Industry 4.0, VUCA, Polish companies.

1.1. Introduction

The outbreak of the Covid-19 pandemic exemplifies the concepts of "black swan" or "wildcard" phenomena. The pandemic is an unexpected, sudden change in the companies' and societies' environment that leads to discontinuities and further to total disruption. Discontinuities may be defined as "rapid and significant shifts in trajectories without the aspect of being mostly unanticipated or deeply surprising," which extend "beyond single events" and radically alter "the previous pathways or expected directions of policies, events and planning regimes" (Saritas & Smith, 2011). The extreme shock delivered by the Covid-19 pandemic reflects the VUCA concept, that was mentioned in the Introduction to this book. The concept of VUCA - quite like the concept of strategy, comes from the military context and has permeated to the business world characterized by the growing turbulences (Millar, Groth, & Mahon, 2018). Heinonen et al. (2017) explain the term in detail. "V" stands for "volatility" that is to reflect the increased dynamics in many fields characterized by "changing directions of change." "U" represents "uncertainty" and signals a fundamental condition that decision-makers met in all ages that is related to the lack of knowledge. "C" means "complexity" that highlights a multitude of qualitatively different factors or elements that interact in many ways. "A" is short for "ambiguity" and reflects tremendous troubles we face to understand, interpret, and explain novel phenomena that, at first, often appear blurred. Ambiguous context provides confusion about what are the causes and what are the effects of a phenomenon.

The idea of turbulent environment is nothing new for business since it was highlighted many years ago by, among others, Igor Ansoff in his concept of corporate strategy (Ansoff & Sullivan, 1993). However, we notice today a greater

diversity of factors facilitating turbulences and a greater intensity of these turbulences. They are strongly fostered by digitalization and technological change (Kai-vo-ija & Lauraeus, 2018; Dercole, Dieckmann, Obersteiner, & Rinaldi, 2008), the spread of populist strategies and policies among national governments (Hoekman & Nelson, 2018; Mudambi, 2018), the break-up of economic and political unions such as Brexit (Thissen, van Oor, & McCann, 2020), the emergence of a new category of multinational companies from so-called emerging markets (Andreff, 2003; Buckley et al., 2007; Cantwell & Barnard, 2008; Hoskisson, Wright, Filatotchev & Peng, 2013; Frynas, Mol, & Mellahi, 2018, Ramamurti & Hillemann, 2018; Hernandez & Guillén, 2018), the increasing role of these markets in the global economy (Guercini & Runfola, 2016), and the entry of Generation Z to the market (Francis & Hoefel, 2018).

In this chapter, we aim to briefly present the adoption of Industry 4.0 technologies among Polish companies in the realm of the VUCA world since these solutions may work as measures increasing the resilience of companies against the Covid-19 crisis and support the recovery in “the new normal” reality when the VUCA dimension will cease. The way firms will cope with the VUCA environment, black swans, and wildcards seems to be determined by the digitalization and familiarity with the Industry 4.0 technologies. Thus, it is of tremendous importance for them – and for whole economies – not to stay in the position of a straggler.

1.2. Conceptual background: Industry 4.0 as the manifestation of VUCA

The fourth industrial revolution epitomizes to some extent the VUCA reality: “Industry 4.0 represents a smart manufacturing networking concept where machines and products interact with each other without human control” (Ivanov, Dolgui, Sokolov, Werner, & Ivanova, 2016). The term Industry 4.0 was initially formulated during the Hannover Trade Fair in 2011 and later adopted in other countries and regions that introduced different terminology: “Industrial Internet” in the USA and “Internet+” in the People’s Republic of China (Wang, Wan, Li, & Zhang, 2016). Industry 4.0 (I4.0) reflects the novel approach to the industrial system in which happens the real-time connection of people, machines, and objects for the intelligent management of logistic-production systems (Melluso et al., 2020; Abonyi, Czvetkó, & Honti, 2020). According to Hermann, Pentek, and Otto (2015), the I4.0 is founded on four key sub-concepts: Cyber-Physical Systems (CPS), the Internet of Things, the Internet of Services, and Smart Factories. From a technical point of view, much of I4.0 is about digitalization and automation, which manifests itself in the exploitation of nine technology advances: Big Data and Analytics;

Autonomous Robots; Simulation; Horizontal and Vertical System Integration; The Industrial Internet of Things; Cybersecurity, the Cloud; Additive 3D Manufacturing; and Augmented Reality (Rüßmann et al., 2015).

Many companies are already implementing these technologies, but the level of their adoption and firms' readiness to implement them differs across countries. Kelkar (2019) studied 227 companies to indicate that 79% of manufacturing enterprises (any size) perceive Industry 4.0 as very important for their development. According to Computer Science Corp (2015), 63% of US manufacturing companies (900 in the sample) perceived Industry 4.0 as necessary for their further development. Dörfler (2019) conducted a study among 1849 German companies (regardless of the size and area of business), and 94% of them treated digitalization as important for their development. According to Mayer-Schönberger and Cukier (2014) the number of multipurpose industrial robots developed by enterprises in the 4.0 sector in Europe almost doubled. The International Federation of Robotics pointed to the highest robot densities in 2017 for the Republic of Korea (710), Singapore (658), and Germany (322) (QB Robotics, 2020). The number of installed industrial robots was calculated per 10,000 employees in the manufacturing industry. The world average was 85 robots per 10,000 employees. In 2013–2017, global sales of industrial robots grew by 114% (QB Robotics, 2020). The tendency to exploit robots in production, logistics, office management (for document distribution), maintenance, and repair of manufacturing defects is easily noticed (Kamarul Bahrin, Othman, Nor Azli, & Talib, 2016). However, in 2019 after six years of growth, the global robot installations dropped by 12% due to turbulences in the automotive and electronic industry caused by the tensions between China and the United States in 2018 (Executive Summary World Robotics 2020 Industrial Robots, 2020). The global economic crisis related to covid-19 pandemic will strongly impact the installations of robots. We may assume that in the short period the number of installations of robots may decrease but in the medium and long-term the digitalization facilitated by the pandemic will probably foster the growth of robots installations.

A Cisco study (2019) evaluates countries' readiness to create a digital economy using the Digital Readiness Index. This readiness is evaluated with an index. Since I4.0 is founded on digitalization, this index provides insights into how much particular countries are ready to absorb and exploit I4.0 solutions. This study developed a framework that points to key seven components crucial for the countries' digital readiness: basic needs, human capital, ease of doing business, business and government investment, start-up environment, technology infrastructure, and technology adoption. This model is holistic and does not refer only to technological factors. According to this study, the overall digital readiness scores ranged between 4.32 and 20.26 out of a maximum possible total of 25.

The overall average readiness score for 2019 was 11.90. The whole set of countries was divided into three subgroups: Amplify, Accelerate, and Activate. Presence in a particular subgroup is based on a country's score distance from the average result. The Active stage countries are the beginners with the lowest overall average score. The Accelerate stage countries are higher in terms of the overall average score but still have opportunities to upgrade their digital readiness. Countries in the Amplify stage are the most mature in terms of digitalization. The first position in the ranking (among 141 countries) according to the Digital Readiness Index for 2019 belonged to Singapore. This country scored more than 20 on the possible maximum score of 25. Poland ranked 33rd behind Czech Republic (25th) and in front of Hungary (39th).

1.3. Empirical research results

1.3.1. Industry 4.0 solutions adopted in Poland:

Selected statistics and facts

According to the International Federation of Robotics (IFR), in 2015 in Poland were used 1795 new robots (an increase of 41% compared to 2014; Śmieszek, Dobrzański, & Dobrzańska, 2019). It resulted in the growth of the number of intelligent machines used in production of up to 8100. For these years, the robotization rate was about 27% (2015/2014) and it was faster than the world average (about 5%). The Poland's number of robots per 10,000 employees (the robotization density index) was 28, while the world average was 69 robots per 10 thousand employees, which in Europe last year even reached 92. In the abovementioned study conducted by Cisco (2019), Poland scored 14.94 and is at the Accelerate stage. Meanwhile, Poland's main business partner Germany achieved 17.85 and placed in the Amplify stage. Bearing that in mind and referring to the Digitization Index applied by the McKinsey Company, we clearly see the digitalization gap between Poland and Western European countries (McKinsey Company, 2016). This Digitization Index indicated a gap for the Polish economy at the level of 34%. For the sector of "advanced manufacturing" it was higher (45%) and even higher for the "simple manufacturing" sector, for which it reached as much as 78%. The World Bank Report "World Development Report 2016: Digital Dividends" presents the share of ICT in Poland's GDP at the level of 8%, and the sector employed about 430,000 people. However, ICT specialists accounted for only 3.1% of the workforce in Poland, while the EU average was 3.7%.

The Smart Industry Polska 2017 survey (2017) by the Millward Brown Agency conducted for Siemens in February 2016 on a sample of 100 people from the largest companies employing 250 people or more and operating in the manufacturing industry shows that the Polish manufacturing sector is ready for changes in terms of I4.0. Respondents indicated the following technologies typical of the Smart Factory: production line robotization – 56.7%; big data – 44.3%; M2M and the Internet of Things – 40.2%; data mining – 38.1%; cloud computing – 25.8%; RFID – 23.7%; and MEMS – 13.4%. Firms that participated in the study declared using the so-called demand-driven manufacturing (used by 46.4%); just-in-time delivery (used by 56.7%); lean management (used by 52.6%); supply chain management (used by 56.7%); the optimization of production processes (used by 82.5%); and quality management according to the concept of “zero defect” (used by 56.7%). More than one-third of the studied companies (35%) declared the possession of an innovative control system, which is fully automated and flexible. These perceptions are typical for large enterprises with foreign capital. Foreign subsidiaries established in Poland that participated in the study evaluated the level of modernity of applied solutions as at least seven on a ten-point scale (nearly 50% of them). This survey was conducted before the pandemic, so today over 60% of the studied companies plan to outsource work to universities or public research institutions, while nearly 57% of the firms pointed to the active cooperation with R&D institutions.

As far as robots are concerned more than 30% of Polish companies in the manufacturing sector at the beginning of 2020 planned to implement robots in the next three years (Poland robotics, 2020). International Federation of Robotics stated that Poland’s robot density is expected to increase in the coming years. Nevertheless, the coronavirus crisis impacted the investment expenditures of companies and we still need to wait for data on that issue.

1.3.2. Industry 4.0 Solutions adopted in Poland: Selected primary study findings

1.3.2.1. Research methodology and sample composition

In the period from November 2019 to January 2020 – before the pandemic outbreak – we conducted computer assisted telephone interviews (CATIs) with 400 companies representing the whole manufacturing sector in Poland. We aimed to diagnose the level of I4.0 solutions adoption, find the inhibitors firms face while implementing I4.0 technologies, characterize them, and investigate their impact on the adoption of I4.0 technologies. The characteristics of the sample are presented in Table 1.

Table 1. Sample composition in terms of main variables

Factors	Description	Count	(%)
Firm ownership status	state-controlled firm	11	2.8
	private company	389	97.3
	the company is:		
	not listed on the stock exchange	376	94.0
	listed on the stock exchange	24	6.0
The ownership capital structure of the firm	100% of the Polish capital	305	76.3
	a minor share of foreign capital	82	20.5
	majority of foreign capital	13	3.3
The time range of the firm's operation in Poland	6–10 years	81	20.3
	11–15 years	139	34.8
	16–20 years	96	24.0
	>20 years	84	21.0
Headquarters home location	Poland	286	71.5
	Germany	37	9.3
	Others	77	19.2
Location of production activity in Poland	urban agglomeration	284	71.0
	outside urban agglomeration	116	29.0
The approximate number of full-time employees in Poland (in 2018)	from 10 to 49 employees	22	5.5
	from 50 to 249 employees	62	15.5
	from 250 to 499 employees	52	13.0
	500 and more employees	264	66.0
Exporting activities	no	41	10.3
	yes	359	89.8
All enterprises		400	100.0

Source: Own study results.

1.3.2.2. Brief study results

According to the research carried out just before the pandemic outbreak, Polish industrial manufacturing firms seem to lag in implementing I4.0 technologies compared to their Western European counterparts.² Figure 1 presents the frequency of use of eleven I4.0 solutions under scrutiny. Cybersecurity technologies and social media are the most widely used ones: by 97% and 58% of entities, respectively. This is relatively easy to explain because both technologies serve as tools to either secure firms operating in the digital environment or allow them to communicate with the market. More advanced solutions are implemented relatively seldom. Cloud computing is the third most-used I4.0 technology, but its adoption range is only half the size of cybersecurity solutions (43%) and 15 p.p. lower than social media. The fourth is simulation (digital twin), which 27% of firms often or very often use. Simultaneously, this solution is not used at all by 65% of enterprises. The scope of the use of the other seven solutions is minimal. In five cases, the scale of implementation does not exceed 20%, within which the potential of augmented reality remains unrecognized by 90% of respondents.

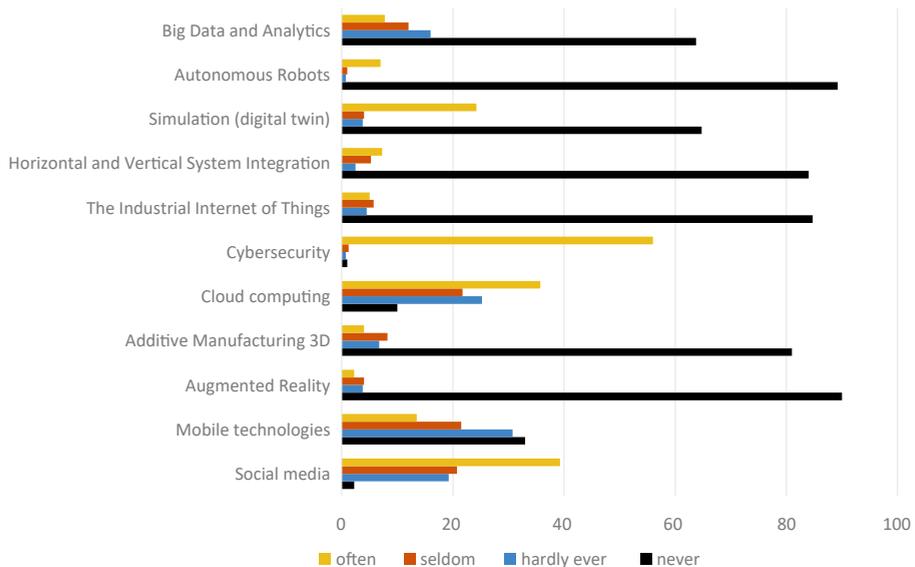


Figure 1. The adoption of I4.0 technologies (in percentage of interviewed companies)

Source: Own study results.

² More results of the study are presented in (Jankowska, Mińska-Struzik, Olejnik, & Bar-tosik-Purgat, 2020).

It would be worthwhile to test whether the pandemic spurred the use of I4.0 technologies or prevented further digitalization due to the sudden shortage of funds. Both scenarios are possible, with the latter being, in fact, more likely. Among barriers to implementing I4.0 technologies just before the pandemic, the interviewed firms stressed capital expenditures associated with the adoption of I4.0 solutions being prohibitively high. Financial constraints made it impossible to carry out capital investment and organize dedicated training needed for digital transformation. As much as 49% of respondents would expect any state support in this respect. Moreover, nearly one-third of enterprises encountered legal barriers related to implementing I4.0 technologies.

1.4. Conclusions

The VUCA reality looms for each company, and it became even more onerous since the emergence of black swans like the pandemic. The time of the pandemic and greater I4.0 solution adoption poses particular challenges for companies. They should revise their contractual arrangements with IT service providers and put data privacy and security topics high on the agenda, along with industry-specific regulations. These actions triggered by the Covid-19 crisis may contribute to the development of the companies' comprehensive digital strategy in the "new normal" reality.

Industry 4.0 technologies may contribute to the recovery and further development of companies. These solutions improve the visibility of real-time availability of resources – both tangible and intangible assets. They allow companies to smoothly reorganize activities since – thanks to artificial intelligence – companies may monitor their operations while robots support labor-intensive activities. Mobile technologies and augmented reality help workers to perform new tasks, which is important when companies face skills shortages. Mobile technologies, augmented reality, and the use of autonomous products like vehicles are extremely important in lockdowns since they allow for remote and virtual work and respect the social distancing requirement. This requirement means that companies may depend less on people, e.g. the use of 3D printing is useful when spare parts get stuck in the supply chain. The Industry 4.0 technologies contribute to the continuity and safety of people who work in production since simulation supports decision-making processes. Thanks to digitalization, the non-contact automated material transfer between cell stations along the production line may increase (Czifra & Molnar, 2020). The production process becomes more flexible. Three-dimensional printing technologies allow companies to switch production from one type of items to another, which provides them with more flexibility. The automation of production

makes these processes more sustainable, which only gains from the flexibility that helps to cope with potential changes in the number of employees or shortages of raw materials that may emerge in the pandemic era.

Finally, we should mention that the implementation of I4.0 technologies is “a must” not only from the perspective of companies but also from the perspective of the economies that remain in the position of laggards in terms of digitalization and want to diminish their gap to the Western countries, which are more mature in terms of digitalization. Thus, while exploiting I4.0 solutions to combat the coronavirus crisis, companies and countries may climb up the ladder of digitalization.

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2. Future competences in times of an economic crisis



Anna Lupicka

Poznań University of Economics and Business
Institute of International Business and Economics
Department of Logistics
anna.lupicka@ue.poznan.pl

Abstract

Purpose: The aim of the chapter is to present the competence patterns before and during the economic crisis and to determine the importance of individual competences for doing business in a turbulent environment. In many sectors of the economy, global changes triggered by Covid-19 called into question the use of existing sets of competences needed to run businesses effectively in supply chains. The continuous improvement of supply chains – or lean and agile management – will no longer work in current conditions. Faced with an increasingly unstable economy triggered by a global pandemic, many economists ask whether the existing competence patterns in companies or supply chains remain appropriate and proper for the current economic situation.

Design/methodology/approach: In 2017, a survey was conducted among selected experts in the pharmaceutical sector. The same questionnaire distributed in September 2020, during the Covid-19 pandemic. The experts were highly qualified managers employed in transnational companies. The 10 respondents were asked to indicate selected competencies. The choice of the pharmaceutical sector was motivated primarily by its specific characteristics as it is particularly important not only economically but also socially, by providing life-saving medicines.

Findings: Technical competences are becoming the necessary ones. This is due to the need for self-sufficiency in lockdown situations, when it is difficult to find external employees and the possibility of outsourcing skills. In the case of managerial competence, it is clear that creativity and entrepreneurial thinking have increased in importance. When analyzing social competences, what comes to the fore is diversity of intercultural skills: foreign language skills, the ability to compromise, the ability to transfer knowledge, and finally, the ability to adapt to change.

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Originality and value: This chapter answer what competences seem necessary for future managers in the pharmaceutical industry in a turbulent environment, which is crucial for research and teaching centers who seek to educate future managers at the highest level of specific competences and skills. Due to the dynamic development of the industry, the text identifies the needs in the areas of technical, managerial, and social skills.

Keywords: future competences, economic crisis, technical, managerial and social skills.

2.1. Introduction

In many sectors of the economy, the global changes triggered by the Covid-19 pandemic have called into question the use of existing sets of competences needed to effectively run businesses in supply chains. The continuous improvement of supply chains or lean and agile management no longer work under the current conditions. The trends of shortening supply chains, keeping security stocks as low as possible, and optimizing costs for all links have led to an economic disaster in the face of the global pandemic. Currently, changes are becoming faster and more unpredictable. Businesses must respond very quickly to the challenges and opportunities of the business world. Despite the enormous progress in the industry, managers constantly face new challenges. In addition, the upheavals and crises of the last decade have made it clear that companies, sectors, and economies cannot assume the sustainability of a stable, long-term economic environment. Forecasts of future developments, based on an analysis of historical patterns, are currently unlikely and inadequate within the rapidly changing situation on local, international or global markets. Uncertainty and market distortions require decision-makers to rethink potential business or supply chain management alternatives in such a turbulent environment.

Faced with an increasingly unstable economy triggered by the global pandemic, many economists ask today whether the existing competence patterns in companies or supply chains are still appropriate in the current economic situation. The qualifications and skills of the skilled labor, which are required to fulfil the tasks occurring in a factory of the future, will differ as well (Kowalski & Juszczynski, 2013; Kłosowski, Gola, & Świć, 2016; Hirsch-Kreinsen, 2014). In Industry 4.0 and uncertain environment, dynamic business and engineering processes enable last-minute changes to production and deliver the ability to respond flexibly to disruptions (Jasiulewicz-Kaczmarek, Saniuk & Nowicki, 2016; Waszkowski, Kiedrowicz, Nowicki, Wesolowski, & Worwa, 2016). The aim of this chapter is to present competence patterns before and during economic crises so as to determine the importance of individual competences for doing business in a turbulent environment.

This chapter is to answer the following question: what competences seem necessary for future managers in the industry in a turbulent environment, during the Covid-19 pandemic? The answer to this question is crucial for research and teaching centers, whose aim is to educate future managers at the highest level of the specific competences and skills. Due to the dynamic development of the industry, what is necessary is the identification of needs in the areas of technical, managerial, and social skills. The chapter is divided into two main parts. The first part is a theoretical introduction to the identification of key competences, which presents and discusses three basic categories of competence: technical, managerial, and social. The second part presents the methodology of the research conducted and then shows and interprets the results.

2.2. Future competencies identification

Knowledge is considered to be the most precious asset of modern organizations. It constitutes specific cultural capital which presents much higher value than material goods. Currently, managers' knowledge is decisive for outstanding (key) competencies of a company. We understand competence as a multifaceted phenomenon. Research on competences has mainly followed three approaches developed independently: behavioral, functional, and holistic/multi-dimensional. Knowledge becomes a key determinant of the development potential of enterprises (Łupicka & Grzybowska, 2016). A competency is more than just knowledge and skills. It involves the ability to meet complex demands, by drawing on and mobilizing psychosocial resources (including skills and attitudes) in a particular context. Depending on the degree of diversity and complexity of the specific conditions encountered in the work, the acquisition of relevant competences requires more or less time. According to the literature, I identified three main categories to classify core managerial competences. First, technical competences comprise all job-related knowledge and skills, e.g. media skills, coding skills, and statistical command. Technical skills are abilities an individual acquires through practice and learning (Technical Job Skills). Second, managerial competences include all skills and abilities for general problem-solving and decision-making, e.g. analytical abilities, and research skills, and conflict- and problem-solving. Third, social competencies include an individual's social values and motivations, e.g. the ability to transfer knowledge, leadership skills, the ability to work in a team. Social competence is the foundation upon which expectations for future interaction with others are built, and upon which individuals develop perceptions of their own behavior (Łupicka, Konecka, & Grzybowska, 2018). Individuals need a wide range of competences in order to face the complex challenges of the modern world. This study focuses

on exploring the technical, managerial, and social competences of future managers. Based on existing studies and analyses, a total of eight competences were identified (Koeffler, 2015; Nelson & Horvath, 2017; Relich, 2015; Stoermer, et al., 2014; Grzybowska & Łupicka, 2017; Shirani, 2016) Competences, discussed and selected for analysis, are presented below.

Table 1. Technical, managerial, and social competences, indispensable in the pharmaceutical sector

Technical competences		
1	IT knowledge and abilities	Information technology is a growing field. Commonly referred to as IT, there are many job titles in the field.
2	Knowledge management	Good knowledge management does not just happen. To ensure that organizations can acquire, create, organize, share, use, and build on the knowledge that is needed for their successful performance requires the right skills.
3	Computer programming/coding abilities	One of the basic skillsets an employer will seek is the ability to write code. Writing code takes more than just proficiency with the coding language, it requires logical thinking, problem-solving, integrating different technologies, and having a broad understanding of information systems.
4	Data and information processing and analytics	Data science and analytics are among the most demanded and fast-growing disciplines. However, because the field straddles boundaries of many disciplines and its skillset continues to evolve, it is often difficult to delineate its specific skillset and competencies.
5	Specialized knowledge of manufacturing activities and processes	Specialized knowledge must be expressed in terms of “common knowledge.”
6	Organizational and processual understanding	Important competences include a strong command of business workflow, knowledge management, feasibility assessment, data-driven change leadership, and business impact assessment.
7	Interdisciplinary / generic knowledge about technologies	Expert performance draws on knowledge that is hard to express and structure explicitly. Information and knowledge have dimensions which are never recorded but which are powerful determinants of organizational behavior.
8	Statistical knowledge	Statistical analysis refers to the core capability of analyzing data for insights and solutions that address business challenges. Typically, this is done using advanced knowledge of statistics, data visualization, and some algorithmic programming.

Table 1 cont.

Managerial competences		
1	Creativity	Creativity is becoming key focus area for employers looking for twenty-first-century employees. Creativity is characterized by the ability to perceive the world in new ways, find hidden patterns, make connections between seemingly unrelated phenomena, and generate solutions.
2	Entrepreneurial thinking	Entrepreneurial thinking skills refer to the ability to identify marketplace opportunities and discover the most appropriate ways and time to capitalize on them. It is more like a state of mind that opens your eyes to new opportunities.
3	Problem solving	Solving problems involves both analytical and creative skills. Analytical or logical thinking includes skills such as comparing, evaluating and selecting. It provides a logical framework for problem solving.
4	Conflict solving	Resolving conflicts is a key part of a manager's role. Managing and resolving conflict requires emotional maturity, self control, and empathy. Resolving conflict in a positive manner is a skill than can be developed and practiced.
5	Decision making	Decision making is the process of making choices by identifying a decision, gathering information, and assessing alternative resolutions. Decision-making is an integral part of modern management.
6	Analytical skills	Analytical skills are the thought processes required to evaluate information effectively. Analytical skills are the ability to visualize, gather information, articulate, analyze, solve complex problems, and make decisions.
7	Research skills	Research skills can be from need to be able to use reliable sources for continuous learning in changing environments. Being able to provide in depth information and advice on a given topic is an important skill.
8	Efficiency orientation	An "efficiency" approach is one that stresses the efficient use of resources as the main determinant decision and action. Efficiency orientation is inevitable.
Social competences		
1	Intercultural skills	Intercultural competences are response to the existence of cultural diversity; can be understood as resources put to work during intercultural dialog (to use various forms of communication). Knowledge of many cultures allows for effective negotiations.

Table 1 cont.

2	Language skills	Language skills allow for establishing cooperation with foreign partners, which increases the possibilities for company growth through internationalization.
3	Communication skills	Communication skills belong to the most important competencies. It is the ability to listen without prejudice and send convincing messages. Especially important thing here is so-called emotional intelligence, which every manager should develop.
4	Leadership skills	Leadership skills focus on inspiring employees, directing them, and mastering methods of effective persuasion.
5	Ability to be compromising and cooperative	The ability to be compromising and cooperative means experiencing feelings from the point of view of other employees and trade partners.
6	Ability to work in a team	The ability to work in a team is primarily the ability to secure cooperation between all members of the group to achieve a collective goal.
7	Ability to transfer knowledge	The ability to transfer knowledge is one of the most difficult ones to achieve. It is also the ability to sense the need for growth in other people and to develop abilities in employees.
8	Accepting change	Accepting change is related to the ability to initiate changes or to manage them. It also means mediating in the implementation of changes in a way that does not cause disputes.

Source: (Grzybowska & Łupicka, 2017b).

2.3. Research methodology

In 2017, a questionnaire survey was conducted among selected experts in pharmaceutical sector (Grzybowska & Łupicka, 2017b). The same questionnaire survey was carried out in September 2020, during the pandemic. These experts were high qualified managers employed in transnational companies. Respondents were asked to indicate selected competences. Ten experts filled the questionnaire. For the purpose of study, I selected the pharmaceutical sector. The choice was motivated primarily by its specific characteristics. The pharmaceutical sector is important not only economically but also socially, as it provides life-saving drugs. This is particularly important in view of the changes to Poland's demographic structure; the proportion of people aged over 60 increased from 19% in 2014 to around 30% in 2030). There are about 100 manufacturers of pharmaceutical products in

the country. The Polish pharmaceutical market is characterized by a traditionally high share of generic drugs. Nevertheless, this sector is one of the main industries providing innovation in the Polish economy. Research and development projects concerning the pharmaceutical industry – including biotechnology – are conducted in over 100 scientific institutions. Most of the R&D projects, including over 70% of all biotechnological R&D projects, concern the development of innovative products (DELab UW, PZPPF, 2015).

In the face of the pandemic, the pharmaceutical sector has been confronted with a huge number of disruptions to the proper functioning and breaking of global supply chains. One of the many problems is the availability of containers for shipping; some of the containers that arrived in China could not return from that country, which reduced their availability for subsequent shipments. Another threat was the limited availability of aircraft for air shipments, including increased transport costs. To this day, many suppliers still report the inability to supply raw materials and components for production. The closure of country borders, e.g. in India, where there is a large number of Active Pharmaceutical Ingredients (API) suppliers, meant that none of the factories received the necessary raw materials, which meant rationing the existing amount of raw material that already is in the supply chain. Table 2 shows the results of the survey in 2017 and 2020 carried out among respondents-practitioners who were asked to assess the future technical, managerial, and social competences, indispensable in the pharmaceutical sector.

Table 2. Comparative analysis

	Technical competencies	2017		2020	
		Arithmetic mean	Standard deviation	Arithmetic mean	Standard deviation
1	IT knowledge and abilities	1.43	0.53	3.00	0
2	Knowledge Management	3.57	0.98	1.83	0.98
3	Computer programming/ coding abilities	1.14	0.38	1.00	0
4	Data and information processing and analytics	4.14	0.69	4.66	0.51
5	Specialized knowledge of manufacturing activities and processes	1.71	0.48	2.66	0.51
6	Organizational and processual understanding	4.14	0.90	2.83	0.75

Table 2 cont.

		2017		2020	
7	Interdisciplinary / generic knowledge about technologies	3.14	1.00	2.16	0.40
8	Statistical knowledge	1.71	0.76	2.00	1.09
	Managerial competences	Arithmetic mean	Standard deviation	Arithmetic mean	Standard deviation
1	Creativity	2.57	0.53	4.05	0.81
2	Entrepreneurial thinking	3.57	0.79	4.50	0.54
3	Problem solving	4.86	0.38	4.66	0.40
4	Conflict solving	4.71	0.49	4.50	0.54
5	Decision making	5.00	0.00	5.00	0.00
6	Analytical skills	4.14	0.90	3.83	0.40
7	Research skills	2.29	1.38	1.50	0.83
8	Efficiency orientation	2.29	1.38	3.33	0.75
	Social competences	Arithmetic mean	Standard deviation	Arithmetic mean	Standard deviation
1	Intercultural skills	1.86	0.90	3.93	0.40
2	Language skills	4.57	0.53	5.00	0.54
3	Communication skills	4.86	0.38	4.83	0.40
4	Leadership skills	5.00	0.00	5.00	0.00
5	Ability to be compromising and cooperative	4.57	0.53	3.83	0.40
6	Ability to work in a team	4.86	0.37	4.50	0.54
7	Ability to transfer knowledge	4.86	0.38	2.33	0.51
8	Accepting change	4.86	0.38	5.00	0.00

Source: Own elaboration based on (Grzybowska & Łupicka, 2017b).

As far as technical competence is concerned, there is a big change: IT knowledge and abilities, specialized knowledge of manufacturing activities and processes, knowledge management, and organizational and processual understanding.

In the case of the first two, the importance of these competences in the pandemic has doubled. IT skills and general knowledge of technologies are becoming necessary competences. This is due to the need for self-sufficiency in lockdown situations, when it is difficult to find external employees and the possibility of outsourcing these skills. The results of two consecutive competences are surprising. In the case of knowledge management and general knowledge of organizations, we have a significant decrease in 2020 compared to 2017. This may be due to the focus on other much more important competences in a pandemic. Knowledge management is a competence that is constantly developed in a stable economic environment. When the environment becomes turbulent and unstable, it is difficult to talk about developing knowledge, employees focus primarily on the competences they have now, and they must fill the gaps caused by the crisis in production or transport. In the case of managerial competence, it is clear that creativity and entrepreneurial thinking have increased in importance. At the time of interruptions to the continuity of logistics processes caused by an economic crisis, it is very important to react quickly through creativity and fast analytical thinking and decision-making. Other competences such as conflict or problem-solving and research skills are slightly different from those of the years under examination. It is invariably important to make decisions, about which managers were unanimous in both 2017 (Grzybowska & Łupicka, 2017b) and 2020, as the result of the standard deviation indicates. Analyzing social competences, we can see a diversity of intercultural skills, foreign language skills, the ability to compromise, the ability to transfer knowledge, and finally the ability to adapt to change. Intercultural skills play an important role during the pandemic. Among other things, this may be due to the impossibility of meeting face-to-face during negotiations. In this case, the knowledge of individual cultures and customs allows the negotiation process to run smoothly without direct contact with trade partners. The same applies to knowledge of foreign languages when you must communicate online at any given time with a trader on the other hemisphere and there is no time to hire interpreters. The importance of adaptability to change also increased, which is obvious when companies must operate in an unstable economic environment. In the case of knowledge transfer, the importance of this competence has decreased significantly. Studies conducted in 2016 on knowledge conversion indicate the low level of knowledge transfer. If market or sociopolitical changes are more dynamic than the competences and capabilities of the participants in the system built, they will not survive in a turbulent market; hence the need for continuous development and learning of participants in supply chains (Grzybowska & Łupicka, 2017a). Earlier studies only confirm the results of the 2020 study, while the unchanging importance of leadership skills is also confirmed here in the unanimous response of managers.

2.4. Conclusions

The current situation on the global market indicates huge distortions in global supply chains. For example, the lack of availability of many drugs is only the so-called visible effect of the global disruption of supply chains caused by the pandemic. In addition, we have hidden effects with costs that have not yet been quantified. Certainly, one possible solution in the pharmaceutical sector will be the diversification of supply, and the existing single sourcing strategies will be replaced by multiple sourcing solutions. A good solution will be to monitor global supply chains, making greater use of blockchain technology, which allows real-time control of supplies, or artificial intelligence. With up-to-date knowledge of disruption, companies will control the allocation of stock. Another solution is to rewrite existing contracts with suppliers, save the possibility to terminate a contract in the case of unpredictable effects, e.g. force majeure, which gives the possibility to reduce costs and search for another supplier. This type of action will allow businesses to respond faster and more effectively in times of crises such as the covid-19 pandemic. In the past, there have been similar disruptions in supply chains such as earthquakes or volcanic eruptions, which caused many companies to realize that the disruption in one link of the supply chain affects the inability to deliver finished products to the final customer. Therefore, e.g. the automotive and pharmaceutical industries value risk management. In order to be able to meet such requirements, it is necessary to redefine the importance of technical, managerial, and social competences. Many companies created a new position of risk manager or creative manager. After the pandemic, pharmaceutical companies will face the challenge of how to expand their list of strategic raw material suppliers to reduce the risk of shortages in times of crisis. Research on the use of substitutes for raw materials that can be produced by local suppliers is likely to start, indicating the need for more creativity and entrepreneurial thinking.

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3. The impact of the crisis on the maintenance of sustainable development initiatives: A comparative analysis of local and international companies¹



Lukasz Malys

Poznań University of Economics and Business
Institute of International Business and Economics
Department of International Marketing
lukasz.malys@ue.poznan.pl

Abstract

Purpose: The aim of the chapter is to compare the declarations of local and international companies regarding the maintenance of sustainable development initiatives during a crisis.

Design/methodology/approach: The article presents the results of a survey conducted in September 2020 on a sample of 500 enterprises located in Poland. Respondents were asked to declare if they will maintain or abandon sustainable development initiatives in a crisis situation. The examples presented a pandemic similar to the one caused by Covid-19, an economic crisis, or a significant decrease in company revenues.

Findings: The research showed that the largest group of companies in a crisis situation will completely abandon their initiatives in the field of sustainable development. Another group will give up those initiatives that generate the highest cost. There are some small differences in responses of local and international companies. Companies with foreign entities in the ownership structure seems less likely to give up all initiatives in the field of sustainable development. International companies more often than local companies declare that they do not know which initiatives they will abandon and which will they keep.

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Research limitations/implications: Factors other than international involvement (e.g. company size, strategic approach to sustainable development) may have a decisive impact on decisions regarding the maintenance of sustainable development initiatives in a crisis.

Originality and value: The chapter illustrates the approach to sustainable development by companies classified into various categories: local and international.

Keywords: sustainable development, crisis.

3.1. Introduction

The concept of sustainable development is gained increasing popularity in the face of the challenges encountered by contemporary society. Its practical implementation is of particular interest to administrative bodies and various types of non-profit organizations (McDowall et al., 2017). In business circles, opinions on this subject seem divided; some companies have been implementing it successfully for years, while others claim that in the economic area, sustainable development generates more costs than benefits for companies (Carter & Rogers, 2008). In fact, each sustainable development activity generates both economic costs and benefits. The management of companies that understand the idea of sustainable development abandon initiatives for which costs exceed benefits. At the same time, when choosing alternative initiatives, they decide on those which offer the greatest net benefits. The management of companies that do not understand the idea of sustainable development perceive it in terms of social or environmental benefits, which for companies, however, are associated only with economic costs. This approach is considered short-sighted (Hoffman & Bazerman, 2007) as it may lead to the abandonment of important initiatives, especially in a crisis.

A crisis always requires companies to revise their operations. Adjustments should be made to handle the negative situation until a turning point allowing for further development is reached (Dubrovski, 2004). In practice, this may mean giving up some initiatives, in particular those least beneficial for the company (Valackienė & Virbickaitė, 2011).

The aim of this chapter is to compare the declarations of local and international companies regarding the maintenance of sustainable development initiatives in cases of crisis. Such a goal is aimed at verifying whether the management of any of the companies (local or international) understand the idea of sustainable development. The management of such companies should above all declare their willingness to maintain initiatives that bring the greatest benefits (or give up the ones which bring the least benefits).

3.2. Costs and benefits of sustainable development initiatives in companies

The most popular and frequently used definition of sustainable development was developed by the Brundtland Commission, according to which “sustainable development is the kind of development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (Brundtland, Khalid, Agnelli, Al-Athel, & Chidzero, 1987). However, as Carter and Rogers (2008) point out, by adopting a macroeconomic perspective this definition gives little guidance to individual organizations on how to implement the principles of sustainable development in practice. It also gives no indication of the role that individual organizations should play in the broader macroeconomic perspective.

The triple bottom line concept – linked with sustainable development – provides much more guidance for companies. It indicates the need to simultaneously take into account economic, environmental, and social goals (Eklington, 1998). This concept assumes that in an area that combines economic, environmental, and social results, there are activities that an organization can engage in and that are not only beneficial from the environmental and social point of view but also bring long-term economic benefits and can improve company competitiveness. However, we should emphasize that economic goals have always been part of company operations. Perhaps for this reason, in practice, sustainable development is often mistakenly equated with environmental protection and philanthropic activity. Thus, it is considered in companies mainly (or exclusively) in terms of economic costs, disregarding economic benefits.

The triple bottom line concept is still widely applied to operationalise sustainable development at the company level (Masocha & Fatoki, 2018). However, the most contemporary operationalizations of sustainable development at a company level add one more dimension, which is the governance domain (Osmundsen et al., 2020). The governance domain includes sustainability-related regulations on a public level, as well as norm and practices implemented in companies.

As emphasized by Hoffman and Bazerman (2007), we should recognize that initiatives beneficial from an environmental and social perspective sometimes are – and sometimes are not – beneficial from an economic perspective. In their opinion, realizing this fact facilitates the implementation of pro-environmental and pro-social initiatives, especially those that also bring net economic benefits. Each initiative in the field of sustainable development carries some economic costs; just like any other initiative. The management of companies that understand the essence of sustainable development should engage in those activities

for which benefits (mainly economic) exceed costs. Activities generating environmental or social benefits that simultaneously bring no economic benefits should be assessed negatively. In the long run, they may lead to a weakening of the competitive position and, as a result, make companies give up the idea of sustainable development at all.

3.3. Research methods and design

The quantitative research was conducted in September 2020 with the use of CATI (Computer-Assisted Telephone Interview) technique and a standardized survey questionnaire. A total of 500 randomly selected companies located in Poland participated in this study. The number of microenterprises in the pool was deliberately limited to 20% due to their lower expected involvement in sustainable development activities. The respondents were representatives of the top management of the companies.

The respondents were asked to indicate how their companies approach to sustainable development initiatives may change in crises. Examples of crisis situations indicated in the survey included a pandemic similar to the one caused by the SARS-CoV-2 virus, an economic crisis, or a significant drop in company revenues. The respondents were asked to select one of the following statements regarding sustainable development initiatives:

- in case of a crisis, we will probably completely abandon our initiatives;
- in case of a crisis, we will probably abandon some of the initiatives that generate the highest costs;
- in case of a crisis, we will probably abandon some of the initiatives that bring the least benefits;
- in case of a crisis, we will probably abandon some initiatives, but it is difficult to determine in advance which ones;
- in case of a crisis, we will probably not abandon any initiatives.

The aim of the research was to compare the declarations of local and international companies in this respect. The international companies were distinguished by three criteria: (1) having units (superior or subordinate) in the organisational structure located abroad, (2) generating sales on foreign markets, or (3) the participation of foreign entities in the ownership structure.

3.4. Research results

Out of the 500 companies covered by the study, 355 declared their involvement in activities in the field of sustainable development. Only the information obtained from these companies has been analyzed. In the first stage, the number of companies declaring a specific approach to sustainable development in crisis was compared without division into local and international companies (see Table 1). Let me emphasize that the statements suggesting a specific approach to sustainable development are not marked on the ordinal scale. They only allow for assigning companies to specific groups.

Table 1. The number of companies declaring a specific approach to maintaining initiatives in the field of sustainable development in a crisis

Statement	Number of responses
we will probably completely abandon our initiatives	149 (41.97%)
we will probably abandon some of the initiatives that generate the highest costs	112 (31.55%)
we will probably abandon some initiatives, but it is difficult to determine in advance which ones	63 (17.75%)
we will probably abandon some of the initiatives that bring the least benefits	17 (4.79%)
we will probably not abandon any initiatives	14 (3.94%)
Sum	355

Source: Own elaboration.

The largest group of respondents (149) declares complete abandonment of initiatives in the field of sustainable development in the face of a crisis. This means that the management of these companies were either unable to generate benefits by engaging in sustainable development activities or do not understand the essence of such activities and the benefits they should bring to companies. This clearly indicates the need for further work related to the development of the concept of sustainable development at the level of companies and their popularization. The declarations of the next largest group of respondents (112) should be assessed similarly, as they indicate resignation from those activities that bring the greatest costs. These companies seem to view sustainability initiatives mainly through the prism of their costs rather than their potential benefits.

Only 17 companies declare that in crisis they will resign from activities that bring the smallest benefits. It is an approach that shows the understanding of the essence of the sustainability concept, according to which some actions are beneficial to companies and some are not. A crisis requires a review of undertaken actions and the abandonment of those that bring the smallest net benefits.

The smallest group is comprised of 14 companies that declare they will not resign from any initiatives in the field of sustainable development in a crisis. There may be two reasons for such an approach. The first reason is that they have engaged only in sustainability initiatives beneficial for the company from the economic point of view. In such cases, the company may be willing to maintain them all in any situation. The second reason is the consideration of sustainable development as a priority and the company's overarching goal.

In the second stage, I sought to achieve the research goal, which was to compare the declarations of local and international companies regarding the maintenance of sustainable development initiatives in the face of a crisis. This was done by listing the responses in a crosstab. The table was generated using IBM Statistical Package for Social Sciences (SPSS). The groups of companies recognized as local and international were distinguished based on three criteria: (1) having units (superior or subordinate) in the organisational structure located abroad, (2) generating sales on foreign markets, or (3) the participation of foreign entities in the ownership structure. Due to the small number of companies that could be considered international when taking into account all three criteria at the same time, I decided to carry out the analysis separately for each criterion. Based on the criterion of organizational structure, two groups of companies were distinguished (see Table 2): without foreign units (local companies) and with foreign units (international companies). Out of 20 companies with foreign units in the organizational structure, 18 were Polish companies with subsidiaries on foreign markets, and two were subsidiaries of foreign companies. Based on the sales criterion, three groups of companies were distinguished: those that sell only on the local market (local companies), those that generate most sales on the local market and a minority on foreign markets (international companies), and those that generate sales on various markets without a dominating market (international companies). The reason for distinguishing the two groups of international companies according to the sales criterion was the willingness to verify whether there are differences in the declarations of companies generating sales on foreign markets for which the home market is dominant and those for which foreign markets are of equal importance to the home market. Based on the ownership structure criterion, two groups of companies were distinguished: fully owned by Polish entities (local companies) and fully or partially owned by foreign entities (international companies). Out of the 45 international companies distinguished based on this criterion, 25 were

entirely owned completely by foreign entities, while the remaining 20 were partially owned by the Polish entities.

The data presented in Table 2 show some differences in the declarations of local and international companies. Data analysis allows to indicate two regularities. First, more often than international ones, local companies distinguished under all three criteria declare that in a crisis they will abandon those activities in the field of sustainable development that bring the highest costs. The reason for such an approach may be the lack of understanding of the idea of sustainable development and treating initiatives in this area as a philanthropic activity, which on the one hand legitimizes the company's activity on the local market but, on the other hand, is a financial burden in the event of serious difficulties.

Table 2. Declarations of local and international companies regarding the maintenance of sustainable development initiatives in case of crisis

Company group	we will probably completely abandon our initiatives	we will probably abandon some of the initiatives that generate the highest costs	we will probably abandon some initiatives, but it is difficult to determine in advance which ones	we will probably abandon some of the initiatives that bring the least benefits	we will probably not abandon any initiatives
Organizational structure					
no foreign units in the organizational structure (N=335)	41.19%	32.54%	17.31%	5.07%	3.88%
	n=138	n=109	n=58	n=17	n=13
foreign units in the organizational structure (N=20)	55.00%	15.00%	25.00%	0.00%	5.00%
	n=11	n=3	n=5	n=0	n=1
Sales					
sales only on the local market (N=250)	42.40%	38.00%	10.40%	5.60%	3.60%
	n=106	n=95	n=26	n=14	n=9
most of sales generated on the local market, a minority on foreign markets (N=74)	37.84%	18.92%	35.14%	2.70%	5.41%
	n=28	n=14	n=26	n=2	n=4
evenly generated global or international sales (N=31)	48.39%	9.68%	35.48%	3.23%	3.23%
	n=15	n=3	n=11	n=1	n=1

Table 2 cont.

Company group	we will probably completely abandon our initiatives	we will probably abandon some of the initiatives that generate the highest costs	we will probably abandon some initiatives, but it is difficult to determine in advance which ones	we will probably abandon some of the initiatives that bring the least benefits	we will probably not abandon any initiatives
Ownership structure					
only local entities in the ownership structure (N=310)	43.23%	31.94%	16.45%	4.52%	3.87%
	n=134	n=99	n=51	n=14	n=12
foreign entities in the ownership structure (N=45)	33.33%	28.89%	26.67%	6.67%	4.44%
	n=15	n=13	n=12	n=3	n=2

Notes: N – the number of companies in each group; n – the number of responses regarding the specific result.

Source: Own elaboration.

The second of the identified regularities is that – more often than local ones – international companies are unable to indicate which activities in the field of sustainable development they will give up and which ones will they maintain in a crisis. Interpreting this phenomenon is difficult without additional information. This may result from greater volatility of the international environment, greater diversity of stakeholders influencing the international companies' decisions, or greater difficulties in determining the benefits of undertaken initiatives.

3.5. Conclusions

The aim of the research was to compare the declarations of local and international companies regarding the maintenance of sustainable development initiatives in case of crisis. Examples of crisis situations indicated in the survey included a pandemic similar to the one caused by the SARS-CoV-2 virus, an economic crisis, or a significant drop in company revenues. The timing of the research (September 2020) allowed companies to gather information on the functioning and actions taken during the pandemic.

The analysis of the responses of all companies – without any breakdown into local and international ones – clearly shows the need for further efforts to educate companies about the importance and role of sustainable development. The essence

of this concept seems to be understood by only the last two groups of respondents, which together constitute less than 10% of all entities declaring involvement in activities in the field of sustainable development.

It is difficult to draw unequivocal conclusions by comparing the responses of local and international companies. As indicated in the previous sub-chapter, there are some differences in the declaration of local and international companies, but they may be accidental. More often than international ones, local companies declare resignation from those initiatives in the field of sustainable development that bring the greatest costs, which seems to indicate a misunderstanding of the idea of sustainable development. However, this may be also due to their prioritization of cost reduction in a crisis rather than a particular approach to (or the lack of understanding of) sustainable development. The qualitative research on a group of such companies may be decisive in this respect.

The fact that international companies more often than local companies indicate that they do not know which initiatives in the field of sustainable development they will give up in a crisis causes major difficulties in interpretation. This may result from the greater complexity of the environment and the forces operating within the organization, which make it difficult to predict the behavior in this area.

Based on the conducted analysis, a conclusion can be drawn that there is a need for further, in-depth research aimed at answering the questions:

- 1) Why do local companies more often than international companies declare that in a crisis they will give up those initiatives in the field of sustainable development that generate the highest costs?
- 2) Why are international companies more often than local companies unable to determine what kind of sustainable development initiatives they will give up in a crisis?

Let me emphasize that factors other than international involvement may have a decisive impact on decisions regarding the maintenance of sustainable development initiatives in a crisis (e.g. company size, reasons for implementing sustainable development activities, strategic approach to such activities in the company). The verification of their impact was not the aim of this chapter, but it will allow for a more complete understanding of the analyzed phenomenon.

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4. Women's entrepreneurship in the Covid-19 pandemic



Alicja Hadryś

Poznań University of Economics and Business
Institute of International Business and Economics
Department of International Management
alicja.hadrys@ue.poznan.pl

Abstract

Purpose: The main goal of the chapter was to shed light on the challenges that women entrepreneurs face during the Covid-19 pandemic and answer how women entrepreneurs reorient their businesses in this situation.

Design/methodology/approach: The study used secondary data (literature and reports), along with direct interviews with women entrepreneurs located in Poland.

Findings: The Covid-19 pandemic and the ensuing disruption have disproportionately impacted women. In the near future, women will experience increased unemployment and household responsibilities, along with the exacerbation of social injustice. At the same time, the Covid-19 pandemic catalyzed changes. The findings indicate that some women entrepreneurs aggressively adapted their businesses to resist the short-term impact of the Covid-19 pandemic. There appeared acceptance for remote work models, acceleration in the use of digital channels on both the demand and the supply side, and a shift toward digital over physical interactions, all of which have the potential to level the playing field, especially for women entrepreneurs.

Research limitations/implications: Further research in this area should focus on the effects of protracted restrictions on doing business and the growing problems associated with managing a pandemic.

Originality and value: The study adds a new dimension to entrepreneurship considerations by recognizing that gender issues are rarely considered in times of crises of economies.

Keywords: women's entrepreneurship, female entrepreneurship, Covid-19 pandemic crisis.

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4.1. Introduction

'As with many things, the pandemic will reveal many things about the American economy and shape its future. This Covid-induced "she-cession" has important implications' (The Hill, 2020). The above seems to be true not only for American economy. While the Covid-19 pandemic is still making news headlines every day, data and research results are emerging about the negative effects of over 100 days of closure of schools, businesses, and public services on women entrepreneurs in most parts of the world. The prevailing global coronavirus pandemic is having a great impact on the economy. Many companies recorded declines; other go bankrupt. The world has been fighting the coronavirus pandemic for over a year. In the fall, the second wave of mediating the disease emerged, and along with it there appeared new restrictions. There is no denying that the economy around the world is suffering from the pandemic. The most vulnerable are B2C (business to client) businesses, mainly providing gastronomic, hotel, and tourist services. Even if someone managed to survive the first wave of the pandemic, they now face another challenge. Many governments have introduced new restrictions, which is again associated with the struggle for the survival of companies.

To date, very few studies focus specifically on gender differences in business recovery or business model reorientation following natural disasters or economic shocks (Li, Wang, & Jin, 2020; Marshall, Niehm, & Sydnor, 2015; Young, Greenbaum, & Dormady, 2017). Some suggest that women and men respond differently to stress and external shocks by managing their firms differently (Bradshaw, 2013; Young et al., 2017), while others argue that gender differences in survival are better explained by the different types of businesses that men and women own and manage (Fothergill, 1996; Kalnins & Williams, 2014; Marshall et al., 2015). In a study of firms recovering from Hurricane Andrew, Morrow, and Enarson (1996) found that women-owned businesses experienced effects that were more adverse during the recovery period. Li et al. (2019) found that after the 2008 Wenchuan earthquake in New Beichuan, China, male business owners were more likely to successfully continue their businesses than female owners. Marshall et al. (2015) found that following Hurricane Katrina, businesses owned by women were more likely to fail than those owned by men, and that larger and older businesses, service-based businesses, and those run by owners with more industry experience and prior disaster experience were less likely to fail. One study concludes that following the 2008 financial crisis, women entrepreneurs dealt with the resulting recession in a defensive manner, while men adopted an offensive approach (Cesaroni, Sentuti, & Buratti, 2015). Another study of the global financial crisis found that the demand for bank loans was lower among women but they were more successful, concluding that feminized risk aversion might result in a more conservative approach

(Cowling, Marlow, & Liu, 2019). Thus, prior research suggests that women tend to be more adversely affected by economic downturns and natural disasters and are more likely to adopt a defensive crisis response stance. *The State of Women's Entrepreneurship in Canada* (2020) presents findings that also show difference between women- and men-run companies. Female entrepreneurs are more likely to be found in service industries than in manufacturing or technology. These sectors are bearing the brunt of disruption. Women entrepreneurs are more likely to assume childcare, homeschooling and domestic responsibilities than male entrepreneurs, which significantly impacts their productivity, stress levels, and health. Before the Covid-19 pandemic, access to affordable childcare was identified as a critical need particularly for lower income women. During the Covid-19 pandemic, virtually all women entrepreneurs, regardless of their socioeconomic status, are disadvantaged by the additional childcare and household burdens as money cannot buy the support they need. Women-owned businesses tend to be smaller, with fewer employees, and are less likely to be incorporated. The trajectory of female entrepreneurs is different than that of males. While women account for a disproportionate number of new start-ups, they are more likely to become self-employed or launch an SME from non-employment than men, who are more likely to launch from employment. Women are more likely to self-finance their businesses or rely on government grants and are less likely to have financing. There is some evidence that female entrepreneurs thrive in different environments and with different types of support better than male entrepreneurs. Research shows this to be true regarding e.g. women's access to incubators, mentors, advisors, training needs and general business supports. Not only are there often different considerations because of the structures of inequality (e.g. childcare) but the socialization of women, the gendered nature of entrepreneurship, the lack of role models, and the confidence gap also mean that the form of support must be adapted to women's needs. Taking the above into consideration, this chapter seeks to shed light on the challenges that women entrepreneurs face during the Covid-19 pandemic and answer how they reorient their businesses in this situation.

4.2. Challenges that women entrepreneurs face during the Covid-19 pandemic

The Covid-19 pandemic and the ensuing disruption has disproportionately impacted women (UN Women, 2020; WE Forum, 2020; Werner, 2020). Women are currently experiencing increased unemployment and household responsibilities, but also an exacerbation of social injustices. Most female businesses suffer in the pandemic, sometimes due to the industry type, sometimes due to mismanagement and

the lack of reaction to the current situation, sometimes due to the lack of financial liquidity. The World Bank's Africa Gender Innovation Lab (World Bank, 2020) has recently presented a global research focusing on identifying and addressing gender-based constraints. In a collaboration with Facebook, the OECD, and the World Bank, data from 26,000 business owners and managers were collected from May 28–31 from 50 countries. It is the first analysis out of a series of six Facebook Future of Business Covid-19 Surveys. The study shows that businesses run by women were hit the hardest in the pandemic. According to the report, women's businesses more often recorded a decline in sales compared to last year than men's businesses. During the pandemic, it is mainly women who face the difficult task of reconciling work with caring for children who switch to homeschooling. The Facebook report also shows that companies run by women were more likely to experience job cuts as a result of the coronavirus pandemic (24%) than businesses run by men (13%). The gender gap also appears in business closures by region, with women-led businesses closing at a higher rate in every region around the world. Globally, female-owned businesses were 5.9 p.p. more likely to close than male-owned businesses, when controlling for region. *The State of Small Business* (OECD, 2020) also finds that many more women are not optimistic about their future. When the survey was launched in May 2020, 61% of women looked hopeful, now the figure has dropped below 50%. Even though men have a much more positive attitude about the future, according to the report, women are more likely to shift their activities to the Internet.

The Covid-19 pandemic is unique in the severity of its impact as it is a humanitarian disaster that has caused a shock both to supply and demand in the global economic system. The pandemic has disproportionately affected women entrepreneurs as their businesses are younger and smaller. Moreover, it has caused the following three major challenges for women entrepreneurs:

- the industries where most women operate have been disproportionately affected by the recession;
- women are more likely to run many of the youngest, smallest, and most vulnerable businesses;
- with schools closed and elderly family members under threat, women are more likely to be juggling primary caregiving and homemaking, while they are scrambling to save their businesses.

Recently, WEConnect International (2020) presented its survey results about the impact of Covid-19 on women-led businesses. With 590 global women-run companies surveyed in April 2020, 87% unsurprisingly responded to have been impacted negatively by the Covid-19 pandemic. WEConnect International is conducting quarterly surveys over the course of one year to understand the scope and

nature of the impact of Covid-19 on women business owners and their companies worldwide. It comes as no surprise that those working in the field of tourism and hospitality are in the most difficult situation, losing possibly up to 40% of their annual income this year. Trade and personal services are also among the most affected sectors - business owners in these areas expect an average revenue loss of 25–35% by 2020. However, female entrepreneurs in education and health care have been more affected by the pandemic than the sector as a whole, presumably because their companies operate in the private sector, in which activities had to be canceled due to the pandemic. Some of the other challenges faced by women entrepreneurs during the pandemic include: cancellations of contracts, the need to use own savings to rescue the business, delays in payments for products or services already provided, thinning margins, problems with covering operational costs such as rent, problems with paying employees, delays in pledged contracts, the inability to apply for/receive loans, investments or other capital, buyers extending payment terms, increased cost of inputs (products or services), or the lack of access to necessary inputs (products or services). However, some findings show that women are reorienting and adapting their businesses to the pandemic. Some were able to optimize or refocus their businesses, e.g. by cutting unnecessary expenses, shifting to a digital business model, responding to current local or global needs and new opportunities, including Covid-19-related goods or services.

4.3. The bright side: How women adopt to the new market situation?

Women entrepreneurs reacted in many ways to the pandemic and the ensuing crisis. In addition to the difficulties, several reported effects that could strengthen their businesses in the long run, such as introducing new products, expanding online sales or exploring new markets. Some businesswomen reshaped their activities or introduced new ones by developing online sales, reducing their working hours, performing maintenance tasks and training employees, which appeared as the most common and important structural changes in their businesses. The least used measures were cutbacks and sending employees on (paid or unpaid) leave. According to the Diana International Research Institute (DIRI, 2020) – which conducted a series of surveys on female entrepreneurs' response to the Covid-19 pandemic, offering several directions for further research into business model reorientation in response to complex exogenous shocks – business model shifts include new products or services (60% of the respondents), digital sales and delivery channels (35%), along with a reoriented supply chain as well as sales and marketing functioning (26%). Entrepreneurs also focused on retraining themselves

and their staff by learning new skills (46%) to adapt to this change. Actions taken by women entrepreneurs are presented in Table 1 below.

Table 1. Actions taken in response to the Covid-19-related crisis

Response	% of women entrepreneurs
Deferring or reducing executive pay	39.5
Delaying payment for all or part of vendor bills and loan obligations	36
Reducing employee hours	25.6
Closing the business permanently	20.9
Putting workers on furlough	18.6
Laying off employees	16.3
Reducing employee pay	14
Closing the business temporarily	4.7
Considering alternative types of incentive compensation	7
Other: moving, new offerings, Covid-19 support, unemployment filings, outside income, rehiring vendors at lower rate	19.8

Source: Own elaboration of (Diana International Research Institute's survey [DIRI], 2020).

Women reoriented their business models in three dimensions: skillsets, operations and technology. Female entrepreneurs began to seek new funding sources and introduce crisis planning practices. In response to the crisis caused by the Covid-19 pandemic there appeared permanent business model adjustments, like offering new products or services, marketing/promoting in a different way, streaming classes or services, or offering virtual office visits. According to the mentioned WEConnect International (2020), women adapted to optimize or refocus their businesses quite quickly: 62% identified and cut unnecessary expenses, 43% shifted to a digital business model, 42% created a new business line in response to local or global needs, 41% began growing an area of business in response to local or global needs, 35% identified new business opportunities, 24% launched a new product or service early, 10% saw an increase in demand for products or services, 8% found that clients want to finish projects more quickly, and 5% wanted to sign contracts more quickly.

I conducted nine online interviews with women entrepreneurs located in Poland. The main question was: How women entrepreneurs have reoriented their business models in response to the Covid-19 pandemic? The interviews lasted approximately

30–45 minutes. The online communicator Skype was used to conduct them. The women entrepreneurs represented nine different businesses: a grocery store owner, coaching company owner, fashion house owner, bakery owner, fitness instructor, video campaigns maker, dance instructor, business advisor and a beauty clinic owner.

The owner of a beauty clinic created and then opened a new brand called *profesjonalnekremy.pl* (professional creams). This is an online shop with professional skin cosmetics that you can only buy through beauty salons and professional clinics. The business advisory entrepreneur opened an online consultancy service and focused only on one target group: working mothers who own businesses, as the segment that suffered the most during the pandemic. Her company started not only to advise but also conduct business processes that were neglected due to the need of looking after children as a result of closing schools. The dance school owner started to give online courses. What distinguishes her classes are personalized videos, text messages, and cards to students. The owner of a marketing company specialized in making video campaigns redesigned her business model from making videos to teaching how to make a good video. She uses online tools to teach her clients. The fitness instructor reskilled staff for conducting online classes and reoriented the trainings to more at-home equipment-free workouts. She introduced sharing quick and healthy recipes for meals and shifted to online at-home workouts with video sessions and group chats. The bakery owner trained herself and her employees to prepare immunity boosting variants of chocolates. She targeted driving sales to nearby hyper-local communities, owing to the underlying trust factor, and she offered online baking classes. The owner of a fashion house trained artists on modeling and creating content from home. She schooled factory workers about social distancing norms. She reoriented to an online business-to-customer selling model by forging an ‘on-demand’ partnership with photographers and models. Moreover, she also adopted online commerce support platforms and bolstered customer engagement through social media platforms. The owner of a coaching company reskilled her staff to conduct online classes. She acquired new students online and conducted online examinations. She also shifted end-to-end interactions with students to digital interactions by using video sessions and group chats. Last but not least, the grocery store owner trained frontline store employees to become delivery agents and virtually address consumer queries. She redesigned store operations to maintain social distancing and hygiene norms and managed to leverage video calls to address customer queries and receive orders.

What we can see from this survey is that these nine women entrepreneurs have made business model adjustments in terms of skillset, operations and technology (see Table 2). Technology, especially using on-line platforms, seems to be the dominant form in adapting to sudden changes caused by the Covid-19 pandemic. To be able to take advantage of introducing new technologies it is certainly necessary to acquire new skills and knowledge.

Table 2. Actions taken by surveyed women entrepreneurs

	Skillset	Operations	Technology
Beauty clinic	X	X	X
Business advisory	X		X
Dance school owner (dance instructor)	X		X
Video campaigns maker	X	X	X
Fitness instructor	X	X	X
Bakery store		X	X
Fashion house	X	X	X
Coaching company	X		X
Grocery store	X		X

Source: Own elaboration.

4.4. Conclusions

The Covid-19 pandemic and the ensuing disruption have disproportionately impacted women. In the near future, women will experience increased unemployment and household responsibilities along with an exacerbation of social injustices. At the same time, the Covid-19 pandemic catalyzed changes. As exemplified by the case descriptions above, some women entrepreneurs aggressively adapted their businesses to resist the short-term impact of the Covid-19 pandemic. There appeared acceptance for remote working models, acceleration in the use of digital channels on both the demand and the supply side, and a shift toward digital over physical interactions, all of which have the potential to level the playing field, especially for women entrepreneurs. Numerous articles address how women cope with the difficulties of the coronavirus pandemic. In this chapter, I focused on the challenges that women entrepreneurs face during the Covid-19 pandemic because most female entrepreneurs have been negatively impacted by it. On the other hand, there is also the 'bright side' of the current situation, which shows how women entrepreneurs reoriented their businesses in terms of reskilling people, reengineering processes, and revamping technology. Further research in this area should focus on the effects of protracted restrictions on doing business and the growing problems associated with managing the pandemic.

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5. Challenges in currency derivatives management in the OTC market in Poland during the Covid-19 pandemic



Piotr Wybieralski

Poznań University of Economics and Business
Institute of International Business and Economics
Department of International Finance
piotr.wybieralski@ue.poznan.pl

Abstract

Purpose: The aim of the chapter is to analyze the impact of the Covid-19 pandemic and market volatility increase on risk management in the OTC derivatives market in Poland.

Design/methodology/approach: The chapter describes the legal background of derivatives trading with non-financial enterprises, then identifies the main risks, and discusses possible actions of market participants. In this regard, the study conducts volatility analysis based on selected market data.

Findings: Due to volatility increase and the resulting negative valuation of non-matured currency derivatives by Polish exporters, margin call clauses were triggered, entailing the need to post additional collateral or prematurely close contracts. The described situation is particularly difficult when the pre-settlement limit is fully utilized on deal date, usually in the case of long-lasting large open exposures in non-flexible transactions.

Research implications: To determine market risk, studies often apply the VaR approach. In this way, the specific amount of risk is analyzed on a daily basis and used by banks both to determine the maximum amount of the contract and to control pre-settlement risk. Apart from many advantages of the VaR approach, there are some drawbacks, especially related to volatility estimation, which usually relies on historical market fluctuations. It may cause that the risk will not be properly valued under crisis conditions. In such situations, supplementary methods should be also implemented (stress tests).

Suggested citation

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Practical implications: Under high market volatility, preventive actions should be prepared in advance, including treasury limit increase, additional funds for collaterals, or contracts modification (flexible products should be considered).

Originality and value: The study covers a challenge that banks face, which is rarely described in professional literature but very serious for bank management. Under normal market conditions, if the margin call clause appears and no additional collateral is posted, the transaction should be closed to limit the counterparty's loss. However, this type of action during the pandemic may impose the risk of force majeure. From the company perspective, using such instruments threatens their early settlement and the need to finance closeout amount.

Keywords: currency risk management, OTC derivatives, pre-settlement limits.

5.1. Introduction

The coronavirus outbreak resulted in volatility increase of financial instruments in many markets, including the currency market. The PLN value dropped sharply against main currencies in a short period of time thus complicating the market risk estimation even more, not to mention deepening the negative value of already concluded derivatives for the sale of foreign currencies¹ (applies to contracts performed by Polish exporters, mainly on the EUR/PLN currency pair). Due to negative derivatives valuation, the use of required collaterals in the OTC market increased. In many cases, margin call clauses were triggered, entailing the need to post additional collateral to supplement the required collateral. While the issue is quite well recognized in the literature on financial risk, it remains a practical challenge, especially in times of the pandemic.

The literature on market risk estimation indicates the shortcomings of various approaches based on historical fluctuations used to project future changes (such as VaR, see Best, 2000), hence some indicate the need to apply additional supplementary methods (such as stress testing, see e.g. Committee of European Banking Supervisors, 2009; Bank for International Settlements, 2010; European Banking Authority, 2018). Under normal market conditions when the treasury limits are fully utilized, the margin call clause appears and if additional collateral is not posted, the transaction should be prematurely closed and cleared. This action is aimed to limit the counterparty's loss from currency derivatives to the amount of the established treasury limit. However, this type of action during the pandemic may impose the risk of effective force majeure in a possible lawsuit for payment. In such a situation, management dilemmas emerge whether to close the transaction prematurely unilaterally and expose oneself to reputational risk – we consider here a public trust institution – and potential lawsuits or whether to risk a huge loss

¹ In line with the payoff diagram for short position in forward contract.

without closing the transaction in the event of further PLN weakening and deepening of the negative contracts value. How much is the institution able to accept when the market volatility increases even more? That also depends on the financial situation of the counterparty, transaction type, tenor, and complexity.

On the other hand, from the perspective of a company using the instruments in question to manage exchange rate risk, there is an increase in emotions due to the real threat of their early settlement in this situation and the need to immediately finance exchange rate differences (closeout amount). In crisis conditions, the company usually lacks funds for the day-to-day operations, not to mention resources for additional contracts collaterals. A financial institution is responsible for derivatives valuation notification, but a forced closing of the transaction is arbitrary and highly problematic for both parties, as it may initiate an enterprise bankruptcy process, and this is not what an institution bestowed with public trust is expected to do in crisis times.

The study discusses the issue in detail and presents selected activities undertaken by Polish commercial banks in this regard in the period of March to November 2020.

5.2. Pre-settlement and settlement risk

A financial institution allowing currency derivatives trading considers at least two risk types in risk management processes, namely pre-settlement and settlement risk (see Wybieralski, 2013). The key role in this distinction plays the timing when a specific type of risk arises. Thus, the pre-settlement risk is related to the period starting from the trade date (deal date) to the agreed settlement date (value date), while the settlement risk relates only to the cash flows at the contract maturity date. The settlement risk is defined as the possible loss that a given institution concluding currency derivatives is exposed to on a settlement day. This risk is mitigated by making the transaction settlement on value date conditional, namely the settlement depends on the provision of appropriate funds on the bank's client account in the first place; what applies here is the delivery vs. payment principle.² On the other hand, pre-settlement risk is defined as the potential loss of a financial institution over the lifetime of a certain contract. The loss results from a transaction value decline due to fluctuations in market exchange rates. This risk is usually managed by setting a collateral in different forms. It can be e.g. any securities or cash in the form of initial and variation margins. The bank can also grant a pre-settlement treasury limit (the same type as for regular credits: secured or unsecured

² The bank may also offer a settlement limit.

ones).³ Market fluctuations affect the concluded forward contracts in positive or negative way. In the case of pre-settlement risk management, an unfavorable valuation scenario is primarily analyzed, very often using the VaR method. First, to assess the risk associated with a planned transaction, one must estimate the volatility range of underlying assets in a given time frame; in the period from the conclusion to the maturity date. In practice, financial institutions using various methods of estimating market volatility determine the margin rates⁴ that reflect potential variability over time with a given confidence level (often 95–99%). We may notice that margin rates usually differ among individual institutions, which is mainly due to the different method of volatility estimation (see Figure 1).

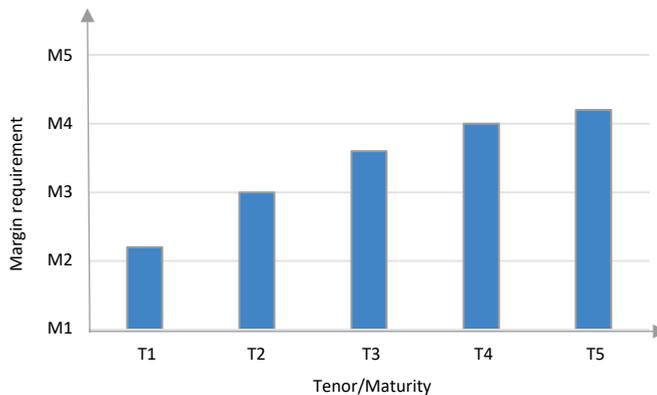


Figure 1. Margin requirement depending on contract's tenor

Source: Own elaboration.

Nevertheless, the margin rates usually increase for contracts with longer maturity (tenor), assuming that the volatility in longer time frames may be higher than in shorter ones. The multiplication of the notional contract value and margin rate determines the VaR amount. The VaR amount calculated this way uses (reduces) the amount of the granted treasury limit, therefore restricting the possibility of opening new exposures in derivatives at the same time. After conclusion, the contract's present value is constantly updated (Mark-to-Market). Moreover, market

³ Bankers very often subtract the amount of default risk from client's total approved credit and grant so-called treasury limits to deal with this exposure (for more information on treasury limits see Rekomendacja A). Under the ISDA Master Agreement, a Credit Support Annex is signed that regulates and defines the credit support (collateral) for OTC derivatives. A threshold amount is indicated that is the reference value of the Mark-to-Market of contract above which collateral has to be posted. In other words, the threshold amount is the level of unsecured exposure each counterparty will allow the other before any margin call is made (Deloitte, 2018).

⁴ Or risk factors or margin requirements or margin parameters.

valuation affects the treasury limit utilization positively or negatively. Therefore, both the potential loss (based on VaR approach) and the present value of all outstanding contracts jointly determine the value of pre-settlement risk, and they are reflected in the treasury limit utilization. Due to this mechanism, one may manage the nominal exposure of the transaction and the risk as well. Considering the free amount of treasury limit and appropriate margin rates, the maximum exposure in forward contract can be determined. On the other hand, the margin call clause should be triggered at the latest when the current valuation of all outstanding transactions reaches the level of the treasury limit amount.

5.3. General terms and conditions of the bank's cooperation on derivatives with a non-financial enterprise

A prerequisite for concluding a transaction usually means the opening by the bank's counterparty of a settlement account and signing the applicable master or individual agreement for cash and derivative transactions (along with familiarization with relevant documents, see Wybieralski, 2016). The transaction conclusion occurs when there is agreement on key parameters of the contract such as the type of transaction, base currency purchase/sale, base and non-base currency amounts, settlement day, and forward rate.⁵ The payments resulting from the concluded transactions are settled by debiting or crediting the settlement account to which the bank is granted a relevant power of attorney. If there are insufficient funds on the settlement account on the settlement date, the bank may debit the current account causing overdraft (or make a deduction from the amount of the established collateral or settle it against the loan granted by a separate agreement). In order to calculate the transaction collateral or determine the compensation amount for non-matured liabilities as part of early termination of agreement or transaction, the bank values the net present value of the transaction portfolio based on the current market prices. The valuation amount is usually determined using one of the following methods: (i) net present value of all outstanding contracts (equal to the sum of discounted nominal values of receivables and liabilities arising from the transaction portfolio), or (ii) the value of reverse transactions concluded on the valuation date in order to close a position under the transaction portfolio, provided that such transactions may be concluded on the valuation date. In order to mitigate the risk resulting from transactions concluded with the client, the bank reserves the right to request the counterparty at

⁵ The products availability is based on the result of suitability assessment questionnaire conducted in accordance with MIFID II (see Dyrektywa 2014/65/UE, Rozporządzenie 600/2014, Rozporządzenie 2017/565).

any time to establish appropriate collateral and to provide additional collateral up to the value of the required collateral. The required collateral amount is set in PLN and should cover both negative net present value of all outstanding contracts (MtM) and risk value indicated by the VaR amount. On the other hand, the pre-settlement limit amount reduces the required collateral. However, if the negative value of all outstanding transactions amounts to the pre-settlement limit amount and there is no additional collateral deposited, the transaction should be prematurely closed. The bank sets the treasury limit amount upon financial and legal analysis of client's situation. Usually, bank reserves itself the right to change the limit of the amount at any time in the event of a change in the financial and legal situation of the client. If the bank does not set a limit for the customer then for the purposes of calculating the collateral, it is assumed that the limit amount is zero. A customer who has at least one non-matured transaction receives a report on collaterals at least once a month, which contains the value of the customer's collateral in PLN.

5.4. Market volatility increase as a result of the Covid-19 pandemic and its consequences

The margin call clause execution is especially difficult during the pandemic because in most agreements and general terms describing both parties cooperation, there is often a point indicating possible actions under force majeure. In the event of force majeure in which the parties will be unable to perform obligations resulting from transactions concluded due to circumstances for which the parties are not responsible, the transaction becomes invalid or its execution would result in violation of law. The affected party usually has the right to withhold the settlement of mutual considerations arising from the transaction.

On March 20, 2020, an ordinance of the Polish Minister of Health on the announcement of the pandemic in Poland in connection with SARS-CoV-2 virus was published (Rozporządzenie, 2020).⁶ On the financial market, the outbreak of the pandemic resulted in the weakening of the Polish zloty at that time, among others on the EUR/PLN currency pair, and an increase in market volatility (measured by Moving Standard Deviation or Average True Range). In the currency options, the market-implied volatility increased, which indicated specific expectations of market participants regarding future fluctuations (see Figure 2 and 3).

⁶ This regulation introduced various types of restrictions and orders. The former concerned the way of moving, prohibiting the sale of certain items (i.e. masks, goggles), along with the functioning of certain institutions or workplaces, organizing shows, and other gatherings of people. The order concerned the provision of real estate and land provided for by anti-epidemic plans.

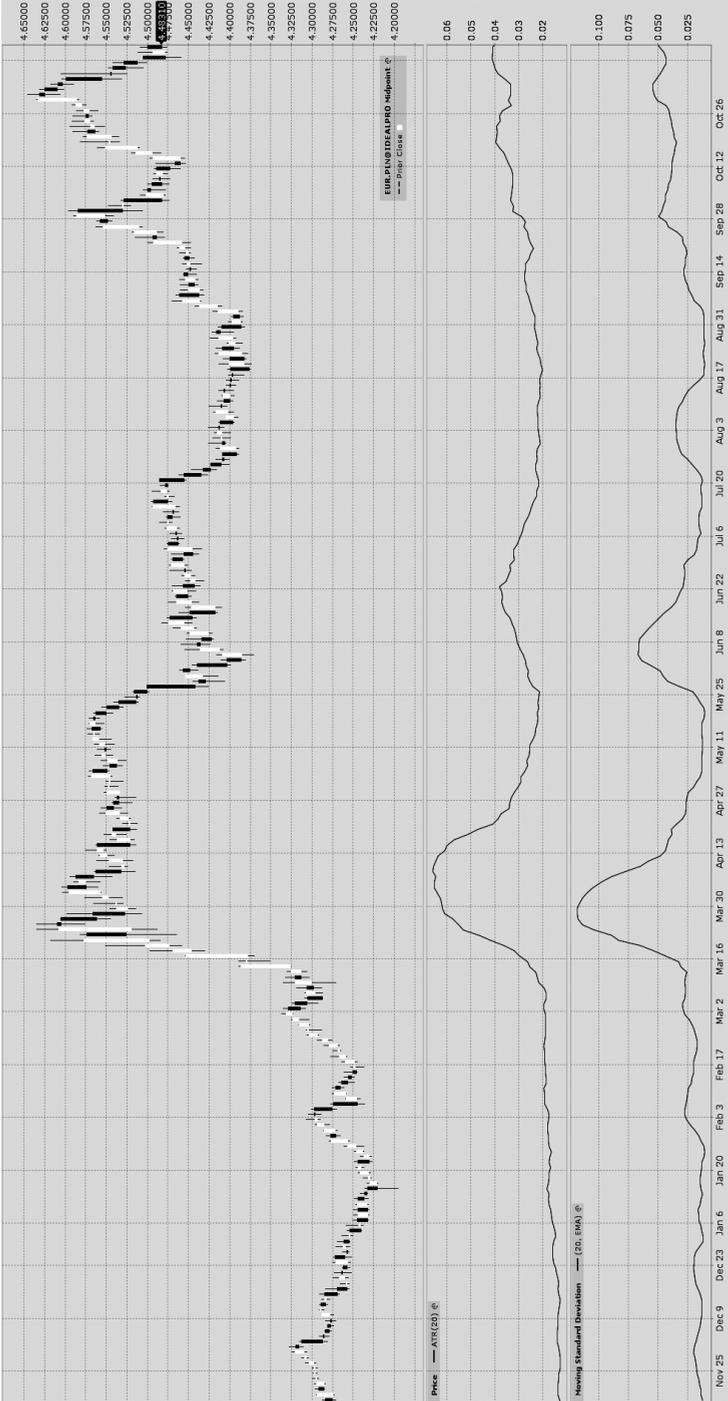


Figure 2. EUR/PLN, daily candlesticks, 2019/11/16–2020/11/16
Source: Own elaboration of data from interactivebrokers.com.

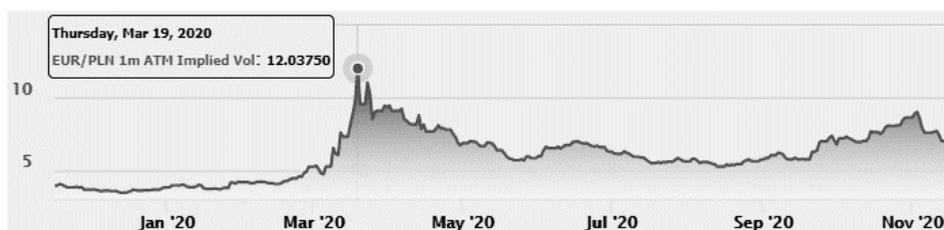


Figure 3. EUR/PLN 1M ATM Implied Volatility (2019/11/16–2020/11/16)

Source: Own elaboration of data from IPA Data Monitor (www.superderivatives.com).

A noticeable increase in market volatility as a result of the Covid-19 pandemic outbreak triggered the margin call clause for selected banks's clients. The mentioned issue concerns entrepreneurs selling foreign currency in forward contracts, i.e. Polish exporters, concluding especially long-term non-flexible transactions or involving asymmetric contracts. Due to the volatility increase in the FX market, the treasury limit was fully utilized in the case of selected customers of Polish banks. They received notifications on contracts valuation and reports on collaterals that pointed out the need to provide additional collateral and supplement the required collateral (margin call clause appears). This is a situation recognized in the literature but, in practice, it is always challenging. Similar problems appeared in the financial crisis of 2008–2009, but that crisis was derived from financial market and the current one stems from health endangerment (Sobański, 2020). However, the problem is the same, namely how to proceed in the case of no response to the margin call under a force majeure event. In financial institutions that enable currency risk management with derivatives under increased market volatility, additional measures have been taken, in particular:

- the suspension of decisions regarding the forced/early closure of transactions in the case of failure to deliver eligible collateral in time or no additional collateral posted;
- the daily notification of collaterals report;
- the acceptance of partial supplementation of the collateral required in cash;
- applying for the increase of the pre-settlement limit amount;
- the analysis of the client's financial situation based on current data;
- monitoring the method of transaction settlement (net/gross mode);
- allowing unsettled transactions to be postponed (roll over);
- conversion to flexible transactions (enabling participation in positive market developments).

The activities of a general nature also include updating the margin rates/risk factors that result in an increase in the higher requirements of collateral for new and existing transactions.

5.5. Conclusions

Foreign exchange risk management – both in banks and non-financial enterprises – is particularly important under increased/high market volatility, and it is additionally complicated in the longer time frame. Hence, it is important to remember about possible challenges and discuss the mechanisms that may arise in the OTC market, especially during the pandemic.

In order to determine the amount of pre-settlement risk related to concluded transactions, both estimated volatility and present value of non-matured contracts are taken into account. Calculated this way, the amount of risk is analyzed daily. The mechanism is used in banks both to set the maximum amount of the contract and to control pre-settlement risk. There are many advantages of discussed mechanism however there are also some drawbacks especially related to the estimation of future volatility. Usually the estimation of this parameter is based to some extent on historical data, assuming repetition in the future. This means that in crisis conditions characterized by higher volatility, the risk will probably not be properly valued. The described situation is particularly difficult when the pre-settlement limit is fully utilized on deal date; usually in the case of a long-lasting large open exposure in transactions with fixed prices. Hence, it is always worth carrying out an additional sensitive analysis in search for exchange rates at which the available treasury limit will be fully used and the margin call clause would appear. Then, different preventive actions can be prepared in advance, including the application for a treasury limit increase, the preparation of funds to provide additional collaterals, or the partial modification of already concluded contracts. Appropriate currency risk management in financial instruments selection is particularly important. In this context, flexible products – that allow for participation in positive market developments – characterized by a different risk profile and lower impact on treasury limit utilization should be particularly considered. While there is a provision in master agreements regarding additional collaterals posting when margin call appears, there is usually an exception concerning a force majeure event. This should be taken also into account, especially under crisis conditions such as a pandemic outbreak.

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6. Donation crowdfunding as a source of relief for small businesses



Marcin Wiczerzycki

Poznań University of Economics and Business
Institute of International Business and Economics
Department of International Marketing
marcin.wiczerzycki@ue.poznan.pl

Abstract

Purpose: The purpose of this chapter is to examine advantages and limitations of donation crowdfunding as a way of providing relief for small businesses and assessing its potential development in that field in the post-pandemic future.

Design/methodology/approach: The chapter is based on critical literature analysis, supported by empirical examples for illustrative purposes.

Findings: Donation crowdfunding can be a viable way of providing relief to small companies during the times of crisis, by positioning companies as beneficiaries of charitable endeavors carried out by consumers.

Practical implications: Companies ability to trigger altruistic responses in their consumers is an important information in times of crises. Moreover, the information serves as an additional argument for building meaningful relationships with consumers and establishing locally embedded or virtual communities, which make securing relief through donation crowdfunding easier.

Originality and value: The subject of using donation crowdfunding by companies to secure relief funds has seen very limited elaboration in the current literature.

Keywords: crowdfunding, Covid-19, small businesses, relief.

Suggested citation

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6.1. Introduction

The economic crisis brought about by the Covid-19 pandemic has found companies in some sectors struggling to survive – particularly in those countries that did not successfully contain its spread. The pandemic can be especially dangerous to small companies, with little to no financial reserves, and thus vulnerable in crisis situations (Spiers, 2017). With many governments unable to fully neutralize the effects of the pandemic, some small businesses turned to consumers for help, organizing crowdfunding fundraisers. While some of those attempts utilized the reward-based models of crowdfunding, in which participation provides backers with a tangible gain, many businesses relied on the donation model instead, meaning that they effectively positioned themselves as entities in need and asked consumers to engage in charity on their behalf. This phenomenon constitutes a shift in the usual behavior of consumers participating in crowdfunding, whose support for companies was usually at least partially motivated by selfish desire to gain access to improved offerings on a given market (through securing additional rewards or helping companies to innovate). The more altruistic donation-based model of crowdfunding, in which backers are not rewarded with tangible rewards, has usually been reserved for helping individuals facing emergencies (e.g. health problems or effects of natural disasters), effectively serving as a way of engaging in charity. However, the above cases of crowdfunding during the Covid-19 pandemic demonstrate that – in certain situations – consumers are willing to display an altruistic/charitable attitude toward companies as well.

The purpose of this chapter is to examine the conditions that allow companies to become beneficiaries of altruistic fundraisers carried out through crowdfunding donations, along with identifying the potential of this type of crowdfunding to provide relief to small business.

6.2. Crowdfunding nature and types

Crowdfunding can be defined as a specialized form of crowdsourcing. Whereas the latter is a process of obtaining resources from a crowd (in a marketing context – a consumer crowd), usually by creating an open appeal and asking the crowd to share their ideas, knowledge and feedback (Howe, 2006), the former pertains only to cases where those crowds are utilized to secure resources of financial nature (Belleflamme, Lambert, & Schwienbacher, 2014). Other authors further elaborate on this definition, stating that crowdfunding aims to secure small to medium-size investments/donations, usually motivated by a promise of a reward – financial or intangible – e.g. status, social esteem, or identification (Ordanini, Miceli, Pizzetti, &

Parasuraman, 2011), and that the reward received by the donor (if any) is usually worth less than the value of the donation itself (Iwankiewicz-Rak & Mróz-Gorgoń, 2018).

Of course, the idea of collecting small donations from a larger group of otherwise unrelated people is not completely new and has its precedents in various forms of social cooperation (Ordanini et al., 2011). However, what differentiates crowdfunding fundraisers is their strong embeddedness within a context of a digital platform and reliance on their interfaces and cultures build around them. These platforms can largely determine what kind of entities are allowed to participate in fundraising and the character of relationships among them. Therefore, depending on the platform, crowdfunding can be utilized, i.a., by businesses to find investors for their innovations (Indiegogo), artists in search of patrons (Patreon), or people faced with all kinds of emergencies, in search of aid (GoFundMe).

This multitude of different goals and applications of crowdfunding has led scholars to try to organize them by creating typologies and classifications. For instance, Pierrakis and Collins (2012) distinguish between donation crowdfunding (in which backers are rewarded only with intangible benefits), reward crowdfunding (motivated by rewards and intangible benefits), crowdfunded lending (motivated by interests from the loan), and equity crowdfunding (motivated by return on investment). Dziuba (2012) proposes a similar typology but considers non-rewards (donations) and rewards-based models to be subcategories of the same type of crowdfunding, and he introduces the mixed solutions type which combines traits of other forms. Some scholars begin with dividing crowdfunding into two main categories – community crowdfunding and financial returns crowdfunding (Adhikary, Kutsuna, & Hoda, 2018) – and then introduce the more specific sub-categories. Other authors believe that those types in which backers aim to secure interest or return on investment should not be classified as crowdfunding and belong instead to a separate category of crowdinvesting (Profatilov, Bykova, & Olkhovskaya, 2014).

In this chapter, while no side will be taken on the above issue, the focus will be placed on the donation/non-rewards crowdfunding, whose application by companies has not been properly investigated yet.

6.3. Potential of donation crowdfunding for relieving small companies

6.3.1. Companies as beneficiaries of charity

As stated above, crowdfunding has been utilized in organizing charity fundraisers aimed at helping individuals faced with emergencies, e.g. requiring medical operation or losing means to live due to various disasters. Crowdfunding has also

found use in the business sector, where companies use it to secure funds required to develop and introduce to the market innovative products and services. However, the Covid-19 pandemic has made a large impact on the crowdfunding landscape: not only has the donation type seen a massive spike in the number of campaigns – for instance, on GoFundMe platform it rose by 60% in March (Elmer, Ward-Kimola, & Burton, 2020) – but also a combination of the two types mentioned above gained relevance: non-reward crowdfunding aimed at helping businesses rather than individuals. While this form of crowdfunding is not completely unprecedented, only recently did it see widespread use, with many small businesses turning to crowdfunding for pandemic-related relief, once the efforts of governments in that regard proved insufficient. Some non-reward crowdfunding sites like GoFundMe even introduced tabs and categories dedicated to small businesses affected by the pandemic. This has led to a noticeable spike in the number of fundraisers for small business campaigns on this platform (Saleh, Lehmann & Medford, 2021), which amounted to 15,6% of all Covid-19-related fundraisers in the timeframe of 27th March to 27th April (Elmer et al., 2020).

The utilization of non-rewards crowdfunding model to help companies is interesting because it carries the implication that the consumers are not only willing to invest in a company and its products, but under certain circumstances, they can also display truly altruistic attitudes toward businesses. In other words, backers are willing to engage in charity by providing help to those in need (“Charity,” n.d.), even when those in need are companies rather than individuals or NGOs.

However, intuitively speaking, one would expect that backers would not necessarily be willing to extend the same generosity they display toward fellow citizens requiring help, who are easy to empathize with, toward organizations, which themselves are strictly profit-oriented and cannot suffer per se (due to being merely a legal entity), thus being much harder to identify and empathize with. It is therefore important to consider under what conditions it is possible for companies to overcome these obstacles and become a viable target for charitable or otherwise altruistic actions from the side of consumers.

The shared trait connecting many different companies that have successfully used crowdfunding in order to achieve some relief funds during the pandemic and which seems to be a major success factor is the existence of a network of strong, long-term relationships connecting a business with its customers. For instance, City Lights Books, an independent bookstore in San Francisco that managed to raise over 500 thousand dollars, also boasts an impressive following on its multiple social media channels, with over 50 thousand followers on Facebook, 130 thousand followers on Twitter and just shy of 40 thousand on Instagram. While some authors stress that crowdfunding initiatives are of open and global character and, therefore, individuals participating in a particular fundraiser should not be perceived

as a community (Kozioł-Nadolna, 2015), companies can certainly benefit from the existence of relationship network with their consumers – be it a virtual community (Kozinets, 1999) or a more traditional, spatially-defined one, resulting from company's embeddedness in a local environment – which fits better into the definition of tribes (as conceptualized by Maffesoli, 1996) rather than communities.

This can be explained by the fact that the first phase of crowdfunding process (as described by Ordanini et al., 2011) usually involves backers that have already been part of a relationship network built around the entity organizing the fundraiser. The funds secured in this phase (referred to as friendfunding) can secure up to half of the total amount asked by the company. Moreover, the second phase (i.e. getting the crowd phase) – defined by involving people from outside of the personal network of the fundraising entity – relies largely on the cascading effect resulting from the first phase, with new backers being reached through means like word-of-mouth. While bigger companies could perhaps invest in paid advertisement in social media in order to reach a larger crowd of backers, smaller ones have strong ties with their customers who can be crucial for achieving greater visibility and, thus, securing new backers in an organic (and cost-free) way. Once the second phase is finished (by reaching the so-called engagement moment), the remaining funds are usually gathered quickly, since those who previously considered backing the fundraiser feel encouraged by its success and do not want to be excluded (Ordanini et al., 2011).

There is also another benefit to having a dedicated customer community or a tribe. While it is harder for a company to evoke empathy, an existence of long-term relationships between the business and its customers can help bypassing this problem. As some note, it is possible for customers to form genuine attachment toward companies or brands and perceive them as friends of sorts, once the brand becomes humanized (Fournier, 1998). While consumers might not care if a generic company experiences financial troubles and would rather support individual people in need, an entirely different matter are companies that gain consumer attachment and that become important to their individual and collective identities or social lives. Moreover, particularly in the case of locally embedded businesses, customers can also form personal relationships with their employees and owners, at which point any sort of help through crowdfunding fundraiser or otherwise does not have to be perceived as helping a company but rather supporting familiar individuals. That was the case for Shintaro Higashi, an owner of the oldest judo school in New York who also runs his personal Youtube channel. Him being a reasonably known person as well as having a business ingrained within a local history allowed him to raise over 70 thousand dollars.

Considering all the above, it is possible for companies to become recipients of charitable actions performed by the consumers. Therefore, in situations like the Covid-19 pandemic, in which the continuous existence of companies comes under

threat to the point that they can be “in need,” we may expect that at least some companies will find success by utilizing crowdfunding fundraisers, even if they do not offer their backers anything in return.

6.3.2. Crowdfunding advantages and limitations

Crowdfunding as a way of securing additional funds by small companies in emergency situations like the Covid-19 pandemic boasts major advantages. Most importantly, it can provide an influx of free capital to the company, which – when utilizing the donation model – does not place any sort of obligation on the entity organizing the fundraiser.

Crowdfunding can also foster the development of a community or tribe around the company and its brand. Relationships are built, among other things, based on reciprocity and interdependence (Fournier, 1998). Consumers’ voluntary participation in a fundraiser helps elevate the relationships between them and the company beyond just a mere business arrangement between a buyer and a seller. An example of this can be found in the case of Mercury Café, whose fundraiser page has been filled with supportive comments from backers sharing their fond memories of the place on the one hand, and with personalized thanks from the owners on the other.

Moreover, the utilization of crowdfunding platforms provides companies with technological infrastructure that fosters not only community-building but also serves as a basis for crowdsourcing (Ordanini et al., 2011). By gathering the most loyal consumers in one virtual space, companies can ask for their insights, ideas, and knowledge, which could potentially also prove useful during a crisis situation.

That being said, there are clear limitations to the utilization of crowdfunding as a way of providing relief to small companies. Its reliance on communities or tribes built around the company understandably favors businesses from some sectors over others. For instance, while a local café might not experience any troubles in creating a tribe of dedicated consumers by becoming a vital part of social life for the inhabitants of a local district, the same status might be much harder to achieve for a hardware store or a small law firm. While it is not completely impossible for such companies to build meaningful relationships with their consumers, it requires a much more conscious effort, whereas in the former’s case it could even happen organically as a mere side effect of the business being present in the neighborhood. This stems from the fact that building networks of strong relationships with customers requires them to place special emphasis on the particular type of consumption allowed by the company as part of a celebration, ritual, or tradition (Muniz & O’Guinn, 2001). While some goods fall into that category almost automatically, others rarely do, even when significant efforts have been made by the company.

Another limitation stems from the fact of crowdfunding's reliance on consumers rather than the state. Whereas the state can operate on a negative budget for a long time and, thus, can increase its indebtedness in order to provide relief for businesses – customers cannot. Therefore, in situations of nationwide or even global crises, their capability to help companies can diminish or even cease to exist because customers' own incomes suffer.

Last but not least, it is worth noting that by acquainting consumers with the idea of utilizing donation crowdfunding to help companies threatened by the pandemic-related crisis, this solution could potentially become a substantial source of relief for companies affected by other, more specific factors as well. It seems unlikely, however, that such an application will become truly widespread; during a global crisis the peril that small businesses find themselves in is self-explanatory, which makes it easier to convince consumers to lend their hand. In cases when it is not possible for a company to provide an easy to grasp reason for requiring outside help, around which a compelling narrative can be built, it can be difficult to convince customers that financial troubles are not simply the result of mismanagement or general incompetence.

6.4. Conclusions

Taking all the above into consideration, we may say that crowdfunding can be a viable way of providing relief to small companies during the times of crisis. While originally companies utilized it mostly as a source of low-cost investment from consumers, allowing them to develop new products and services, and charitable fundraisers were reserved mostly for the individuals, the extraordinary circumstances of the Covid-19 pandemic helped combine the two by establishing companies as beneficiaries of charitable endeavors carried out by consumers.

However, it is unlikely that crowdfunding could become the main way in which companies are sustained during crises due to its reliance on consumer community or tribe being developed around the company, which is difficult to achieve in the more mundane and non-engaging sectors.

Looking beyond the Covid-19 pandemic, it is also possible for donation crowdfunding to be utilized as a way of relieving companies that were affected by more specific circumstances. The exploration of this approach in a different context could be an interesting topic for further research.

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