

# **An Analysis of the Influence of the Macroeconomic Environment on Managerial Decision-Making in Practice**

Jakub Tejkl

---

Bachelor's Thesis  
2021



**Tomas Bata University in Zlín**  
Faculty of Humanities

---

Univerzita Tomáše Bati ve Zlíně

Fakulta humanitních studií

Ústav moderních jazyků a literatur

Akademický rok: 2020/2021

## **ZADÁNÍ BAKALÁŘSKÉ PRÁCE** (projektu, uměleckého díla, uměleckého výkonu)

<b>Jméno a příjmení:</b>	<b>Jakub Tejkl</b>
<b>Osobní číslo:</b>	<b>H180011</b>
<b>Studijní program:</b>	<b>B7310 Filologie</b>
<b>Studijní obor:</b>	<b>Anglický jazyk pro manažerskou praxi</b>
<b>Forma studia:</b>	<b>Prezenční</b>
<b>Téma práce:</b>	<b>Analýza vlivu makroekonomického prostředí na manažerské rozhodování v praxi</b>

### **Zásady pro vypracování**

Shromáždění materiálů k tématu  
Studium odborné literatury  
Formulace cílů práce  
Analýza vlivu makroekonomického prostředí na manažerské rozhodování v praxi  
Vyvození a formulace závěrů práce

Forma zpracování bakalářské práce: **Tištěná/elektronická**  
Jazyk zpracování: **Angličtina**

**Seznam doporučené literatury:**

- Fott, Jiří, and Ivan Souček. 2020. *Scénáře pro strategické rozhodování a řízení: jak se efektivně vyrovnat s budoucími hrozbami a příležitostmi*. Prague: Grada.
- Kindleberger, Charles P., and Robert Z. Aliber. 2015. *Manias, Panics, and Crashes: A History of Financial Crises*. 7th ed. Basingstoke, Hampshire: Palgrave Macmillan.
- Levi, Maurice D. 2014. *The Macroeconomic Environment of Business: Core Concepts and Curious Connections*. Hackensack, NJ: World Scientific.
- Samuelson, Paul Anthony, and William D. Nordhaus. 2010. *Economics*. Boston: McGraw-Hill.
- Siebert, Horst. 2014. *The German Economy: Beyond the Social Market*. Princeton: Princeton University Press.

Vedoucí bakalářské práce: **Ing. Martin Mikeska, Ph.D.**  
Ústav ekonomie

Datum zadání bakalářské práce: **9. listopadu 2020**  
Termín odevzdání bakalářské práce: **10. května 2021**

**Mgr. Libor Marek, Ph.D.**  
děkan



**doc. Mgr. Roman Trušík, Ph.D.**  
ředitel ústavu

Ve Zlíně dne 5. března 2021

## PROHLÁŠENÍ AUTORA BAKALÁŘSKÉ PRÁCE

Beru na vědomí, že

- odevzdáním bakalářské práce souhlasím se zveřejněním své práce podle zákona č. 111/1998 Sb. o vysokých školách a o změně a doplnění dalších zákonů (zákon o vysokých školách), ve znění pozdějších právních předpisů, bez ohledu na výsledek obhajoby <sup>1)</sup>;
- beru na vědomí, že bakalářská práce bude uložena v elektronické podobě v univerzitním informačním systému dostupná k nahlédnutí;
- na moji bakalářskou práci se plně vztahuje zákon č. 121/2000 Sb. o právu autorském, o právech souvisejících s právem autorským a o změně některých zákonů (autorský zákon) ve znění pozdějších právních předpisů, zejm. § 35 odst. 3 <sup>2)</sup>;
- podle § 60 <sup>3)</sup> odst. 1 autorského zákona má UTB ve Zlíně právo na uzavření licenční smlouvy o užití školního díla v rozsahu § 12 odst. 4 autorského zákona;
- podle § 60 <sup>3)</sup> odst. 2 a 3 mohu užít své dílo – bakalářskou práci - nebo poskytnout licenci k jejímu využití jen s předchozím písemným souhlasem Univerzity Tomáše Bati ve Zlíně, která je oprávněna v takovém případě ode mne požadovat přiměřený příspěvek na úhradu nákladů, které byly Univerzitou Tomáše Bati ve Zlíně na vytvoření díla vynaloženy (až do jejich skutečné výše);
- pokud bylo k vypracování bakalářské práce využito softwaru poskytnutého Univerzitou Tomáše Bati ve Zlíně nebo jinými subjekty pouze ke studijním a výzkumným účelům (tj. k nekomerčnímu využití), nelze výsledky bakalářské práce využít ke komerčním účelům.

Prohlašuji, že

- elektronická a tištěná verze bakalářské práce jsou totožné;
- na bakalářské práci jsem pracoval samostatně a použitou literaturu jsem citoval. V případě publikace výsledků budu uveden jako spoluautor.

Ve Zlíně 21. 4. 2021

.....

*1) zákon č. 111/1998 Sb. o vysokých školách a o změně a doplnění dalších zákonů (zákon o vysokých školách), ve znění pozdějších právních předpisů, § 47b Zveřejňování závěrečných prací:*

*(1) Vysoká škola nevdělečně zveřejňuje disertační, diplomové, bakalářské a rigorózní práce, u kterých proběhla obhajoba, včetně posudků oponentů a výsledku obhajoby prostřednictvím databáze kvalifikačních prací, kterou spravuje. Způsob zveřejnění stanoví vnitřní předpis vysoké školy.*

(2) *Disertační, diplomové, bakalářské a rigorózní práce odevzdané uchazečem k obhajobě musí být též nejméně pět pracovních dnů před konáním obhajoby zveřejněny k nahlížení veřejnosti v místě určeném vnitřním předpisem vysoké školy nebo není-li tak určeno, v místě pracoviště vysoké školy, kde se má konat obhajoba práce. Každý si může ze zveřejněné práce pořídit na své náklady výpisy, opisy nebo rozmnoženiny.*

(3) *Platí, že odevzdáním práce autor souhlasí se zveřejněním své práce podle tohoto zákona, bez ohledu na výsledek obhajoby.*

2) *zákon č. 121/2000 Sb. o právu autorském, o právech souvisejících s právem autorským a o změně některých zákonů (autorský zákon) ve znění pozdějších právních předpisů, § 35 odst. 3:*

(3) *Do práva autorského také nezasahuje škola nebo školské či vzdělávací zařízení, užije-li nikoli za účelem přímého nebo nepřímého hospodářského nebo obchodního prospěchu k výuce nebo k vlastní potřebě dílo vytvořené žákem nebo studentem ke splnění školních nebo studijních povinností vyplývajících z jeho právního vztahu ke škole nebo školskému či vzdělávacímu zařízení (školní dílo).*

3) *zákon č. 121/2000 Sb. o právu autorském, o právech souvisejících s právem autorským a o změně některých zákonů (autorský zákon) ve znění pozdějších právních předpisů, § 60 Školní dílo:*

(1) *Škola nebo školské či vzdělávací zařízení mají za obvyklých podmínek právo na uzavření licenční smlouvy o užití školního díla (§ 35 odst.*

3). *Odpírá-li autor takového díla udělit svolení bez vážného důvodu, mohou se tyto osoby domáhat nahrazení chybnějšího projevu jeho vůle u soudu. Ustanovení § 35 odst. 3 zůstává nedotčeno.*

(2) *Není-li sjednáno jinak, může autor školního díla své dílo užít či poskytnout jinému licenci, není-li to v rozporu s oprávněnými zájmy školy nebo školského či vzdělávacího zařízení.*

(3) *Škola nebo školské či vzdělávací zařízení jsou oprávněny požadovat, aby jim autor školního díla z výdělku jím dosaženého v souvislosti s užitím díla či poskytnutím licence podle odstavce 2 přiměřeně přispěl na úhradu nákladů, které na vytvoření díla vynaložily, a to podle okolností až do jejich skutečné výše; přitom se přihlédá k výši výdělku dosaženého školou nebo školským či vzdělávacím zařízením z užití školního díla podle odstavce 1.*

## **ABSTRAKT**

Bakalářská práce se zaměřuje na analýzu vlivu makroekonomického prostředí na manažerské rozhodování v praxi. Práce je rozdělena na teoretickou a praktickou část. V teoretické části jsou na základě literární rešerše vysvětleny základní pojmy spojené s makroekonomií, hospodářskými cykly a managementem. Praktická část je zaměřena na provedení analýzy vývoje vybraných makroekonomických ukazatelů a indexu nákupních manažerů, který byl vybrán jako zástupce manažerského rozhodování v praxi. Tato analýza je provedena pro Českou republiku, Německo a Japonsko. Pro stanovení, zdali má makroekonomické prostředí vliv na manažerské rozhodování v praxi je rovněž v praktické části provedeno společné srovnání vývoje těchto indikátorů spolu s vývojem PMI. Na základě výsledků srovnání jsou navržena doporučení pro manažery, které mají za cíl pomoci manažerům k výběru vhodných strategií.

**Klíčová slova:** makroekonomické prostředí, hospodářský cyklus, Index nákupních manažerů, manažerské rozhodování, Česká republika, Německo, Japonsko

## **ABSTRACT**

The bachelor's thesis analyses the influence of the macroeconomic environment on managerial decision-making in practice. The thesis is divided into the theoretical and practical part. The theoretical part describes fundamental terms which are connected with macroeconomics, business cycles, and management based on literature research. The practical part of the bachelor's thesis focuses on realisation of the real situation analysis of the development of selected macroeconomic indicators and purchasing managers' index, which was selected as a representative of managerial decision-making in practice. This analysis is performed for the Czech Republic, Germany, and Japan. In order to determine whether the macroeconomic environment has an impact on managerial decision-making in practice, a joint comparison of the development of macroeconomic indicators together with the development of PMI is performed in the practical part.

**Keywords:** macroeconomic environment, business cycle, Purchasing Managers Index, managerial decision-making, Czech Republic, Germany, Japan

## **ACKNOWLEDGEMENTS**

I would like to express my sincere gratitude to my bachelor's thesis supervisor Ing. Martin Mikeska, Ph.D. for his expert advice, willingness, and objective criticism. Furthermore, I would like to thank all those who supported me during my studies.

I hereby declare that the print version of my Bachelor's/Master's thesis and the electronic version of my thesis deposited in the IS/STAG system are identical.

# CONTENTS

<b>INTRODUCTION .....</b>	<b>10</b>
<b>I THEORY .....</b>	<b>11</b>
<b>1 DEFINITION OF THE MACROECONOMIC ENVIRONMENT .....</b>	<b>12</b>
1.1 METHODS OF MEASURING ECONOMIC PERFORMANCE .....	12
1.2 MACROECONOMIC INDICATORS INFLUENCING ECONOMIC PERFORMANCE.....	13
1.2.1 GNP, GDP, Real and Nominal Product .....	13
1.2.2 Unemployment.....	14
1.2.3 Inflation.....	14
1.2.4 Investments .....	15
1.2.5 International Trade .....	15
1.3 DEVELOPMENT OF ECONOMIC PERFORMANCE OVER TIME .....	16
1.3.1 Business Cycle Theory.....	16
1.3.2 Purchasing Managers' Index.....	16
<b>2 BUSINESS CYCLE AND ITS INDIVIDUAL PHASES.....</b>	<b>18</b>
2.1 DEFINITION OF THE BUSINESS CYCLE AND ITS PHASES.....	18
2.1.1 Trough.....	19
2.1.2 Expansion.....	19
2.1.3 Peak.....	19
2.1.4 Recession.....	19
2.2 FACTORS INFLUENCING THE BUSINESS CYCLE .....	20
2.2.1 Monetary Policy .....	20
2.2.2 Fiscal Policy .....	20
<b>3 DEFINITION OF MANAGEMENT AND ITS FUNCTION WITHIN KEY SECTORS OF THE ECONOMY AND INDIVIDUAL PHASES OF THE ECONOMIC CYCLE .....</b>	<b>21</b>
3.1 CHARACTERISTICS AND DEFINITION OF A MANAGER.....	21
3.2 FUNCTIONS OF MANAGEMENT.....	22
3.2.1 Planning.....	23
3.2.2 Organising.....	23
3.2.3 Leading.....	24
3.2.4 Staffing.....	24
3.2.5 Controlling .....	24
3.3 DEFINITION AND CHARACTERISTICS OF KEY SECTORS OF THE ECONOMY .....	25
3.3.1 Definition of the cyclical industry.....	25
3.3.2 Definition of a cyclically neutral industry.....	25
3.3.3 Definition of the counter-cyclical industry .....	25
3.4 MANAGEMENT STRATEGIES WITHIN KEY SECTORS OF THE ECONOMY AND INDIVIDUAL PHASES OF THE ECONOMIC CYCLE .....	26
3.4.1 Supply strategies .....	27
3.4.2 Demand strategies .....	28
3.4.3 Capital strategies .....	29
<b>II ANALYSIS .....</b>	<b>31</b>
<b>4 ANALYSIS OF THE PERFORMANCE OF A CYCLICAL INDUSTRY</b>	



	<b>FROM THE PERSPECTIVE OF MANAGERIAL DECISION-MAKING .....</b>	<b>32</b>
4.1	ANALYSIS OF THE PERFORMANCE OF THE CZECH CYCLICAL INDUSTRY FROM THE PERSPECTIVE OF MANAGERIAL DECISION-MAKING.....	33
4.2	ANALYSIS OF THE PERFORMANCE OF THE GERMAN CYCLICAL INDUSTRY FROM THE PERSPECTIVE OF MANAGERIAL DECISION-MAKING.....	34
4.3	ANALYSIS OF THE PERFORMANCE OF THE JAPANESE CYCLICAL INDUSTRY FROM THE PERSPECTIVE OF MANAGERIAL DECISION-MAKING.....	35
<b>5</b>	<b>ANALYSIS OF THE DEVELOPMENT OF THE MACROECONOMIC ENVIRONMENT IN THE SELECTED COUNTRIES .....</b>	<b>37</b>
5.1	ANALYSIS OF THE DEVELOPMENT OF THE CZECH MACROECONOMIC ENVIRONMENT.....	38
5.1.1	Analysis of the development of Czech GDP.....	38
5.1.2	Analysis of the development of Czech unemployment.....	39
5.1.3	Analysis of the development of Czech inflation .....	41
5.2	ANALYSIS OF THE DEVELOPMENT OF THE GERMAN MACROECONOMIC ENVIRONMENT.....	42
5.2.1	Analysis of the development of German GDP.....	42
5.2.2	Analysis of the development of German unemployment.....	43
5.2.3	Analysis of the development of German inflation .....	44
5.3	ANALYSIS OF THE DEVELOPMENT OF JAPAN'S MACROECONOMIC ENVIRONMENT.....	45
5.3.1	Analysis of the development of Japan's GDP.....	45
5.3.2	Analysis of the development of Japan's unemployment.....	47
5.3.3	Analysis of the development of Japan's inflation .....	47
<b>6</b>	<b>COMPARISON OF THE DEVELOPMENT OF THE MACROECONOMIC ENVIRONMENT AND THE PMI.....</b>	<b>49</b>
6.1	COMPARISON OF THE DEVELOPMENT OF THE MACROECONOMIC ENVIRONMENT AND THE PMI IN THE CZECH REPUBLIC.....	49
6.1.1	Comparison of the development of the Czech PMI and GDP .....	49
6.1.2	Comparison of the development of the Czech PMI and unemployment .....	51
6.1.3	Comparison of the development of the Czech PMI and inflation.....	53
6.2	COMPARISON OF THE DEVELOPMENT OF THE MACROECONOMIC ENVIRONMENT AND THE PMI IN GERMANY.....	55
6.2.1	Comparison of the development of the German PMI and GDP .....	55
6.2.2	Comparison of the development of the German PMI and unemployment.....	57
6.2.3	Comparison of the development of the German PMI and inflation.....	59
6.3	COMPARISON OF THE DEVELOPMENT OF THE MACROECONOMIC ENVIRONMENT AND THE PMI IN JAPAN .....	61
6.3.1	Comparison of the development of the Japan's PMI and GDP .....	61
6.3.2	Comparison of the development of the Japan's PMI and unemployment.....	64
6.3.3	Comparison of the development of the Japan's PMI and inflation.....	67
<b>7</b>	<b>FINAL EVALUATION, PROPOSALS AND RECCOMENDATIONS .....</b>	<b>71</b>

7.1	EVALUATION OF THE DEVELOPMENT OF THE CZECH PMI AND MACROECONOMIC INDICATORS .....	71
7.1.1	Evaluation of the development of the Czech PMI and GDP.....	71
7.1.2	Evaluation of the development of the Czech PMI and unemployment.....	72
7.1.3	Evaluation of the development of the Czech PMI and inflation.....	72
7.2	EVALUATION OF THE DEVELOPMENT OF THE GERMAN PMI AND MACROECONOMIC INDICATORS .....	73
7.2.1	Evaluation of the development of the German PMI and GDP.....	73
7.2.2	Evaluation of the development of the German PMI and unemployment.....	74
7.2.3	Evaluation of the development of the German PMI and inflation.....	74
7.3	EVALUATION OF THE DEVELOPMENT OF JAPAN'S PMI AND MACROECONOMIC INDICATORS.....	74
7.3.1	Evaluation of the development of Japan's PMI and GDP .....	74
7.3.2	Evaluation of the development of Japan's PMI and unemployment .....	75
7.3.3	Evaluation of the development of Japan's PMI and inflation.....	76
	<b>CONCLUSION .....</b>	<b>77</b>
	<b>BIBLIOGRAPHY .....</b>	<b>78</b>
	<b>LIST OF ABBREVIATIONS .....</b>	<b>95</b>
	<b>LIST OF FIGURES .....</b>	<b>96</b>

## INTRODUCTION

Management and related managerial strategies and decisions are a widely discussed topic in today's corporate world. Managerial decision-making can affect the functioning not only of a certain group of employees or departments but also of the entire company. Therefore, great attention must be paid to the factors influencing these decision-making processes. With the growing globalisation of world economies, this need for increased attention is more important than ever because even a small alternation can have significant consequences. In practice, a number of factors influencing managerial decision-making exist. This bachelor thesis will determine whether or not the macroeconomic environment is one factor influencing managerial decision-making in practice. For this purpose, the thesis is divided into two parts – theoretical and practical. In the theoretical part, the macroeconomic environment and macroeconomic indicators are defined, as are the business cycle and its individual phases. Furthermore, the index of purchasing managers is presented. At the conclusion of the theoretical part, definitions related to management, key sectors of the economy and recommended management strategies are presented. In the practical part of this bachelor thesis, an analysis of the development of the purchasing managers' index (PMI) is performed, followed by an analysis of the development of selected macroeconomic indicators. In order to ensure the accuracy of the results and find the most suitable recommendations, the analyses are performed on the basis of data obtained not only from the Czech Republic but also from Germany and Japan. In order to determine whether the macroeconomic environment has an influence on managerial decision-making in practice, a joint comparison of the development of PMI and selected macroeconomic indicators against the background of business cycles of the given economy was performed. Ultimately, the thesis concludes which of the examined macroeconomic indicators has an impact on managerial decision-making, and based on this, proposals for managers are recommended.

## **I. THEORY**

## 1 DEFINITION OF THE MACROECONOMIC ENVIRONMENT

Among the two most basic concepts that a person operating in economics will encounter are microeconomics and macroeconomics. The majority of people disinterested in economics consider these concepts to be similar, if not the same. However, they cannot be further from the truth. A theory of these two concepts was presented in Levi's book *The Macroeconomic Environment of Business: Core Concepts and Curious Connections*, "Microeconomics is concerned with the prices and outputs of individual products and the prices of the inputs, often called factors of production, used to make these products." In his work, it is further stated, "Macroeconomics is concerned with the condition of the economy taken as a whole. In particular, macroeconomics is concerned with the price level and output of the entire economy, and with the total income of all the factors of production in the economy" (Levi 2014, chap.1). Another explanation of the concept of macroeconomics was presented by Kindleberger and Aliber. As they state, "Macroeconomics focuses on the explanations for the cyclical variations in the rates of growth of GDP around the long-run trend rates of growth and why these trend rates are higher in some countries than in others" (Kindleberger and Aliber 2015, 38).

Although Kindleberger and Aliber in their definition focus only on one of the areas that make up the overall macroeconomic environment, their definition gives an understanding of what troubles many economists. Furthermore, both definitions agree on a consensus that unlike microeconomics, which studies the behaviour of individual economic entities, macroeconomics deals with the national economy as a whole.

### 1.1 Methods of Measuring Economic Performance

Among the first pioneers who attempted to measure the performance of the national economy can be considered Sir William Petty and Gregory King. This part of history is also described by Levi, "Sir William Petty and Gregory King in Britain were formulating rules on the recording of national economic performance in national income and product accounts. The principal purpose of the national accounts was to keep score on how well a nation was doing in providing for the economic well-being of its citizens" (Levi 2014, chap. 2). Since then, of course, a number of methods for measuring economic performance have changed. Today, economists use the value of national GDP for this measurement. Economists use three approaches to calculate GDP.

The first one is the expenditure approach to measuring GDP. According to Callen, "The expenditure approach adds up the value of purchases made by final users—for example, the

consumption of food, televisions, and medical services by households; the investments in machinery by companies; and the purchases of goods and services by the government and foreigners” (Callen 2020). The second approach used in the calculation of GDP is the income approach. As Lee and McCrae state, “The income approach, GDP, sums all income generated by production activity, also known as factor incomes. In other words, GVA is equal to the sum of employment income (compensation of employees), self-employment income (mixed-income) and profits (gross operating surplus)” (Lee and McCrae 2014, 13). The third and final method used by economists in calculating GDP is the production approach. In the words of Viet, “The production approach, which is also called the output approach, measures GDP as the difference between the value of output less the value of goods and services used in producing these outputs during an accounting period” (Viet 2009, 4).

From these definitions of different methods of calculating GDP, it can be seen that its determination is not easy. Nevertheless, the same result should be obtained using all three methods. In general, the most reliable method for measuring GDP is considered to be the production method, especially for its quarterly data.

## **1.2 Macroeconomic Indicators Influencing Economic Performance**

Based on the above-mentioned Levi’s definition of macroeconomics and also on Pavelka’s choice of indicators, it can be said that macroeconomic indicators are used to get an idea of the state of the economy of a given state. States are therefore trying to achieve optimal values for these indicators. Pavelka ranks GDP, inflation, unemployment, but also trade balance among these indicators (Pavelka 2007, 8). However, for the aim of this thesis, I will further provide the list of indicators such as GNP, GDP, unemployment, inflation, investments and last but not least international trade.

### **1.2.1 GNP, GDP, Real and Nominal Product**

Based on Battu’s definition, it can be said that GNP is an economic indicator that gives its users an idea of the value of goods and services made during a given period by the entities of a given state. Unlike GDP, GNP considers the value of services and goods produced by state entities, regardless of their place of residence or business production. GNP’s value considers the value of goods and services from which the costs of their production have been deducted (Battu 2016, 241). As already mentioned, GDP differs from GNP in that it does not include goods and services produced by the entities in a foreign territory into its final

value. Therefore, the absolute value of GDP consists of all economic output generated by the domestic entities within the territory of the given state (Coyle 2014, 24).

Other terms associated with GDP are real and nominal GDP. As stated by Mankiw, nominal GDP is the value of goods and services measured at current prices (unadjusted for inflation); hence, it can increase due to a rise in prices or a rise in quantities. On the contrary, real GDP represents the value of goods and services measured by a constant set of prices (Mankiw 2019, 68–69).

### 1.2.2 Unemployment

According to Levi, the definition of unemployment is not as easy as it might seem. People know that unemployment is a percentage of the workforce without employment, but what they do not know is who is included in this workforce and who exactly is considered an unemployed person (Levi 2014, chap. 5). The final answer to what can be imagined under the concept of unemployment may be the words of Pettinger. He defines unemployment as a situation where people of the eligible age cannot find a job, although they are trying to be full-time employed. This definition in practice is even more complicated. For example, a mother in maternity care or a student cannot be considered unemployed. Although they have both reached the age at which they can work, these individuals are not actively seeking employment; therefore, their classification as unemployed is not possible (Pettinger 2019).

### 1.2.3 Inflation

Another macroeconomic indicator that has an impact on economic performance is inflation. According to Mankiw, inflation is the percentage change in prices of services and goods in a given time period. The level of inflation depends on the period and country in which inflation is assessed. At present, the rapid growth of inflation can be observed in Zimbabwe and Venezuela (Mankiw 2019, 149). However, inflation also rose rapidly even in the last century. According to Siebert, a good example of such a trend was the rise in prices in the Weimar Republic. This rapid rise in prices even led to hyperinflation in this country in 1923 (Siebert 2014, 24).

As stated by Levi, economists measure the rate of inflation based on the rate of growth or decline of the price index. The price index measures the prices of different products in several consecutive periods. A number of price indices are then used in practice, including the Consumer Price Index (CPI) and the Implicit GDP Deflator (Levi 2014, chap. 4). In connection with inflation, the term deflation can sometimes be encountered. Based on the definition stated by the European Parliament, deflation can be characterised as a negative

development of inflation during which prices of goods and services fall (European Parliament 2015, 2).

#### **1.2.4 Investments**

As claimed by Hasset, investments can be considered as the most important variable in the economy. Contrary to popular belief, investing in the world of the economy does not necessarily represent the purchase of stocks or other securities, but it can also represent the production of goods that will be used later by individuals, companies, or, for example, governments for the future production of other goods (Hasset 2019).

Hasset further provides an example, “in a more modern society, we allocate our productive capacity to producing pure consumer goods such as hamburgers and hot dogs, and investment goods such as semiconductor foundries. If we create one-dollar worth of hamburgers today, then our gross national product is higher by one dollar. If we create one-dollar worth of semiconductor foundry today, gross national product is higher by one dollar, but it will also be higher next year because the foundry will still produce computer chips long after the hamburger has disappeared. This is how investment leads to economic growth.” (Hasset 2019).

#### **1.2.5 International Trade**

Another macroeconomic indicator influencing economic performance is international trade. The most interesting definition of international trade and its advantages for economies was proposed by Love and Lattimore. They state that international trade is an activity that has an impact on employment, consumption, and in addition, international trade helps undeveloped countries to fight poverty. On the other hand, trade is influenced by a number of trends such as the availability of natural resources, technology, but also fashion (Love and Lattimore 2010, 8). This theory is further supported by the work of Samuelson and Nordhaus. In their book, *Economics*, they state that the main driving forces of international trade are the diversity of production conditions that prevail in different countries, the differences in tastes among nations, and decreasing costs of large-scale production (Samuelson and Nordhaus 2010, 341). However, as a comprehensive definition of international trade, can be considered the definition provided by Danjuma, Aboki and Audu. They state that international trade is an exchange of goods and services that involves the transfer of capital goods from one country to another. For most countries, this type of trade is significant activity within their national economies because its share contributes significantly to the country’s GDP. Without international trade, some countries would not be able to produce certain goods and services,



as they would be dependent on a limited number of services and goods that their economies could produce. The fundamental difference between international and domestic trade is that international trade incurs a number of higher costs than domestic trade (Economics Concept 2012, paraphrased in Danjuma, Aboki, and Audu 2014, 26).

### **1.3 Development of Economic Performance over Time**

All the indicators mentioned in Chapter 1.2 have a direct or indirect effect on the performance of the economy. In this part of the bachelor thesis, I will describe two methods (theories) that use these indicators and give the reader a reflection of how economic performance has developed over time.

#### **1.3.1 Business Cycle Theory**

According to Czesaný, the main essence of business cycle theory is to explain the causes and nature of fluctuations. On one hand, the business cycle theory explains the so-called endogenous mechanisms that cause the transition between the individual phases of the cycle. On the other hand, theory explains the procedures and mechanisms used to reduce the length and the depth of the downward phase of economic activity. A large number of business cycle theories exist. These theories can be organised from several perspectives. The first perspective divides theories on the basis of whether the forces leading to a change in economic performance were of internal or external origin. The first group in this division consists of theories based on the claim that fluctuations in economic performance have their background in economic equilibrium and are caused by impulses acting outside the economic system, such as wars, political crises, and others. The second group consists of theories based on mechanisms that operate within the economic system and are therefore able to create business cycles without external influence. Within these theories, excessive investment, technology, or insufficient consumption can be considered as the triggers of cyclicity. The second perspective of the division of business cycle theories divides theories into monetary ones; those are the theories in which money is considered a key factor influencing changes in economic performance. And theories in which the real factors are considered responsible for the cyclical nature. The final approach is the chronological arrangement of all known business cycle theories (Czesaný 2006, 7).

#### **1.3.2 Purchasing Managers' Index**

The second widely used indicator showing the development of economic performance over time is the purchasing managers' index. According to Joseph, Larrain and Turner,

“purchasing managers’ index (PMI) is a monthly seasonally adjusted weighted composite diffusion index of five indicators of economic activities in the manufacturing sector. The five indicators are weighted as follows: 30% for new orders, 25% for production, 20% for employment, 15% for supplier deliveries, and 10% for inventories (Joseph, Larrain and Turner 2011, 213).”

Due to its subjectiveness, the PMI index is dependent on data derived from the reports of purchasing managers of manufacturing firms. The main advantages of this index are timeliness and reliability, but also the fact that the index can be considered as a predictor of changes in industrial production, real gross domestic product, real inventories, real sales, sales/inventory ratio, federal funds rate, foreign exchange returns and in monetary policy. On the other contrary, this index also has its disadvantages, which can be considered its subjective nature and the unaccounted economic impact of surveyed firms in survey responses (Berge and Jorda 2011, Neely and Day 2010, Ozyldirim et al. 2011, paraphrased in Joseph, Larrain and Turner 2011, 214).

## 2 BUSINESS CYCLE AND ITS INDIVIDUAL PHASES

In this chapter, a basic definition of the business cycle based on the definition of various authors will be provided. This definition will be supplemented by a definition of the individual phases of the economic cycle. This whole chapter will be further complemented by a description of monetary and fiscal policies by which governments and responsible institutions can influence the development of economic cycles. For the definition of the business cycles, I will use the definition of Levi. Unlike other definitions, this definition gives the reader a relatively clear picture of what can be imagined under the term business cycle. For the description of the individual phases of the business cycle, Czesaný's definition will be used. Czesaný, unlike many other authors, also describes the inconvenience accompanying these phases.

### 2.1 Definition of the Business Cycle and its Phases

As Mankiw states in his book *Macroeconomics*, the unpredictable ever-recurring short-run fluctuations in economies are a problem for many economists and policymakers. These fluctuations associated with output and employment are referred to as business cycles (Mankiw 2019, 327). The overall issue of the business cycle is also discussed by Ladiray and Soares in their work, *Cycles in the Euro-zone*. They state that the exact definition of a business cycle is quite complex as the business cycle analysts address several challenges. The first is a series of economic indicators that show the state of the economy. The second is the wide variety of statistical approaches that can be used to derive the business cycle from these economic indicators (Ladiray and Soares 2003, 1).

However, for the basic answer to what the business cycles are could be considered the already mentioned Mankiw's definition, which is further elaborated by Levi. In his definition, Levi states that business cycles can be characterised as an ever-recurring pattern of GDP growth rates and related unemployment alternatives around the naturally occurring unemployment and GDP growth rate (Levi 2014, chap. 6). A similar definition is also provided by Czesaný. In his book, *Hospodářský cyklus teorie, monitorování, analýza, prognóza* (Business cycle theory, monitoring, analysis, forecast), Czesaný states that the business cycle can be described as a sequence of four consecutive phases. These four phases and their course then captures the development of real GDP fluctuating around the growth trend of the potential product (Czesaný 2006, 24).

### **2.1.1 Trough**

As claimed by Czesaný, the first phase of the business cycle is the trough. During this phase, economic activity and real GDP fall to their lowest values. The term depression is also sometimes used in connection with this phase. Depression can be spoken of if the decline is too long or too sharp. The trough is characterised by increased unemployment and low consumer and investment demand. Companies are not willing to accept the risks that may be associated with the implementation of new investments, mainly due to very low or negative profits, which companies in this phase achieve (Czesaný 2006, 24).

### **2.1.2 Expansion**

As the second phase, Czesaný mentions expansion (recovery, boom). Recovery is the phase that follows the trough. Compared to the previous phase of the trough, this phase is characterised by a decrease in the unemployment rate, an increase in consumer demand and the replacement of depreciation capital. Aggregate demand is on the rise, and companies are admitting the risks associated with the implementation of new investments; at the same time, production is easily expanded, especially with the use of unused capacities and a surplus of free labour. However, the expansion also has its downsides. The closer the expansion is to its peak, the more expensive each unit of goods and services additionally produced is (Czesaný 2006, 24).

### **2.1.3 Peak**

Czesaný specifies that the third phase of the business cycle during which the economic activity reaches its highest level is called the peak. In this phase, economic capacity is being fully utilised, and companies are beginning to experience a shortage of workforce. In addition to the lack of a workforce, companies also experience a lack of funds which is a result of the high rate of investments that have drained most of the companies' savings (Czesaný 2006, 24–25).

### **2.1.4 Recession**

According to Czesaný, the last phase of the economic cycle is the recession. The negative effects of this phase affect almost everyone. Individuals, households, manufacturing companies, banks, and governments are affected by an increase in unemployment, a slowdown in growth, or even a decline in GDP. Furthermore, a reduction in corporate investments in fixed assets and a decline on the supply side, mainly in the cyclical industries, can be observed at this phase. The decline in demand for raw materials from companies leads

to a further decline in demand for loans. Therefore, banks operating with a surplus of funds are forced to lower interest rates. Investments made by companies do not generate the necessary profits, so companies affected by a reduction in their earnings get into financial difficulties. However, the decline in demand is not only on the part of companies but also on the part of households. Households are reducing their demand due to rising unemployment and falling incomes. The pressure is also applied to governments mainly due to the growing public budget deficit caused by lower budget revenues and increased social transfers due to rising unemployment. Even though, according to this description, this phase of the business cycle may seem utterly catastrophic, this phase also has a positive side; the market gets cleansed of inefficient companies (Czesaný 2006, 25).

## **2.2 Factors Influencing the Business Cycle**

The definitions of authors Levi and Mankiw are also supported and further elaborated by the Congressional Research Service. CRS in its work *Introduction to U.S. Economy: The Business Cycle and Growth*, states that business cycles are governed by aggregate demand within the economy. Thanks to the influence of aggregate demand on business cycles, governments can use their tools and policies to influence the aggregate demand within the economy and ultimately influence business cycles. These policies are monetary and fiscal policy (Congressional Research Service 2021, 1–2).

### **2.2.1 Monetary Policy**

As stated by CRS, when implementing monetary policy, central banks may change short-term interest rates and the availability of credit in the economy in order to increase aggregate demand. Lower interest rates make it less expensive to borrow money; therefore, it is more attractive for businesses to make new investments and for individuals to buy goods and services (Congressional Research Service 2021, 2).

### **2.2.2 Fiscal Policy**

Governments can also increase aggregate demand through three fiscal policy instruments: a reduction in taxes, an increase in government spending, and an increase in government transfers to individuals. Using fiscal policy instruments, governments may pursue different strategies during the various phases of the business cycle. For example, during a recession, the government may finance these policies by borrowing money, also known as deficit financing (Congressional Research Service 2021, 2).

### **3 DEFINITION OF MANAGEMENT AND ITS FUNCTION WITHIN KEY SECTORS OF THE ECONOMY AND INDIVIDUAL PHASES OF THE ECONOMIC CYCLE**

In order to understand the behaviour of a manager within the various phases of the business cycle, it is first necessary to define the concept of management and the functions of management. This will be the content of this chapter, in which I will define management and its functions. In addition, I will also determine the key sectors in which management plays a key role and, last but not least, describe the management strategies used in these sectors.

#### **3.1 Characteristics and definition of a manager**

At present, many different definitions of management can be found in various publications and books. Mládková and Jedinák see management as finding the tools and people needed to identify and achieve goals. The essential task of management then can be considered a conceiving of goals and the search for the necessary resources needed to achieve these goals. It is also worthwhile to mention that management includes the management of the company as a whole, including the management of individual parts (departments) of the company and their activities. Management can therefore be described as a certain type of leading. The individual who performs this procedure and leads other employees is called the manager (Mládková and Jedinák 2009, 13).

Mládková and Jedinák further state that when defining the word management, it is necessary to look at three views on management. These views determine what type of management is involved in a given case. The first view defines management as an activity. An activity during which a company mobilises and activates resources to achieve the desired benefits for the company. Furthermore, management is an activity during which the worker uses opinions, experiences, and recommendations to master specific activities. The second view defines management as a scientific discipline. Unlike other scientific disciplines, management cannot be considered an exact scientific discipline because it does not provide irrefutable facts due to the continually changing environment in which the management is used. Another element that is changing in this scientific discipline is the subject of research. Very often, the subject of research is the way in which the behaviour of individuals or groups can be influenced. Hence, some management tools are utterly inoperable in two different organisations. Management as the scientific discipline can then be described as an interdisciplinary scientific discipline as it uses the knowledge from other scientific

disciplines for its research. However, the knowledge of management can be applied to manage both for-profit and non-profit organisations. The third and last view defines management as a set of managers. In the company, one can be confronted with terms such as marketing management, financial management, or, for example, strategic management. These terms refer to employees responsible for their departments. For example, the term financial management refers to managers responsible for the finances of the organisation; marketing management refers to managers responsible for the marketing of the organisation, etc. Managers are also responsible for the work of their subordinates in these departments. They use their responsibility and necessary powers to perform their job duties (Mládková and Jedinák 2009, 13–14).

According to Blažek, managers can be divided into three levels. The first level is the front-line managers (first-line managers). These managers are at the lowest level of management and are in daily contact with staff-level employees. Often, they are foremen, store managers, hospital heads or department heads. The second level is represented by middle managers. This group is a kind of intermediate level between first and top-level managers. Examples of employees in this group include general managers, branch managers, and department managers. The third and final level are top managers. This group of managers is responsible for managing the organisation as a whole and at the same time representing it externally towards owners, suppliers, banks, but also the state. For small organisations, this group also refers to the owners of the organisation; on the contrary, for large organisations, the function of ownership and management is separate. It is also important to mention the current development trend in the field of manager roles within businesses, which leads to a decrease in the number of middle managers within companies. This decrease is conditioned primarily by the development of information systems and changing leadership style within organisations. Executive components, which in the past belonged to the functions of middle managers, is becoming the matter of the first-line managers. At the same time, the complexity of management work at the top management level is growing. Among other things, top-level managers must deal with the business strategies in the various challenging conditions to which organisations are exposed (Blažek 2014, 15).

### **3.2 Functions of Management**

As claimed by Blažek, management is a relatively extensive scientific discipline; therefore, it is no wonder that a number of books and professional publications dealing with this

discipline offer various definitions of management and its characteristics. However, the concept of so-called managerial functions is the most often mentioned in the literature. The foundations of this concept were laid in 1916 by the French mining engineer Henri Fayol (Blažek 2014, 13). In his book, Blažek also provides a list of nowadays recognised managerial functions, such as planning, organising, staffing, leading, and controlling. Koontz and Weihrich agree with this concept and further present the aspects of the individual functions. Thus, for the following description of managerial functions, I will stick to their division.

### **3.2.1 Planning**

According to Koontz and Weihrich, planning can be defined as an activity during which the managers responsible for planning select tasks, goals as well as activities needed to achieve the set goals and objectives. A number of plans are used within organisations, from the most basic ones, such as ordering material, to the most complex ones, such as choosing an overall strategy for the company. However, no plan can be prepared without considering human as well as material resources. The act of planning itself requires deciding on the choice of possible ways of executing activities. The decision itself is then preceded by several analyses, proposals, and studies (Koontz and Weihrich 2012, 26). The impact of managerial planning is also mentioned by Fotr and Souček. They state that planning should be based on scenario planning; without it, managers focus only on the continuing processes inside their businesses, and they tend to neglect the significant environmental factors in which their businesses operate (Fotr and Souček 2020, 211).

### **3.2.2 Organising**

Another function of management stated by Koontz and Weihrich is organising. When creating a work structure, the manager encounters several difficulties; one of them is the question of what kind of work needs to be done and who is the best possible candidate to accomplish it. In order to find the answer, the managers use the process of organising. Organising is a function that helps the management to allocate the employees of the organisation into a premeditated structure. The main reason for this is to ensure that all tasks needed to achieve the goals are assigned to people skilful enough to perform these tasks. (Koontz and Weihrich 2012, 26).



### **3.2.3 Leading**

As specified by Koontz and Wehrich, managers applying leading influence the employees of the organisation so that they are beneficial for the company in achieving the goals set by the management of the organisation. When applying leadership, managers very often encounter problems arising from people, these problems so often stem from human desires and attitudes, but also the behaviour of individuals and groups. Because people have in their nature to follow those who promise them something, it is therefore understandable that part of leadership is also motivation and communication (Koontz and Wehrich 2012, 27).

### **3.2.4 Staffing**

According to Koontz and Wehrich, the managerial function of staffing incorporates the activities such as filling job positions and maintaining the job positions filled within the organisation. Managers must identify personnel requirements and find the most suitable candidates from the available list of qualified people. In the case of a lack of workforce, managers must recruit, train, and then develop not only new candidates but also existing employees so that the set goals are achieved effectively and efficiently. Other activities related to staffing are valuation and placement of employees (Koontz and Wehrich 2012, 27).

### **3.2.5 Controlling**

The last managerial function stated by Koontz and Wehrich is controlling. Controlling is an activity during which managers measure and correct the performance of both the individuals but also the organisation. The function of controlling within management is critical, and without controlling, it would not be possible to implement plans. Thus, it can be said that these two functions, controlling and planning, could not achieve their own self-realisation without their mutual interaction. Plans are used by managers to give them an idea of how to use resources to achieve predefined goals. The activities are then checked to see if they are in line with the plans. For this type of control, managers use, for example, an overview of budget for expenses or a record of labour-hours lost. Each of these control tools then gives the manager an overview of whether the plans are working or not. However, if any deviations occur, the manager must proceed to alterations. In most cases, those are the activities of employees that need to be adjusted. In order to bring the measured performance results closer to the planned ones, the manager must find a person who is responsible for these deviations and must take the necessary steps to solve the whole problem (Koontz and Wehrich 2012, 27).

### **3.3 Definition and Characteristics of Key Sectors of the Economy**

So far, business cycles and the factors that influence them have been described in this thesis. In this chapter, however, it will be stated that business cycles can also affect certain industries within the economy. According to Musílek, individual industries are variously affected by the business cycles. Depending on their sensitivity to the phases of the business cycle, they are divided into cyclical, cyclically neutral, and counter-cyclical industries (Musílek 2002, 293).

#### **3.3.1 Definition of the cyclical industry**

Konovalova and Maksimov define the cyclical industry and the companies belonging to it as an industry that is severely contingent on the state of the economy and the phases of the business cycles (Konovalova and Maksimov 2017, 2). Musílek also leans towards this definition and further states some of the examples of cyclical companies. According to him, cyclical companies can be considered companies conducting business in the construction industry, long-term consumer goods industry, and last but not least automotive industry, which is one of the most sensitive to the development of the economic cycle. Buyers can postpone the purchase of goods and services from these companies in unfavourable situations (recession) and realise it when the situation is more favourable in the economy (during the expansion) (Musílek 2002, 293).

#### **3.3.2 Definition of a cyclically neutral industry**

According to Musílek, the cyclically neutral industry includes companies operating in the pharmaceutical and food industries, as well as companies producing goods with low price flexibility (magazines, newspapers, books, alcohol, cigarettes), which can be described as cyclically neutral (Musílek 2002, 293). Based on the provided definition, it can be said that the profits of these companies are not affected by the fluctuations of the business cycles as they provide goods and services which are used on a daily basis.

#### **3.3.3 Definition of the counter-cyclical industry**

The third and last group according to Musílek consists of companies that show the best results (revenues) in a period of economic recession. These companies are, for example, cable connection providers. The earnings of these companies have increased during the last crisis, as they provided compensation for much more expensive forms of entertainment that people could not afford, either because of financial or time constraints. (Musílek 2002, 293). Based on this definition, it is also possible to mention other companies that have recently

achieved increased revenues and thus can be described as counter-cyclical companies. These companies are the companies providing audio and video streaming services, and video games retailers.

### **3.4 Management strategies within key sectors of the economy and individual phases of the economic cycle**

In the previous chapter, it was explained which three industries are recognised within the economies, and at the same time, their sensitivity to individual phases of the economic cycle was described. It was found that the cyclical industry could be considered the industry most affected by fluctuations in economic performance. This chapter will explain what strategies the management of these companies may adopt to minimise adverse development in economic performance.

Conti, Goldszmidt and Vasconcelos state that companies experiencing adverse effects of the recession and related uncertainty are generally advised to adopt either a so-called pro-cyclical strategy or a counter-cyclical strategy. These strategies may then help companies to achieve superior performance. Under the term superior performance, it is possible to imagine either a situation in which the company is less affected than its competitors by the undesirable effects of the recession or a situation in which the company can even prosper. During a recession, managers in companies must rethink their current strategies and as already mentioned, they may choose from various schemes of action. The first scheme of action typical for corporate management behaviour during a recession is the adoption of pro-cyclical behaviour. This behaviour is characterised by activities during which the company cuts costs and expenses. The second scheme of action includes the adoption of a counter-cyclical behaviour that is characterised by increased corporate investments. Other alternatives for management are the adoption of both of these behaviours or the conversely, not adopting either of these types of behaviour (Conti, Goldszmidt and Vasconcelos 2014, 275).

In addition to the list of strategies, the authors Conti, Goldszmidt, and Vasconcelos present in their work the analysis of the use of both types of strategies. This analysis shows that despite the recommendation of several authors for the use of counter-cyclical strategies, more empirical evidence is needed to recommend them fully. In addition, many authors dealing with managerial strategies used within individual phases of the business cycle focus only on one area of the company in their works, such as marketing, research and development or capital expenditures. The exception for this is Conti, Goldszmidt and

Vasconcelos (2014), Navarra et al. (2010) and Gulati et al. (2010). This group of authors focuses on more areas of the company in their works. I consider this to be very important because the recession does not only affect specific departments of the company but the whole company itself. These strategies could therefore be classified into three areas: supply, demand, and capital (Conti, Goldszmidt and Vasconcelos 2014, 275).

### **3.4.1 Supply strategies**

As the name suggests, the first of these strategies refers to strategies that affect companies' inventories. According to Navarra et al., supply strategies include subdimensions such as staffing, production, and purchasing. In general, staffing strategies tend to be pro-cyclical. In times of economic expansion, companies tend to attract new people. On the contrary, when the economy enters the recession, companies are trying to stabilise their finances by starting to lay off their workers (Navarra et al. 2010, Gore 2010, Latham and Braun 2011, paraphrased in Conti, Goldszmidt and Vasconcelos 2014, 276). Conti, Goldszmidt, and Vasconcelos see in this behaviour the possibility of using counter-cyclical staffing. At a time when most companies resort to cyclical behaviour and lay off their employees who have gained the necessary experience, a company using counter-cyclical staffing can recruit these experienced employees at much lower costs. Another advantage of such behaviour for the company could be an increase in morale. Employees fear losing their jobs during the recession. Therefore, if a company resorts to counter-cyclical staffing, employees can focus on their tasks and maintain productivity (Gulati et al. 2010, Hall 2005, Mascarenhas and Aaker 1989, paraphrased in Conti, Goldszmidt and Vasconcelos 2014, 276).

Production strategies are another usually pro-cyclically oriented supply strategy. These strategies are very often pro-cyclically oriented. As the economy enters the recession phase, companies experience decreases in demand, and therefore managers in companies are resorting to a reduction in production and an overall reduction in inventories. On the other hand, companies may also be recommended counter-cyclical production strategies, which may help companies avoid a shortage of products that could prevent a company from making revenue as the economic situation returns to the expansion phase. Furthermore, companies can take advantage of buying low-cost materials, which are in abundance during the recession (Zarnowitz 1985, Bromiley et al. 2008, paraphrased in Conti, Goldszmidt and Vasconcelos 2014, 276).

The last supply strategy are firms' purchasing strategies. As with the previous strategy, at the time of expansion, management assumes an increase in demand and thus make

purchases of raw materials in disproportionate number to maximise production possibilities and demand coverage. Companies are therefore entering a period of recession with a surplus of inventories. A possible solution would be to make these purchases counter-cyclically. This would mean increasing purchases during the recession, as suppliers may offer companies lower prices and possibly better credit terms in times of recession. So, on the contrary, companies would save by buying goods during a recession (Navarro et al. 2010, Apaydin 2011, paraphrased in Conti, Goldszmidt and Vasconcelos 2014, 276).

### 3.4.2 Demand strategies

Another area of managerial strategies are demand strategies; these strategies affect demand for the products. As in the case of supply strategies, several subdimensions of demand strategies are also recognised. These particular subdimensions are marketing investments, pricing, and R&D investments (Navarro et al. 2010, Gulati et al. 2010, paraphrased in Conti, Goldszmidt and Vasconcelos 2014, 275). Companies' strategy of investments in marketing can be assessed as pro-cyclical. During expansions, companies tend to increase advertising and promotion, and during recessions, these investments decrease. On the other hand, counter-cyclical behaviour (increased marketing investments) can be recommended to companies. Advertising media offer lower rates for time and space in their media so companies can attain a higher return on their investments (Srinivasan et al. 2011, Apaydin 2011, Ang et al. 2000, paraphrased in Conti, Goldszmidt and Vasconcelos 2014, 276).

Another representant of demand strategy in a company is the pricing strategy. During the recession, pressure is put on management to decrease prices to keep the sales level. This is due to lower consumer incomes and the tendency to make savings. However, based on empirical data, it is proven that most companies do not reduce their prices during a recession, some even raise the prices. Why is it so? The answer to this is not simple. If we follow the economic premise, the company can really reduce prices in response to lower demand. On the other hand, this procedure cannot be thoroughly recommended from the marketing perspective since the company could reduce its brand equity and thus undermine its long-lasting image. Besides, consumers could expect further price cuts in the next period (even after economic recovery), which could result in lower long-term returns for the company (Ang et al. 2000, Kamakura and Du 2012, Geroski and Gregg 1997, Lamey et al. 2012, Mansoor and Jalal 2011, Latham, and Braun 2011, Apaydin 2011, paraphrased in Conti, Goldszmidt and Vasconcelos 2014, 276).

The last subdimension of demand strategy is the R&D investments. Even in this area, in times of recession, cyclical strategies are being applied. Thus, the research, development and innovation programs are being reduced. Although, even here, the counter-cyclical behaviour can be recommended. Suppose the companies continue to improve their existing products even in times of recession to meet new demand requirements. The demand for these products may increase. In addition, as with purchasing and supply strategies, companies may take advantage of lower costs during recession and ultimately maximise returns on their R&D investment programs (Lamey et al. 2012, Latham and Braun 2011, Srinivasan et al. 2011, Apaydin 2011, Gulati et al. 2010, paraphrased in Conti, Goldszmidt and Vasconcelos 2014, 276).

### 3.4.3 Capital strategies

The last area of managerial strategies includes capital strategies. These strategies focus on the capital and assets of companies. In determining capital strategies, I will use the division by Conti, Goldszmidt and Vasconcelos. This division includes subdimensions such as credit policy, capital expenditures on fixed assets, and acquisitions. It is also worth mentioning that this division differs from other divisions, such as Navarro's division, by the intentional omission of capital financing subdimension. As the authors of this division state themselves, the reason why this subdimension is omitted are its high cross-loadings.

The first subdimension of capital strategies that is often subjected to pro-cyclical behaviour within the company is the credit policy. With the recession affecting numerous industries, most ventures face cash flow problems triggered by lower sales and decreased bank lending. Customers tend more than usual to default and ask for loosening of payment terms. To keep a standard level of sales, companies usually capitulate to customers' demands and expand their credit. A recommendation for companies can be that in times of recession, they should constantly keep an eye on the performance of their customers and adjust their credit policies. In addition, companies should accelerate collections and tighten credit terms to diminish the possibility of non-payment (Beaver 2002, Ivashina and Scharfstein 2010, Ang et al. 2000, Mascarenhas and Aaker 1989, Dye et al. 2009, paraphrased in Conti, Goldszmidt and Vasconcelos 2014, 276–277).

As was mentioned above, corporate investments in marketing or research and development decline during the recession. This situation also applies to corporate expenditures on fixed assets (machinery, buildings, software). It could be said that corporate spending for this group of assets is cut much even more drastically. As with previous

strategies, companies expect demand to grow at the time of expansion, so they often make exaggerated purchases of these fixed assets, which are then occasionally sold to stabilise companies' finances. In times of recession, on the other hand, companies reduce these expenditures. However, the opposite behaviour could be recommended. Companies in times of recession could use lower prices to invest in real estate, software, and machinery, to ensure adequate capacity and modern equipment (Navarro et al. 2010, Geroski and Gregg 1997, Similarly, Latham and Braun 2011, Apaydin 2011, Bromiley et al. 2008, Gulati et al. 2010, paraphrased in Conti, Goldszmidt and Vasconcelos 2014, 277).

The last subdimension of capital strategies is acquisitions. As a result of changes in the value of assets that accompany the recession, companies may make many of these assets available for sale; since companies' main interest is to keep cash, divestitures are more frequent than acquisitions. However, the problem arises for the potential acquirer, who must convince the company's management of the viability of such acquisitions. In a situation of low growth projections, this seems to be a challenging task. Nonetheless, such counter-cyclical acquisitions have advantages. These acquisitions charged during the recession have low costs. The first reason for low costs is the fact that, as mentioned above, companies with financial difficulties prefer to sell their assets during a recession. These sales of assets bring an increased number of people interested in a takeover. The increased number of takeover candidates then increases reducing prices. The second reason is the smaller amount of cash of the potential acquirer. As a result of this, the acquirer very rarely overpays for the acquisition. Counter-cyclical behaving firms, in this case, can benefit from a lower rate of price to value (Geroski and Gregg 1997, Hampson and McGoldrick 2013, Latham and Braun 2011, Navarro et al. 2010, Campello et al. 2010, Franke and John 2011, Ma et al. 2014, Bromiley et al. 2008, paraphrased in Conti, Goldszmidt and Vasconcelos 2014, 277).

## **II. ANALYSIS**



#### **4 ANALYSIS OF THE PERFORMANCE OF A CYCLICAL INDUSTRY FROM THE PERSPECTIVE OF MANAGERIAL DECISION-MAKING**

This analysis concerns the development of the performance of a cyclical industry and determining whether the development of the macroeconomic environment has an impact on managerial decision-making in practice. The analysis focuses on this particular cyclical industry because such an industry is the most prone to changes in the macroeconomic environment. Therefore, managers in this sector must pay close attention to the development of the macroeconomic environment and factors influencing managerial decision-making. For the description of the performance of a cyclical industry from the perspective of managerial decision-making, the purchasing managers' index (PMI) will be used. As mentioned by Joseph, Larrain and Turner, the PMI can represent managerial decision-making in companies, as it consists of 30% new orders, 25% production, 20% employment, 15% supplier deliveries, and 10% inventories (Joseph, Larrain and Turner 2011, 214). Moreover, the reports of these individual items come from the reports of purchasing managers of manufacturing firms and are influenced by management strategies described by Conti, Goldszmidt, and Vasconcelos and summarised in chapter 3.4.

The development of PMI and the macroeconomic environment will be monitored in three countries: the Czech Republic, Germany, and Japan. The reason for choosing Germany and Japan was the availability of the macroeconomic data, and the fact that both countries were in 2019 at the top of the ranking of the countries with the biggest manufacturing outcome in the world, as presented by the United Nations. (United Nations 2019). Another reason for choosing Germany for the analysis of its macroeconomic environment and the performance of a cyclical industry was the fundamental interconnectedness of the Czech export economy with the German economy. According to the Czech National Bank (Česká národní banka), the Czech Republic strongly depends on the export of Czech goods to Germany and, conversely, on the import of German goods. Germany thus ranks among the Czech Republic's largest trading partners. Within both economies, it is also possible to observe the presence of Czech and German producers in the same international production and supply chains. This presence is the strongest in the automotive industry (Česká národní banka 2011; Česká národní banka 2019). Japan was chosen because, in addition to its position among the strongest manufacturing economies in the world, more than 266 Japanese companies do business in the Czech Republic, resulting in the creation of more than 50

thousand jobs. Therefore, Japanese companies have a particular influence on Czech employment. The main products of these companies are automobiles, televisions, and home electronics; therefore, products of a cyclical industry, which is fundamental for the analysis (BusinessInfo, 2019).

#### 4.1 Analysis of the performance of the Czech cyclical industry from the perspective of managerial decision-making

As illustrated in Figure 1, the index of Czech purchasing managers was below 50 points for most of 2012, marking the contraction of the manufacturing sector. A change in PMI development occurred at the beginning of 2013, when the PMI gradually increased. This growth in the PMI did not stop until May 2014, when the PMI rose to 57.3 points.

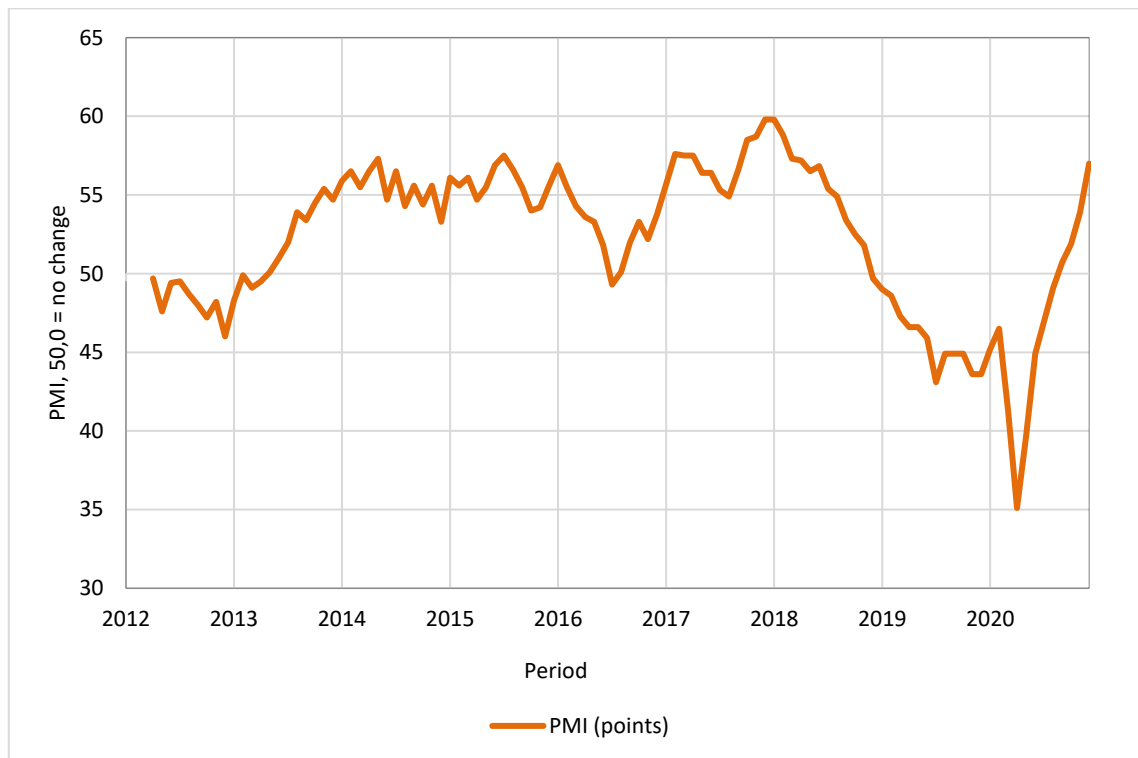


Figure 1: Czech PMI (Source: Investing, author’s creation, 2020)

In the following period, fluctuations in the development can be observed, at the end of which the index decreased to 49.3 points in July 2016. Nevertheless, after this sudden drop, the index rose sharply, and in January 2018, the PMI peaked at 59.8 points. Since the end of January 2018, a gradual decline in the PMI can be observed; this decline accelerated even more in 2020 when the PMI fell to its low of 35.1 points, marking another period of contraction of the Czech manufacturing industry. After this decline, a sharp growth in the PMI occurred, at the end of which the PMI rose to 57 points. The current development of

the PMI suggests that the industry, and particularly the manufacturing industry, is catching up to its previous pre-Covid levels.

#### 4.2 Analysis of the performance of the German cyclical industry from the perspective of managerial decision-making

Based on the aforementioned interconnection of the Czech and German economies, it will come as no surprise that the performance of the German cyclical industry has undergone a similar development to the Czech one. As illustrated in Figure 2, the value of the German PMI was below 50 points for most of 2012.

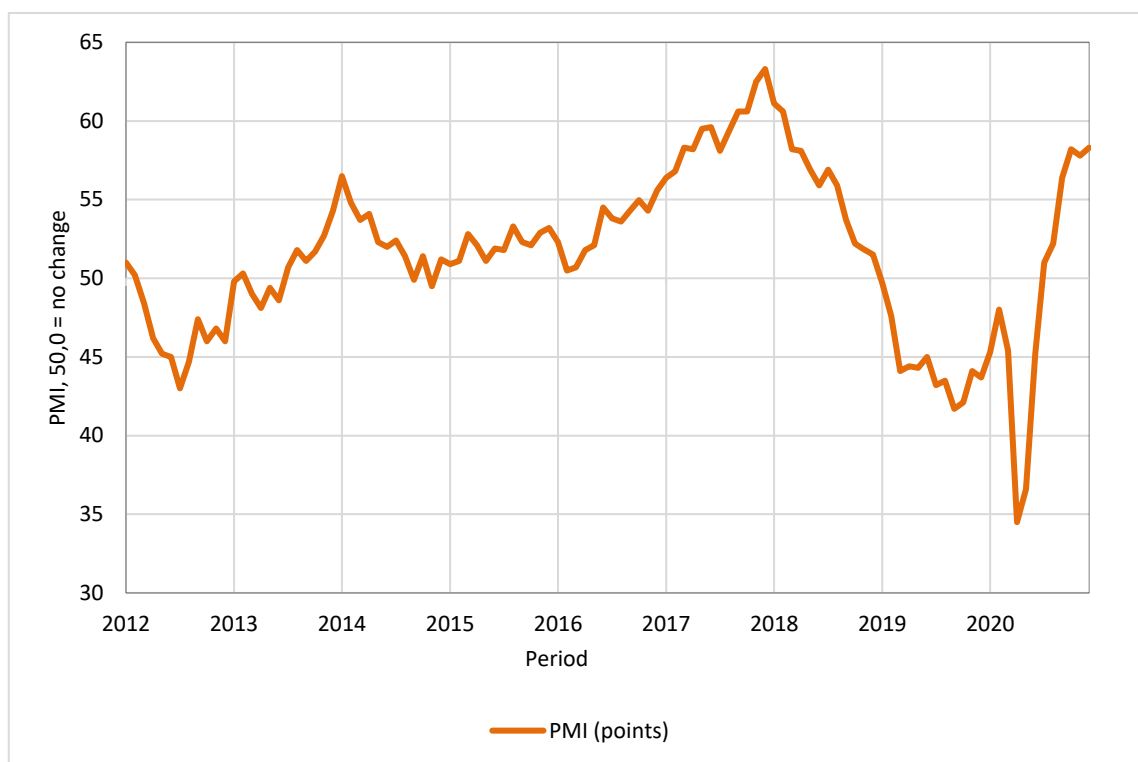


Figure 2: German PMI (Source: Investing, author's creation, 2020)

The change in the development of the German PMI occurred in August 2012; from the end of this month, growth in the PMI can be observed, lasting until the beginning of 2014, when the PMI rose to 56.5 points. This period of growth was followed by a decrease in the PMI, at the end of which in November 2014, the PMI fell to 49.5 points. After this decline, the purchasing managers' index recorded a period of gradual growth, so in December 2017 the PMI peaked at 63.3 points. In the following years 2018 and 2019, a sharp decline in the index occurred; this decline accelerated further in 2020, and so in April 2020, the PMI reached its low of 34.5 points. Despite this sharp decline, accelerated PMI growth can be

observed for the rest of 2020, and so at the end of the period under review, the PMI rose to 58.3 points.

### 4.3 Analysis of the performance of the Japanese cyclical industry from the perspective of managerial decision-making

As demonstrated in Figure 3, fluctuations in the development of Japan’s PMI are not as sharp as fluctuations in the development of the Czech and German PMIs. The decline in Japan’s purchasing managers’ index, which began in the second quarter and ended in the fourth quarter of 2012, was gradual, and yet the PMI fell to 45 points.

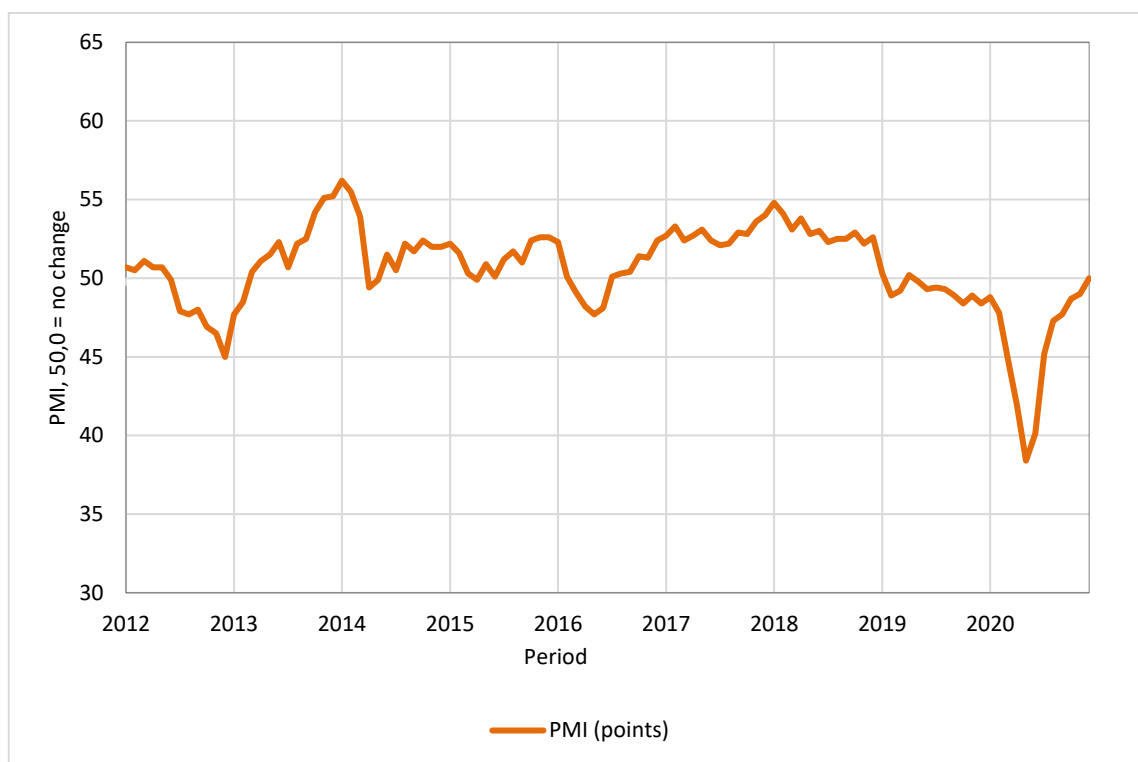


Figure 3: Japan’s PMI (Source: Investing, author’s creation, 2020)

This decline was followed by a period of growth during which the PMI peaked at 56.2 points. The first steep drop in the PMI can be observed from January 2014 to April 2014; at the end of this fall, the PMI stood at 49.4 points. This was followed by a period of fluctuations that lasted until July 2017, after which a gradual increase in the index can be observed, which ended at the beginning of 2018; The PMI rose to 54.8 points at the end of this period. In 2018 and 2019, PMI experienced a period of decline. Although this decline was not as significant as in the case of the Czech PMI and the German PMI, Japan’s PMI fell to 48.4 points. The decline continued further in 2020 when the PMI fell to its low of 38.4

points. And as with Czech and German PMIs, after this sharp decline, a rapid increase followed, at the end of which Japan's PMI had risen to 50 points.

## **5 ANALYSIS OF THE DEVELOPMENT OF THE MACROECONOMIC ENVIRONMENT IN THE SELECTED COUNTRIES**

In order to determine whether the macroeconomic environment has an impact on managerial decision-making in practice, it is necessary to perform an analysis of the macroeconomic environment itself. This will be the subject of this chapter, in which an analysis of the development of selected macroeconomic indicators described in Chapter 1.2 will be performed. For a comparison of GDP development in the observed period, quarterly data expressing the percentual change in year-on-year GDP were used. Gross domestic product year-on-year reflects a change in the total value of all goods and services produced in the specified quarter compared to the same quarter of the previous year.

To express the development of the unemployment rate, seasonally adjusted data were used, which represent the percentage of the unemployed out of the country's total active population. The data from the Eurostat database describing the unemployment rate for the Czech Republic differ slightly from the value of the data provided by the Czech Statistical Office (Český statistický úřad) in its regular reports. As stated in the Czech Statistical Office reports, the reason for this is the different age groups assessed in the calculations of the unemployment rate. For these calculations, the CZSO uses a group of citizens aged 15–64 years, while the European Union uses a group of citizens aged 15–74 years (Český statistický úřad 2020).

The vital condition in selecting these macroeconomic indicators was one common data source to ensure data accuracy. However, this condition was not met for data describing inflation. Within the E.U. countries, HCIP is often used when describing consumer price inflation. According to the definition provided by the European Central Bank, this index measures the change in the prices of goods and services available for purchase in Euro-area countries (European Central Bank 2021). However, the data of this index are not available for Japan, and therefore, the already mentioned CPI was chosen. As stated by Eurostat, CPI measures the change in the prices of a basket of consumer goods and services. The data of this index were then obtained from the websites of the individual state institutions responsible for their compilation (Eurostat 2018).

## 5.1 Analysis of the development of the Czech macroeconomic environment

In this chapter of the analytical part, an analysis of the Czech macroeconomic environment will be performed. The purpose of the analysis of selected macroeconomic indicators is to determine how the given macroeconomic indicators developed over the observed period.

### 5.1.1 Analysis of the development of Czech GDP

Figure 4 indicates that the development of Czech year-on-year GDP in 2012 was affected by several declines, which caused the GDP growth to be -1.2% at the end of 2012. For the Czech economy, 2012 was a year of recession. According to the Czech Statistical Office, household final consumption expenditure contributed the most to the development of the Czech economy; in the last quarter, it was 4.1% lower year-on-year (Český statistický úřad 2013).

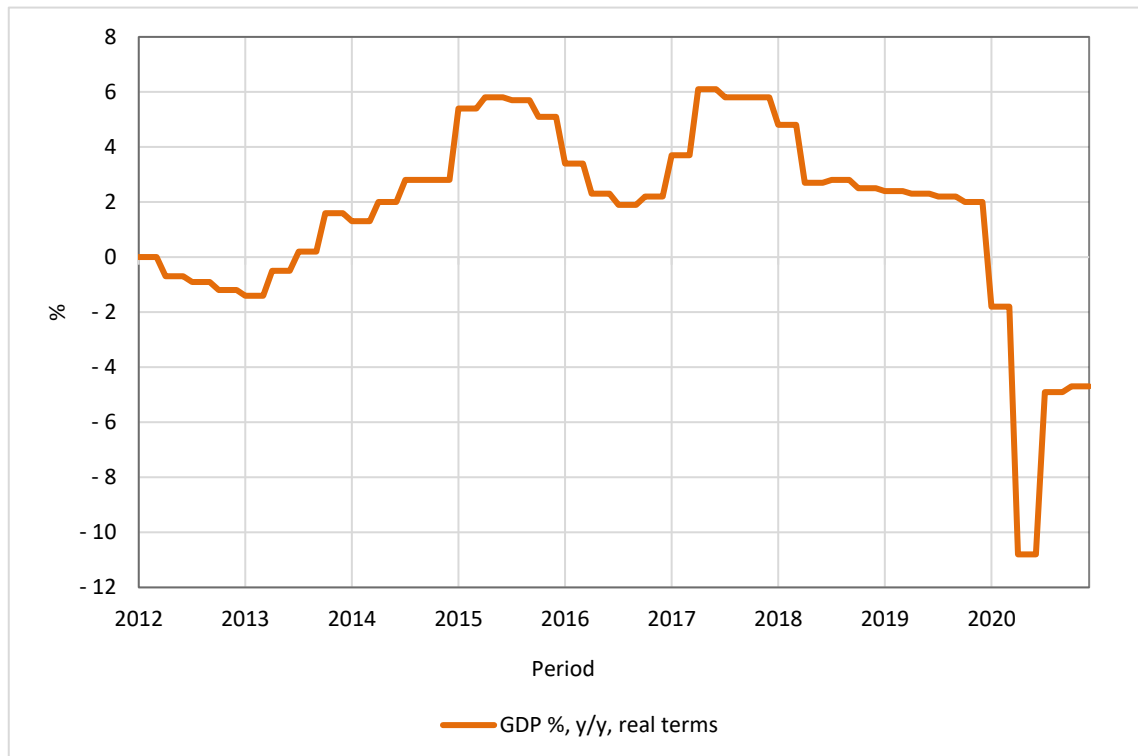


Figure 4: Czech GDP

(Source: Eurostat, author's creation, 2020)

Despite the initial decline in GDP in the first and second quarters of 2013, the Czech economy did well in the following years, bringing the year-on-year GDP growth in the first quarter of 2015 to 5.4%. In the second quarter, GDP growth increased to 5.8%. Based on a Czech Statistical Office report, GDP growth was maintained mainly by the manufacturing industry, which generated mainly means of transport, metals, plastic products, and food. The

manufacturing industry prospered mainly due to the growth of domestic and foreign demand (Český statistický úřad 2016). In 2016, a significant decrease in GDP growth can be observed. This decrease did not last long, and in the first two quarters of 2017, it was followed by a sharp increase, which caused the year-on-year GDP growth in May 2017 to peak at 6.1%. As was reported by the CZSO, both foreign and domestic demand significantly contributed to GDP growth in both years (Český statistický úřad 2017; Český statistický úřad 2018).

In the first quarter of 2018, a sharp slowdown in Czech GDP growth can be observed. The same slowdown, although not so sharp, can be observed for the rest of 2018. In 2019, the Czech GDP continued to decline, and so at the end of 2019, GDP growth was 2%. According to the CZSO, the main factors of year-on-year growth were consumption expenditure, household consumption, and general government expenditures (Český statistický úřad 2019; Český statistický úřad 2020).

In the first quarter of 2020, the beginning of a further decline in year-on-year GDP growth can be observed; GDP growth fell to -1.8% in this quarter. The decline was even more noticeable in the second quarter as GDP fell to -10.8%. In the last two quarters, one can see an improvement in decreased GDP growth. Thus, at the end of 2020, GDP was -4.7%. The CZSO attributes the decline of GDP growth to the decline in foreign and domestic demand (Český statistický úřad 2021).

### **5.1.2 Analysis of the development of Czech unemployment**

As can be seen in Figure 5, at the beginning of 2012, a rising unemployment rate with occasional fluctuations can be observed, which peaked in September of that year at a rate of 7.3%. The unemployment rate remained the same in November 2012 and February 2013, after which, it began a long period of decline. At the end of 2013, the seasonally adjusted unemployment rate was 6.8%. At the end of 2014, the unemployment rate was 5.8% (Český statistický úřad 2014; Český statistický úřad 2015). In the period from 2016 to 2018, short one-month increases in the unemployment rate can be observed. Despite these slight fluctuations, the unemployment rate continued to subside, reaching 2.1% at the beginning of 2019. The lowest value of the Czech unemployment rate came in June 2019, at 1.8% (Český statistický úřad 2019).



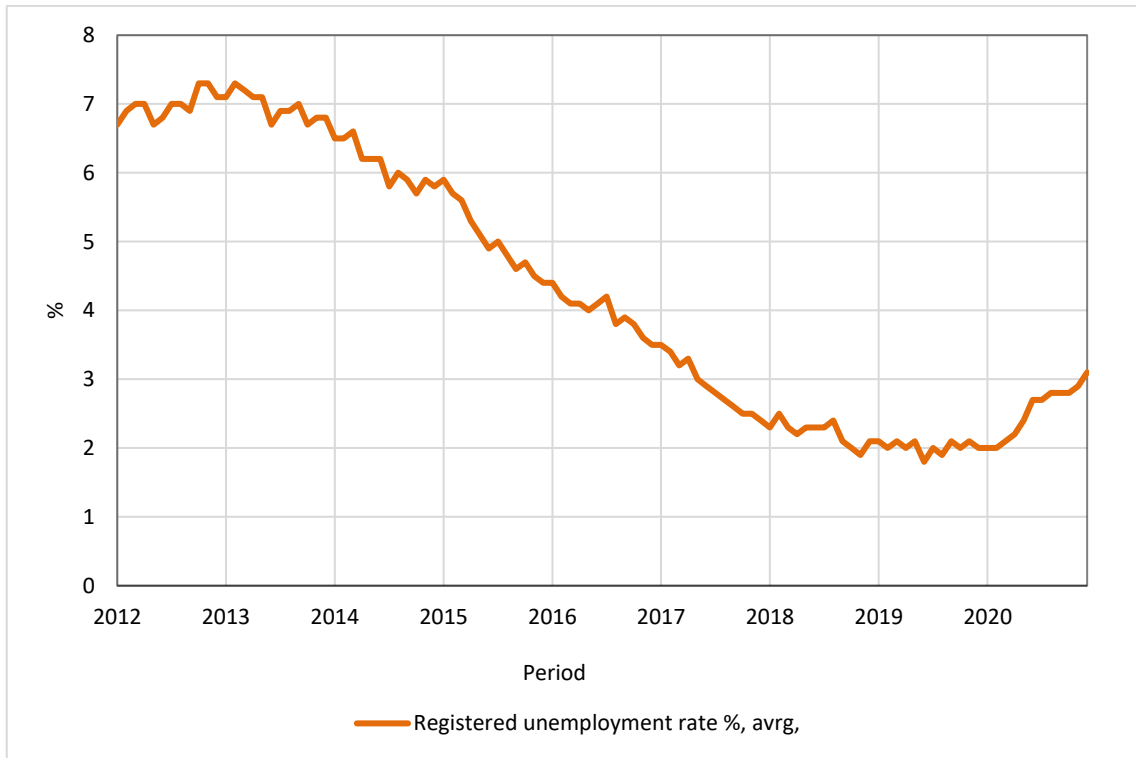


Figure 5: Czech Unemployment Rate  
(Source: Eurostat, author's creation, 2020)

Since then, unemployment has slightly increased. So, at the beginning of 2020, the value of the registered unemployment rate was 2%. According to the CZSO, despite this slight increase, the general unemployment rate in the Czech Republic remained the lowest among the E.U. states. In fact, the Czech Republic has held this position as the country with the lowest unemployment rate in the European Union since 2016 (Český statistický úřad 2020). In March 2020, it is possible to observe the beginning of a gradual rise in the unemployment rate in the Czech Republic. As stated by the CZSO, this was due to measures taken against the spread of coronavirus. Many businesses were temporarily closed. Although this did not result in a sharp increase in the number of unemployed, there was still a decrease in hours worked by 10%. Entrepreneurs who were forced to close their businesses could be behind the increased number of unemployed (Český statistický úřad 2020), which at the end of 2020 reached 3.1% (Český statistický úřad 2020; Český statistický úřad 2020; Český statistický úřad 2021).

### 5.1.3 Analysis of the development of Czech inflation

As demonstrated in Figure 6, the Czech economy entered 2012 with an inflation rate of 3.51%. In the following months of the first quarter, the CPI rose by its second-highest value of 3.71%. After this increase, a sharp decline in the inflation rate can be observed; at the end of January 2014, the inflation rate was 0.2%.

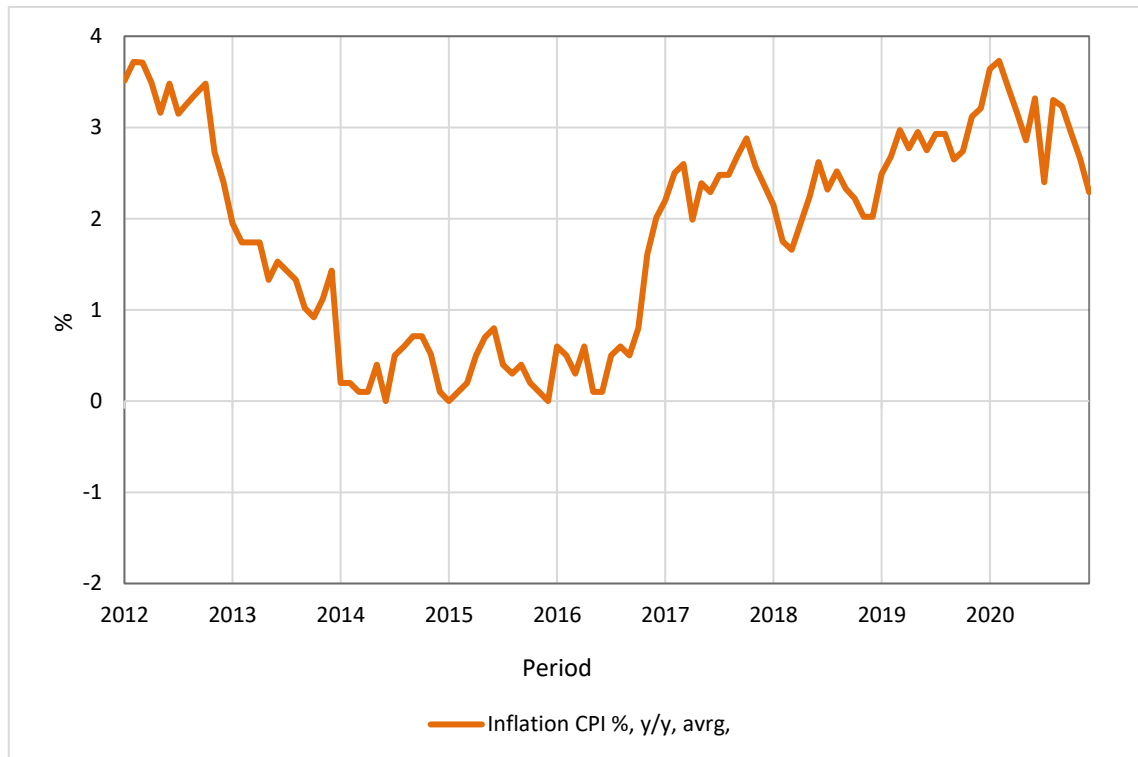


Figure 6: Czech Inflation CPI

(Source: Czech Statistical Office, author's creation, 2020)

This decrease was followed by a period of noticeable fluctuations in the development of year-on-year consumer prices. At the end of September 2016, inflation rose to 0.5%. Over the next six months, a rapid increase in prices can be observed, at the end of which the consumer prices rose to 2.60% in March 2017. From April 2017 to February 2020, further fluctuations in the inflation rate can be observed, and at the end of this period, the CPI peaked at 3.73%. For the rest of 2020, sharp fluctuations in the CPI can be observed. However, since the end of the third quarter, a steady decline in the year-on-year inflation rate can be observed. At the end of the period under review, inflation was 2.29% (Český statistický úřad 2021).

## 5.2 Analysis of the development of the German macroeconomic environment

As can be seen from the analysis of the Czech macroeconomic environment, in 2020, sudden changes in the development of two macroeconomic indicators occurred. Those were the unemployment rate and GDP. In this chapter, it will be ascertained whether or not these changes can also be observed in the development of German macroeconomic indicators.

### 5.2.1 Analysis of the development of German GDP

As illustrated in Figure 7, the German economy was affected by declining GDP growth in 2012, which caused the GDP growth at the end of 2012 to be 0.3%, compared with a growth of 0.9% at the beginning of the year. In the first quarter of 2013, the German GDP fell to -0.4%. However, after this decline, the German GDP recorded a period of growth, which lasted until the end of the first quarter of 2014; at the end of this quarter, GDP growth was 2.9%.

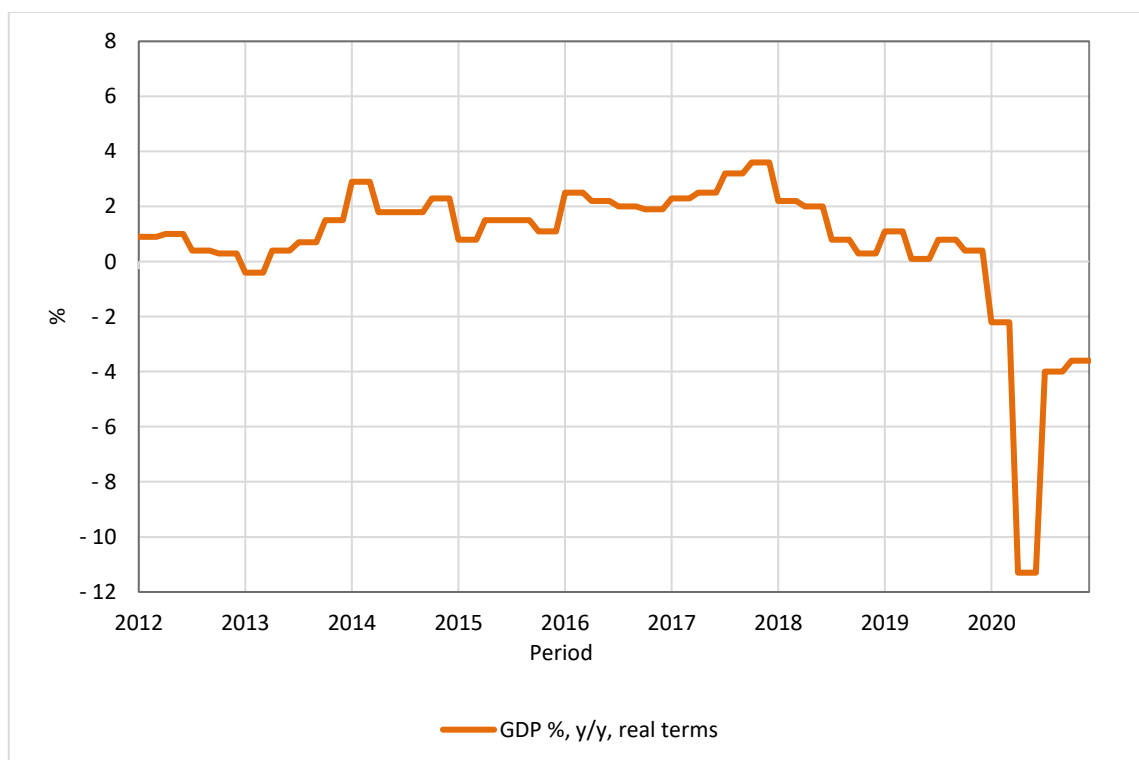


Figure 7: German GDP

(Source: Eurostat, author's creation, 2020)

This GDP growth was followed by a period of fluctuations, at the end of which German GDP rose to 2.5% in the first quarter of 2016. The rest of 2016 was marked by declining GDP growth. The end of this decline did not come until the first quarter of 2017. For the rest

of that year, the German GDP was rising at an increased pace. At the end of the fourth quarter, GDP growth peaked at 3.6%. The following years 2018 and 2019 can be characterised as a period of fluctuations with a declining tendency of GDP growth. At the end of this period, German GDP decreased to 0.4%. In 2020, a sharp decline in German GDP may be observed. In the first quarter, GDP fell to -2.2%. In the second quarter, the decline was even more noticeable, as the year-on-year GDP fell to -11.3%. In the last two quarters, GDP improved, to -4% in the third quarter and -3.6% in the fourth quarter (Eurostat 2021).

### 5.2.2 Analysis of the development of German unemployment

As illustrated in Figure 8, the German economy entered 2012 with a registered unemployment rate of 5.5%, but by the end of the year, the unemployment rate had fallen to 5.3%. It then rose to 5.4% in the first quarter of 2013. It then rose to 5.4% in the first quarter of 2013.

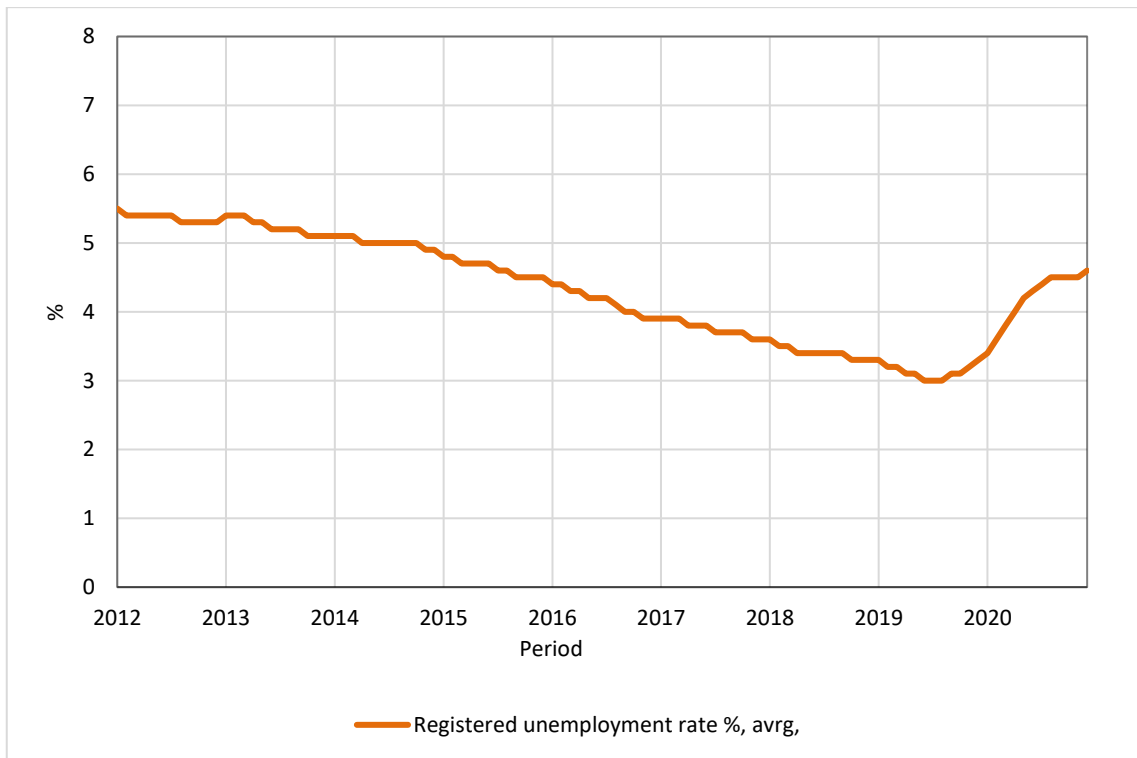


Figure 8: German Unemployment Rate  
(Source: Eurostat, author's creation, 2020)

This growth, however, was followed by a long period of a gradual decline in the unemployment rate. Interestingly, unlike the development of the Czech unemployment rate, short-term fluctuations cannot be observed in the development of the German unemployment rate. This long-lasting decline in the unemployment rate lasted until August 2019. In this and the previous two months, the registered unemployment rate in Germany reached its low

of 3%. From September 2019, a renewed increase in the unemployment rate can be observed. The rapid growth of the unemployment rate then ceased for a while from August 2020 to November 2020. During this period, unemployment remained at 4.5%. At the end of the year, the rate increased slightly to 4.6%. In comparison, the German unemployment rate in the last month of the period under review was 1% higher than the Czech unemployment rate (Eurostat 2021).

### 5.2.3 Analysis of the development of German inflation

As demonstrated in Figure 9, the development of inflation in Germany was not as dramatic as the development of Czech inflation; the growth in German inflation has never exceeded 2.35%. The German economy began 2012 with an inflation rate of 2.09%. In the following month, the inflation rate rose to 2.17%. Since the end of this month, despite occasional fluctuations, a gradual decline in the CPI can be observed.

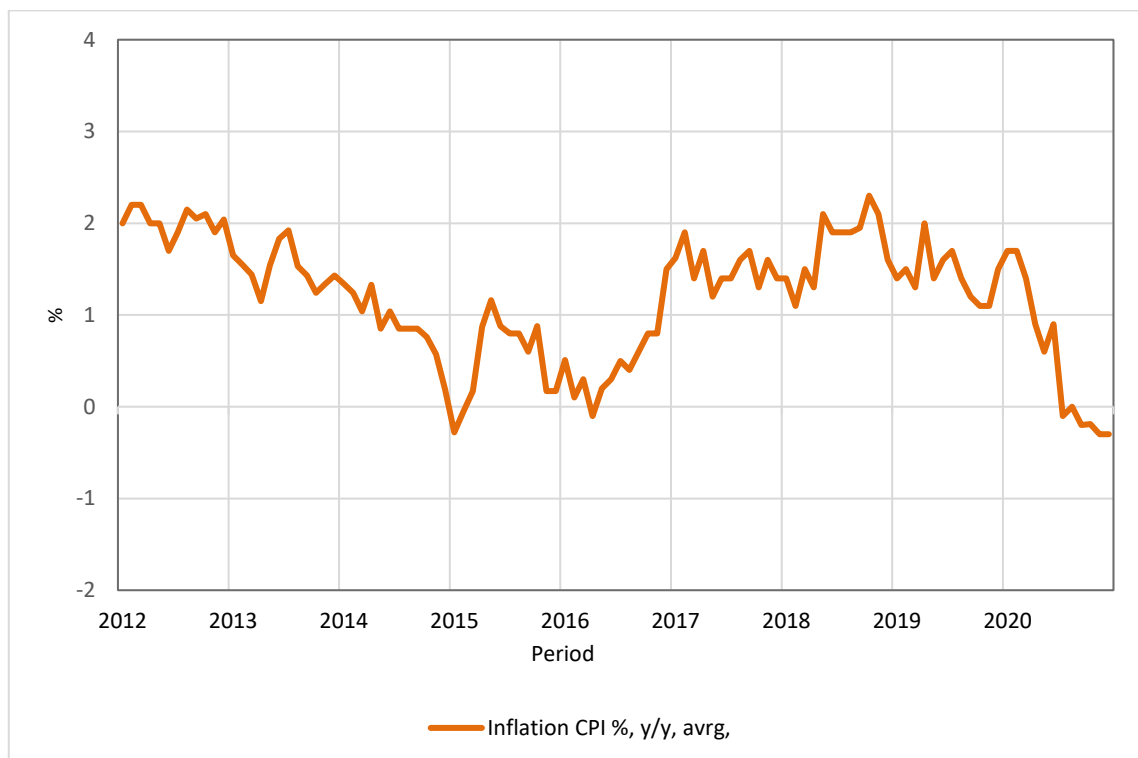


Figure 9: German Inflation CPI

(Source: Statistisches Bundesamt, author's creation, 2020)

This declining trend in price growth lasted until the beginning of 2015, when prices in Germany began to fall as deflation occurred. The inflation rate in the first two months of 2015 was -0.28% and -0.05%. After this decline, prices rose again as the CPI rose to 1.16% in May 2015 (Destatis 2016). Since the end of May, another trend of declining inflation rate

followed, at the end of which in April 2016, there was another fall in prices, and the inflation rate was -0.10%. In May 2016, however, prices began to rise again, as the CPI increased to 0.20%. The CPI continued to grow in the following years, despite fluctuations in the period from March 2017 to October 2018 (Destatis 2019). At the end of this period of growth, the CPI peaked at 2.34%. This was followed by a period of declining inflation, interrupted by two large fluctuations. Nevertheless, at the end of this period in November 2019, the inflation rate was 1.06%. The German economy entered 2020 with an inflation rate of 1.74%. A sharp drop in the CPI can be observed in the period from March to July 2020. At the end of this decline, the inflation rate fell to -0.09%. In August, inflation rose slightly, remaining at 0% year-on-year. In the last month of the third quarter and throughout the fourth quarter, a gradual decrease in prices was observed. In December 2020, the inflation rate was -0.28% (Destatis 2021).

### **5.3 Analysis of the development of Japan's macroeconomic environment**

As found in the analysis of the Czech and German macroeconomic environments, significant fluctuations in the GDP growth and the unemployment rate in both countries can be observed. This similar development of both macroeconomic environments can be attributed to the already-mentioned interconnection between the economies. In this chapter, an analysis of Japan's macroeconomic environment will be performed in order to determine whether similar fluctuations occurred there as well.

#### **5.3.1 Analysis of the development of Japan's GDP**

As illustrated in Figure 10, Japan's GDP showed the same year-on-year growth of 2.8% throughout the first and second quarter of 2012. In the third quarter, the GDP fell to -0.1%. In the last quarter of 2012 and first quarter of 2013, it slightly rebounded. Then, in the following quarters of 2013, a rapid increase in GDP growth can be observed.

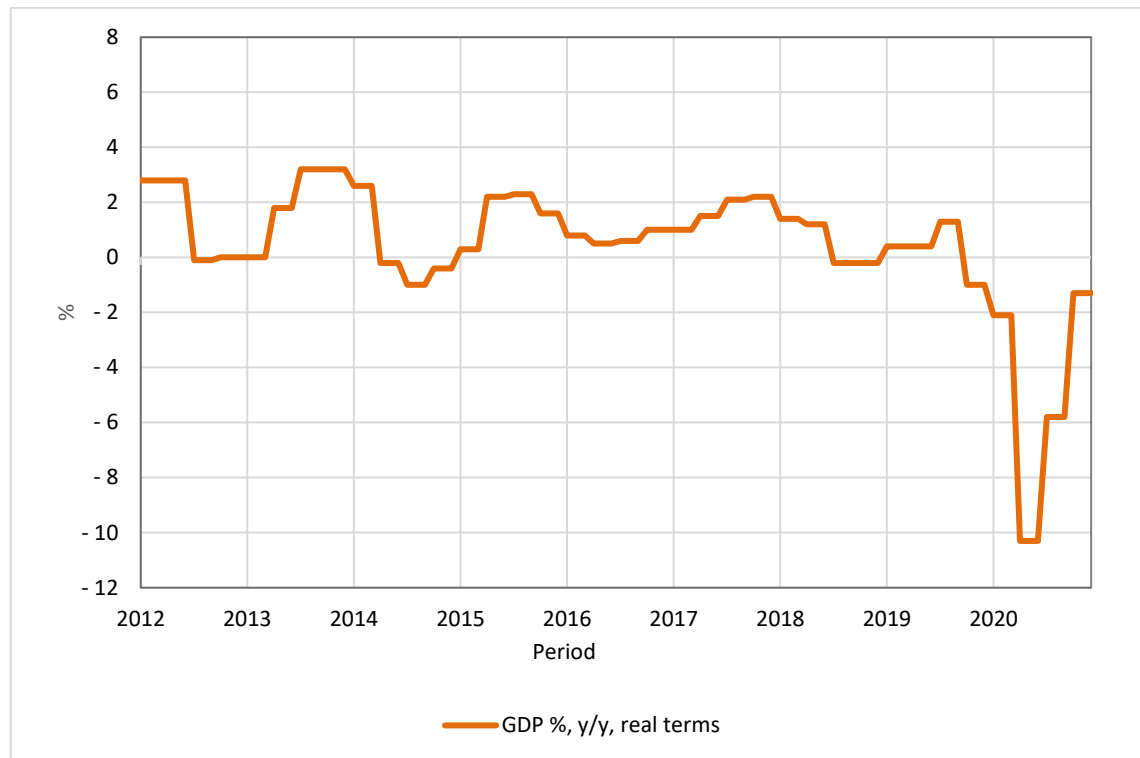


Figure 10: Japan's GDP

(Source: Eurostat, author's creation, 2020)

As a result of this rapid increase, Japan's GDP growth peaked at 3.2% in the third and fourth quarters. In 2014, however, GDP sharply declined, from 2.6% in the first quarter to -0.2% in the second quarter, and -1% in the third. A gradual improvement in GDP growth can be observed in the fourth quarter of 2014 and subsequently in the next three quarters of 2015. From the last quarter of 2015 to the second quarter of 2016, a gradual decline in GDP growth can be observed. This was followed by a period of increase GDP that ended in the last quarter of 2017. In this quarter, GDP reached 2.2%. In 2018, another series of declines in Japan's GDP can be observed; during these declines, GDP fell to -0.2%. The following year 2019, can be characterised as a variable for the growth of Japan's GDP. In the first two quarters, GDP was 0.4%. Later, it rose to 1.3% before falling in the fourth quarter to -1%. The decline did not stop even in the first quarter of 2020 when it fell to -2.1%. However, the most significant drop in GDP to date can be observed in the second quarter of 2020, when GDP decreased to -10.3%. In the last two quarters, one can see an improvement, from -5.8% in the third quarter to -1.3% in the fourth (Eurostat 2021).

### 5.3.2 Analysis of the development of Japan's unemployment

As can be seen from the development of Japan's unemployment rate illustrated in Figure 11, the registered unemployment rate in the first four months of 2012 was 4.5%. In the following months, Japan's unemployment rate gradually decreased to 4.1% in November. However, in December, the unemployment rate rose to 4.3%.

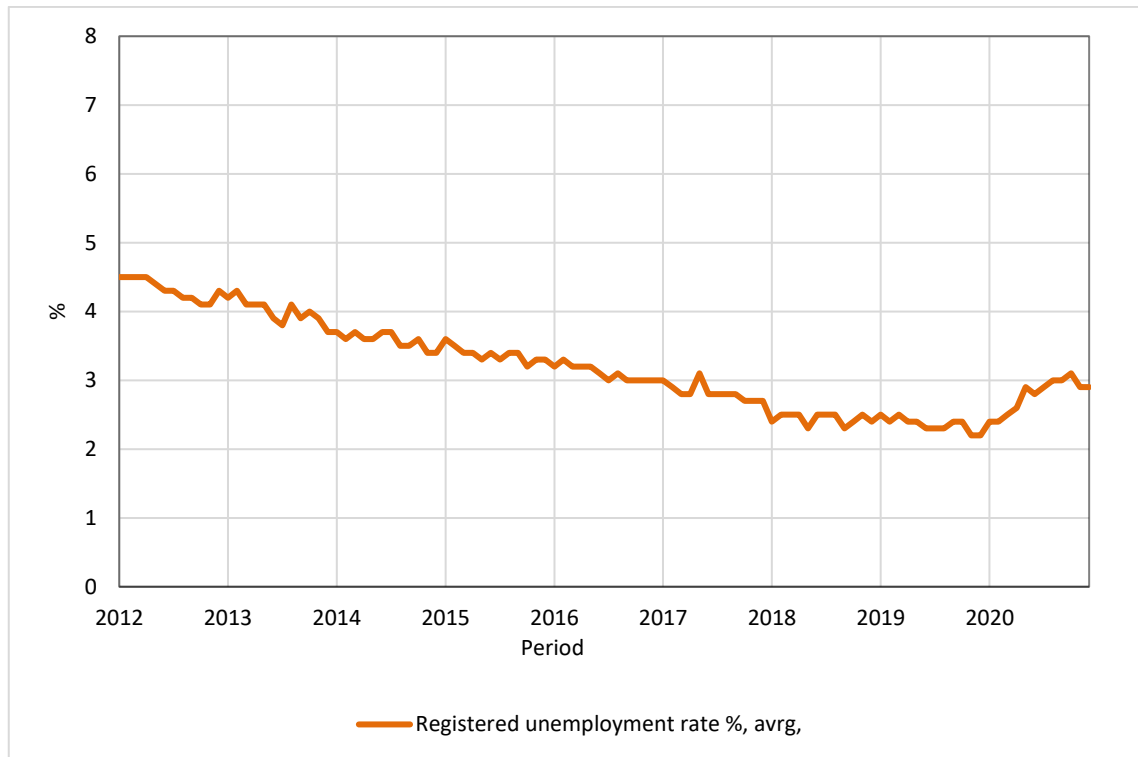


Figure 11: Japan's Unemployment Rate  
(Source: Eurostat, author's creation, 2020)

From the beginning of 2013 to the end of 2016, slight fluctuations can be observed, but unemployment ultimately decreased to 3%. Between 2017 and 2019, it continued to decline, ending the period at a low of 2.2%. This decline was interrupted at the beginning of 2020, when the unemployment rate began to rise, reaching 3.1% in October. It then fell to 2.9% by the end of the year. (Eurostat 2021).

### 5.3.3 Analysis of the development of Japan's inflation

As can be seen from the development of Japan's inflation illustrated in Figure 12, the inflation rate rose to 0.52% in the first three months of 2012. However, in the second half of 2012, and the first five months of 2013, a period of deflation occurred as Japan's inflation rate fell below 0%.



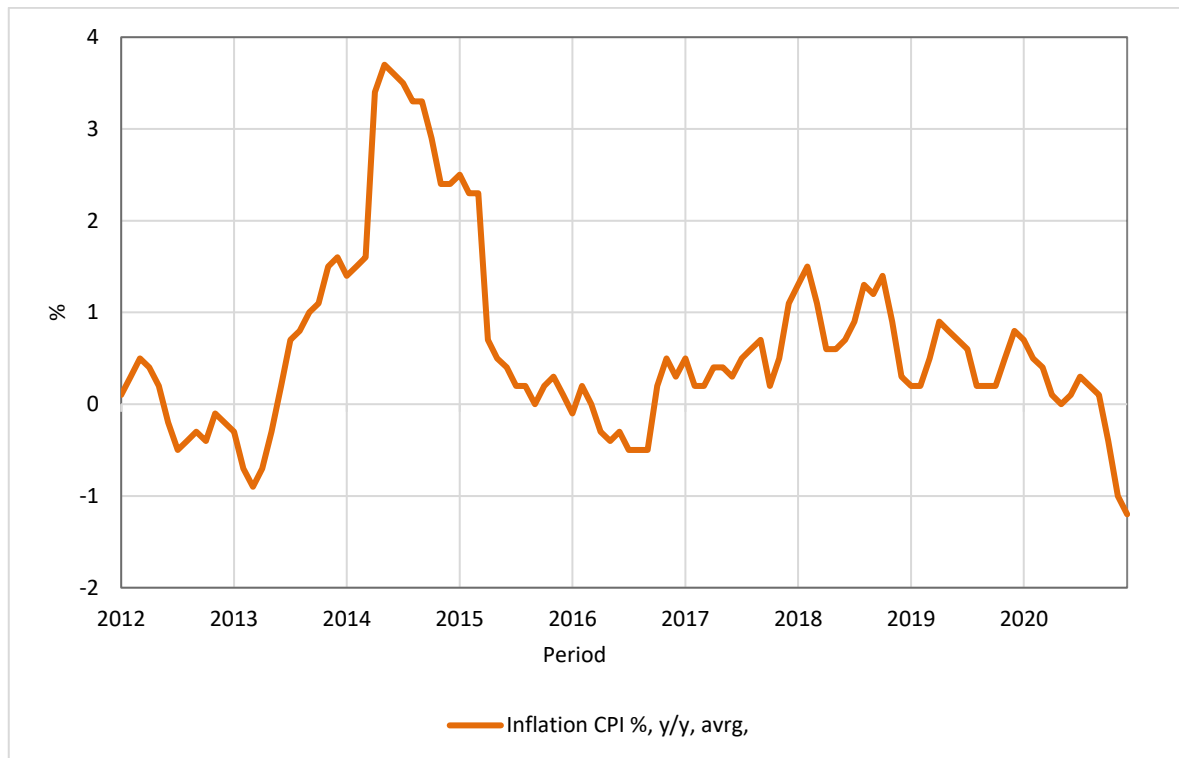


Figure 12: Japan's Inflation CPI

(Source: The Statistics Bureau of Japan, author's creation, 2020)

The inflation rate then rises sharply from June 2013 to May 2014, peaking at 3.74%. In the following years, an equally sharp decline in the inflation rate transpired, at the end of which, in September 2016, the CPI fell to -0.50%. In November 2016, the inflation rate rose to 0.5%. In the following period (2017–2020), a number of fluctuations can be observed. These fluctuations occurred until September 2020, when the inflation rate reached 0.1%. In the last three months, a further decline in the inflation rate can be observed, so that in December the inflation rate fell to -1.17% (Statistics of Japan 2021).

## **6 COMPARISON OF THE DEVELOPMENT OF THE MACROECONOMIC ENVIRONMENT AND THE PMI**

In the previous graphs illustrating the development of PMI, alternating phases of decline, growth, and stagnation can be observed. Such phases are similar to the phases of the business cycles described in Chapter 2.1. In this chapter, an analysis of the link between the development of the PMI and the previously mentioned macroeconomic indicators against the background of contractions in economic cycles will be performed. The Czech Statistical Office refers to these contractions as technical recessions, during which a quarter-on-quarter decline in seasonally adjusted GDP for at least two consecutive quarters can be noted (Český statistický úřad 2012).

### **6.1 Comparison of the development of the macroeconomic environment and the PMI in the Czech Republic**

This chapter will determine whether or not the development of the Czech macroeconomic environment has an impact on the development of the Czech PMI. Three graphs will be used for this, in which the development of these macroeconomic indicators will be compared together with the development of the PMI.

#### **6.1.1 Comparison of the development of the Czech PMI and GDP**

In Figure 13, a phase of a technical economic recession can be observed from 2012 to mid-2013. This recession was caused by reduced production due to declining foreign demand and thus reduced export opportunities for the Czech economy. This resulted in a drop in both indicators. However, a decrease in the PMI appeared four months earlier than a fall in GDP. On the other hand, renewed PMI growth, which can be observed since the beginning of the second half of 2013, appeared three months before GDP growth (Český statistický úřad 2013; Český statistický úřad 2013).

In 2015, a phase of fluctuation in the development of the PMI can be noticed. Between July 2015 and the end of October, the PMI fell by 3.5 points. Investiční Web claims that this decrease was caused by a slowdown in the growth of new orders and the accumulation of unsold inventories (2015). The response of GDP to this decline can be observed with a delay of 3 months when GDP fell to 5.1% in October. Despite a slight increase in the PMI in the final months of 2015, mainly influenced by the growth of domestic and foreign orders, the decline in GDP persisted until the third quarter of 2016 (ČTK 2016).

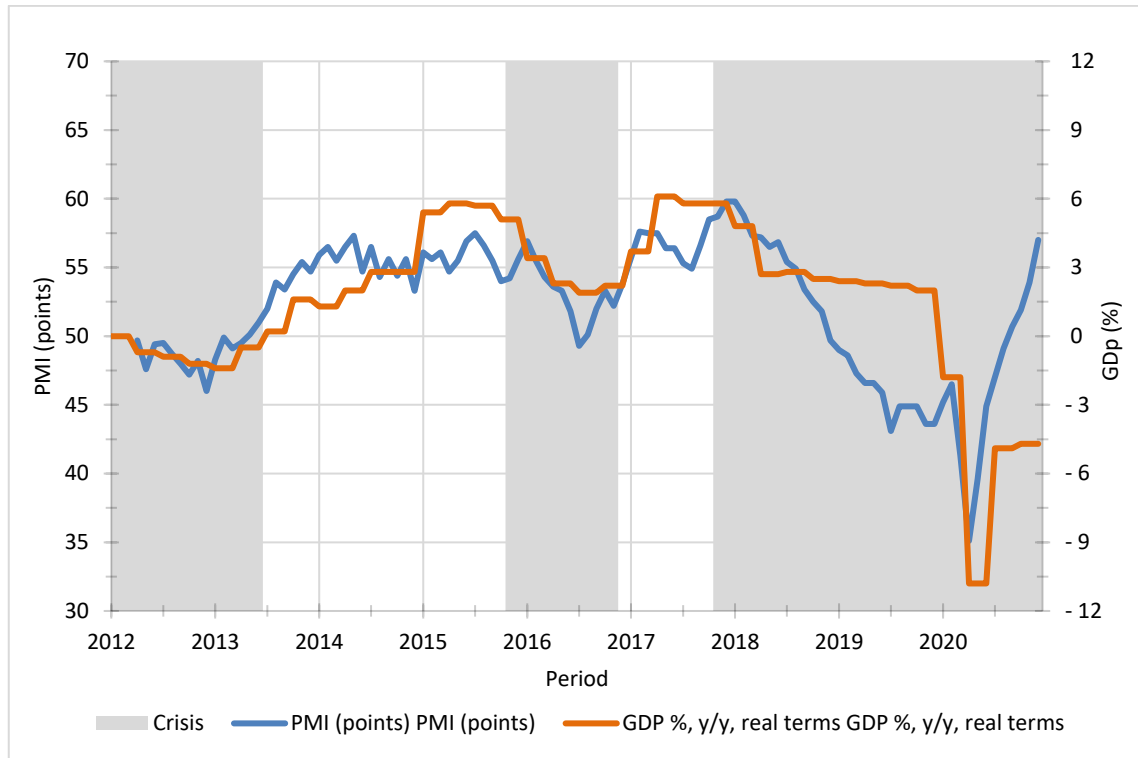


Figure 13: The link between the Czech PMI, GDP and the economic cycle (Author's creation)

The renewed growth of GDP can be observed from the beginning of the 4th quarter of 2016, again with a further delay against the growth of the PMI, which occurred already in August. The decline in the PMI about four months before the decline in GDP in 2018 pointed to a possible crisis. According to Stupavský, this crisis was caused by slow growth in new orders, a tense labour market situation, and an overall decline in optimism in business prospects (Stupavský 2018). In 2019 another decline in both indicators occurred which was, according to, caused by a sharp decline in production and the number of new orders, which were affected by trade wars and a slowdown in global production (Bassetti 2020).

The demand and sales crisis continued in 2020 when it was mainly affected by the Coronavirus crisis. This caused a further drop in the PMI from a peak of 60 points at the beginning of 2018 to 35.1 points in April 2020. This sharp drop in the PMI led to a drop in GDP to -11% in the second quarter of 2020. Despite the restored growth of the PMI in the third quarter of 2020, which was induced by the increased volume of new orders and the renewed launch of customer operations, the expected recovery of the Czech GDP did not occur (Investiční web 2020). According to the Czech National Bank, the second wave of the pandemic and the associated epidemiological constraints are to blame. Therefore, the Czech GDP in December 2020 was around -4.7% (Česká národní banka 2021).

Epidemiological constraints also threaten the future development of the Czech GDP. As stated by the Ministry of Finance of the Czech Republic (Ministerstvo financí České republiky), 2021 should be characterized by a recovery of global economic activity. Nevertheless, the MFCR adds that this recovery in many countries may not be strong enough to offset the decline that occurred in 2020. For 2021, the MFCR forecasts Czech GDP growth of 3.1%. However, such growth is threatened by several risks: the future development of the epidemiological situation, uncertainties in international trade, structural changes in the economy, the need to increase labour productivity, an increase in non-performing loans, overvaluation of residential real estate and, last but not least, the cyclicity of the automotive industry (Ministerstvo financí České republiky 2021).

Based on a joint comparison of the development of the Czech PMI and GDP, the development of the PMI slightly precedes the development of GDP. This statement is in accordance with the definition of Viet (2009) given in Chapter 1.1 and further coincides with the definition of the production method given on the CZSO website (2015). Furthermore, the Czech PMI, which has a significant impact on GDP, is most often affected by foreign and domestic demand, which is based on optimism in the outlook of entrepreneurs.

### **6.1.2 Comparison of the development of the Czech PMI and unemployment**

As demonstrated in Figure 14, during the recession of the Czech economy in 2013, both indicators fluctuated, with negative results. Nevertheless, at the end of the recession, both indicators turned positive, which can be attributed to increased foreign demand (Český statistický úřad 2013). The unemployment rate continued to decline, even during the period of PMI fluctuations, which occurred in 2014 and persisted until the end of 2015. Despite the subsequent decline in the PMI during the second technical recession of the Czech economy, the registered unemployment rate continued to decline. A decline in the unemployment rate may indeed occur despite a decline in the PMI. This is due to the distortion caused by the measurement of both indicators. While the PMI records the development of the manufacturing sector, the general unemployment rate monitors the development of unemployment across all sectors of the economy.

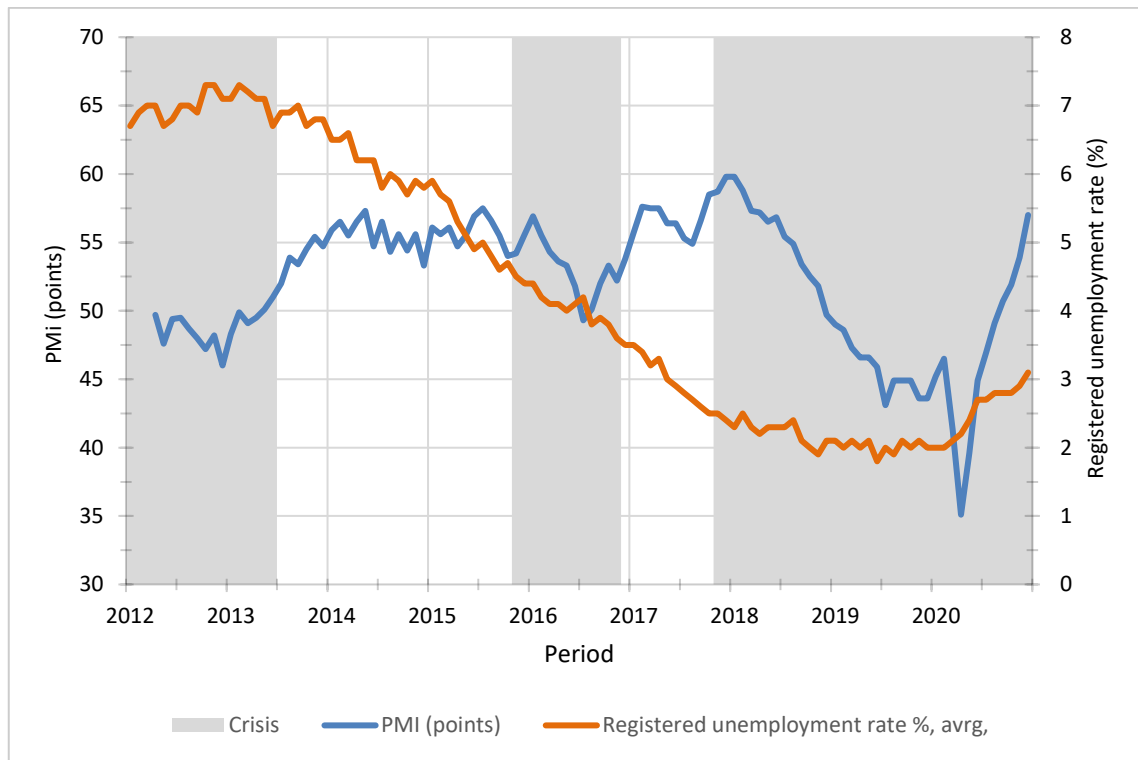


Figure 14: The link between the Czech PMI, the unemployment rate and the economic cycle (Author's creation)

This statement follows the CZSO report, which identifies in which sectors of the economy employment growth has primarily occurred. According to the CZSO, the number of employees increased mainly in the tertiary sector, followed by increased employment in the secondary sector. Within the secondary sector, the highest employment growth was recorded in the manufacturing industry, even despite the decline in the PMI (Český statistický úřad 2016). The decline in the unemployment rate can also be observed during the third technical recession, during which the sharpest fall in the PMI occurred due to slow growth in new orders and a tight labour market situation. Nevertheless, the unemployment rate continued to fall, reaching 2.1% in September 2019. The Ministry of Industry and Trade (Ministerstvo průmyslu a obchodu) perceives this decrease in the unemployment rate as a result of the number of vacancies offered, which exceeded the total number of unemployed (Ministerstvo průmyslu a obchodu 2020).

In March 2020, the beginning of increased unemployment can be observed, complemented by one of the most significant declines in the PMI. In relation to the report issued by the Ministry of Health of the Czech Republic (Ministerstvo zdravotnictví České republiky), these adverse developments were caused by the government's response to the first cases of coronavirus in the Czech Republic (Ministerstvo zdravotnictví České republiky

2020) and the subsequent declaration of a state of emergency, which brought a number of restrictions (Česká televize 2020). As reported by Colato, in the following months, a number of companies experienced a sharp decline in production and the number of new orders, forcing manufacturing companies to cut job positions at the highest rate since the 2009 financial crisis (2020).

Despite renewed PMI growth in the second half of 2020, the unemployment rate rose for the rest of 2020. The most significant increase in the number of unemployed can be observed in sectors such as services, hospitality, sports clubs, culture, and on a small scale in the automotive industry, i.e., in the sectors of the economy which are most affected by the advent of coronavirus and government restrictions. Despite this gradual increase in the number of unemployed, the Czech Republic maintains the position of the member state with the lowest unemployment rate in the entire European Union (Ministerstvo práce a sociálních věcí 2021).

In conclusion, the development of the Czech PMI and unemployment are closely related due to the fact that changes in the development of the PMI are quickly reflected in changes in the unemployment rate. An example to support this statement is the development of both indicators in periods of technical recession, during which a gradual decline in the PMI can be observed, followed by a slowdown in the decrease in the unemployment rate.

### **6.1.3 Comparison of the development of the Czech PMI and inflation**

As shown in Figure 15, the growth of the inflation rate slowed during the first technical recession (2012–2013) while the PMI rose. Nevertheless, the CPI was above the CNB's target in 2012. According to the CNB, regulated prices, adjusted inflation (excluding fuels), and falling oil prices contributed to the reduced inflation rate at the beginning of 2013. Despite the slowdown in economic activity, the growth of market prices remained at low values (Česká národní banka 2013). Along with fluctuations in the development of the PMI, which began in early 2014 and lasted until early 2016, fluctuations in the inflation rate also appeared. Such fluctuations, which were slight, persisted until mid-2016. The PMI fluctuations were initially caused by declines in new orders, yet due to the low consumer prices, the input prices eased, and the producers were able to reduce the prices of their end products (Investiční web 2014).

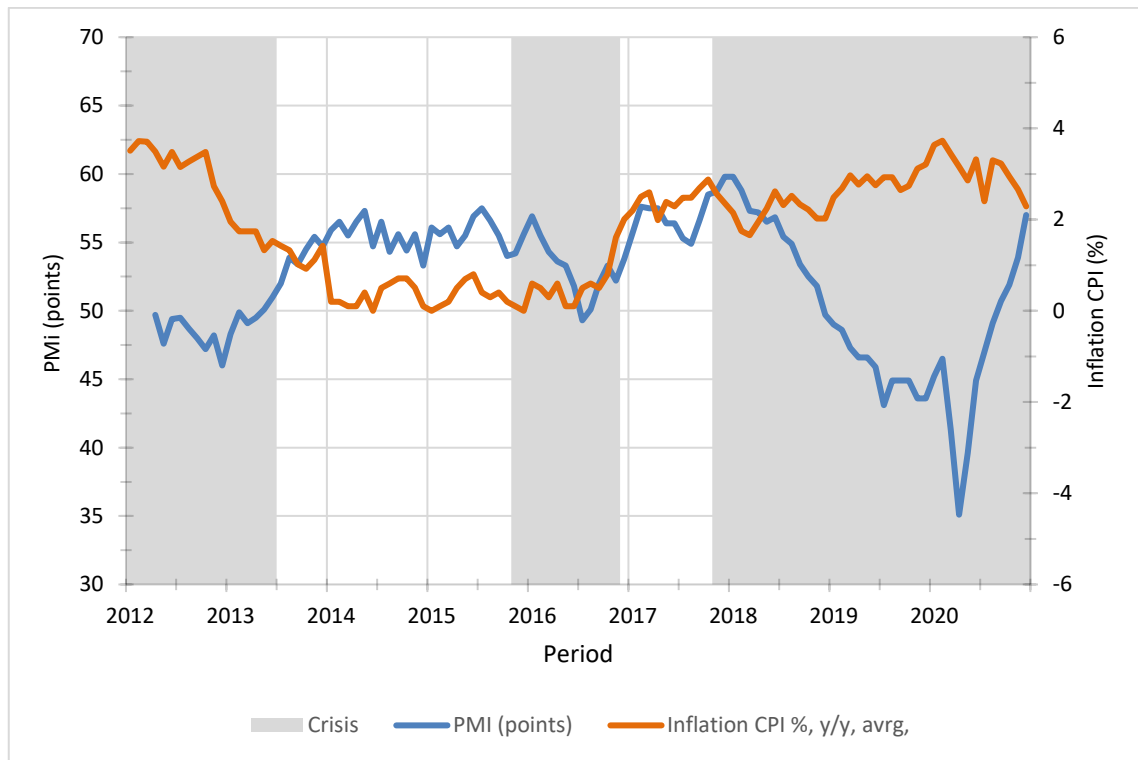


Figure 15: The link between the Czech PMI, inflation CPI and the economic cycle (Author's creation)

According to the CNB, the low CPI was due to a decline in regulated prices and the fading of the primary effects of the previous year's change in value-added tax (Česká národní banka 2014). At the end of this period, a gradual growth of the inflation rate can be observed, which was caused by the end of the decline in food prices from May and June along with a gradual moderation in the decline in fuel prices (Česká národní banka 2016). In the same period, the PMI decreased to 49.3 points. Based on the CZSO report describing the industrial production that month, the decrease in PMI can be attributed to the distribution of public holidays during the working week and also to the use of company-wide holidays during the month (Český statistický úřad 2016).

During the last technical recession (2018–2020), a sharp decline in PMI was observed. However, during this period, the inflation rate developed in the opposite direction, and thus despite occasional fluctuations, consumer prices increased. In January 2018, the PMI peaked at 59.8 points. According to Lammersen, this was due to the growth of new orders and foreign demand, followed by increased business confidence, which reached its highest level in two years (2018). Simultaneously, the CPI fell to 2.15%. As reported by the CNB, the decreased CPI was mainly due to a more subdued increase in food prices and a slowdown in core inflation. Nevertheless, significant domestic inflationary pressures in core inflation can

be noted during this period (Česká národní banka 2018). In the second half of 2018 and subsequently, in 2019, a gradual decline in the PMI can be observed, which was mainly due to the already mentioned tense situation on the labour market, an overall decline in optimism in trade prospects, a slowdown in global production, and trade wars. On the other hand, consumer prices rose during this period, mainly due to increasing core inflation and, to a lesser extent, increasing food prices (Česká národní banka 2018; Česká národní banka 2019).

In 2020, the inflation rate continued to rise, while the PMI continued to decline. However, in recent months, a change in both the PMI trend and the inflation rate trend can be observed. While the PMI rose sharply in the final months of 2020, the CPI declined slightly, mainly due to lower food prices, mainly in the food and non-alcoholic beverages section and in housing (Český statistický úřad 2021).

As follows from the analysis of the development of both indicators, both indicators showed the opposite development trend for most of the observed period. An example of this can be the development of both indicators during the first and third technical recessions during the period under review. The low growth of the CPI has the effect of reduced input prices of which producers can take advantage to reduce the prices of their final products.

## **6.2 Comparison of the development of the macroeconomic environment and the PMI in Germany**

In this section, a comparison of the development of the macroeconomic environment of Germany and the German PMI will be made in order to determine whether or not the macroeconomic environment had an impact on the development of the German PMI. For this purpose, three graphs will be used. In these graphs, the development of these macroeconomic indicators will be compared with the development of PMI against the background of technical recessions in the German economy.

### **6.2.1 Comparison of the development of the German PMI and GDP**

As illustrated in Figure 16, the declining German PMI in 2012 also dragged down German GDP, albeit with a slight delay. As specified by Ro, the initial decline in the German PMI was associated with declining exports and a general shortage of new orders (Ro 2012). The resumption of PMI growth can be observed in January 2013, followed three months later by the resumption of GDP growth, which lasted for the rest of the year. This renewed GDP growth was mainly influenced by the rise in exports, which, on the contrary, hampered GDP growth for most of 2012 (Investiční web 2014).



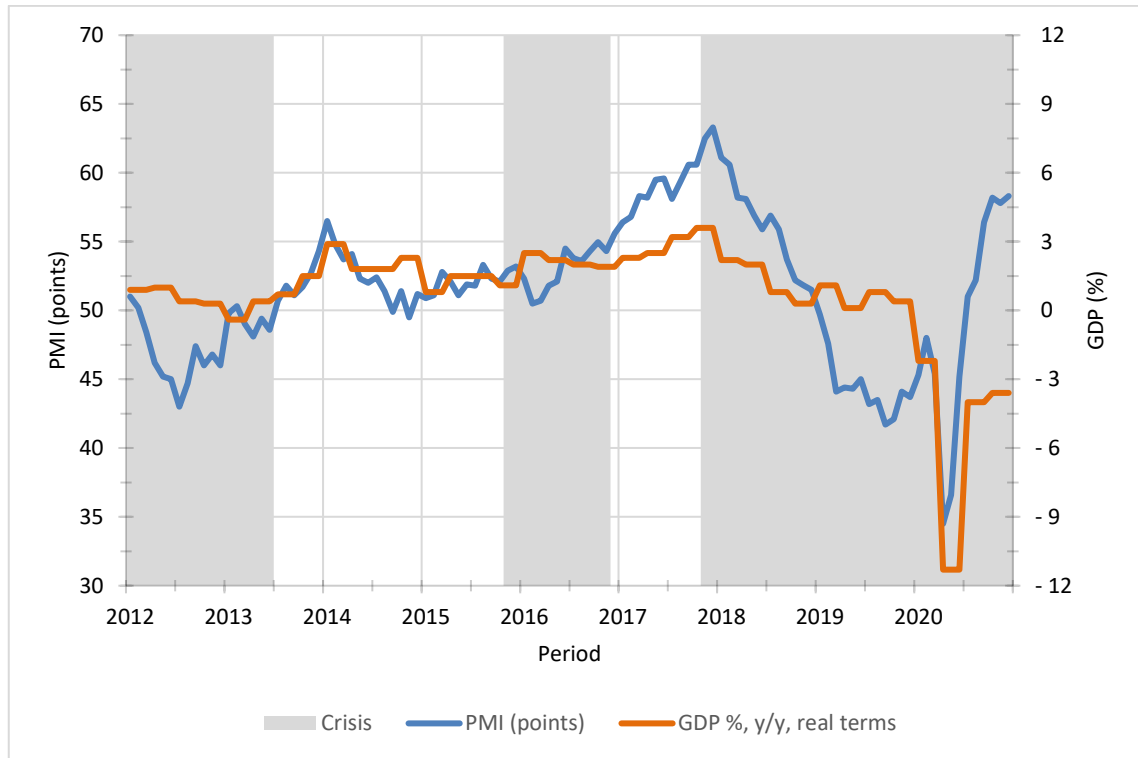


Figure 16: The link between the German PMI, GDP and the economic cycle (Author’s creation)

In 2016, a decline in the PMI can be observed, which was followed three months later by a decline in GDP growth. This decline in PMI was due to a reduced number of new domestic as well as foreign orders (RTE 2016). At the end of 2016, a renewed and continuous increase in the PMI can be observed, which was reflected in GDP growth approximately three months later. Innes stated that this GDP growth was supported by increased domestic demand and net exports (Innes 2017). The growth in the PMI was driven by an increase in the production of goods caused by an increase in new orders. As a result, companies began to increase their inventories (Reuters 2016). A decline in the PMI accompanied by a decline in GDP in early 2018 pointed to a possible crisis due to the reduced output and production caused by a reduced number of new foreign orders (Sands 2018). This decline in the PMI was also reflected in the immediate decline in GDP growth, which was affected by lower German government spending and the aforementioned decline in German exports. On the other hand, the GDP growth rate did not fall below 2.2%, mainly due to companies’ investments in buildings and a slight increase in household consumption (AFP 2018).

The decline in the German PMI continued in 2019, mainly due to the ongoing demand crisis caused by a slackened world economy and tariff disputes caused by Brexit. The most significant decline in foreign demand then occurred in the automotive industry. Despite this

continuing decline in the German PMI in 2019, German GDP growth did not slow down that year but instead fluctuated above 0.1%. This growth was maintained mainly due to increased domestic demand. Without the increased private consumption, government spending and construction, the German economy would have entered a period of recession (Nienaber and Seythal 2020).

The German economy did not enter a period of recession until the beginning of the following year; in this period, a decline in GDP growth can be observed. This decline was mainly due to the coronavirus crisis and the associated decline in household final consumption expenditure and gross fixed capital formation in the machinery and equipment sector. In addition, as a result of various lockdowns around the world, exports, on which the German economy is so dependent, also fell (Destatis 2020). This led to a record decrease in the values of both indicators.

Despite the rapid growth in the PMI in the second half of 2020, caused mainly by the easing of government restrictions and the resumption of operations in manufacturing companies (Reuters 2020), the coveted recovery of the German economy did not occur by the end of the year. Increased household spending and renewed growth of exports did not help either (Destatis 2020).

Based on the comparison of the link between the German PMI, GDP, and the economic cycle, it can be said that during the decline of the German PMI, the growth of German GDP decreases. However, this decline in GDP growth is not as noticeable as in the case of the link between the Czech PMI and GDP. In some cases, the German government has been able to offset the declining PMI with increased government spending and increased domestic demand, thus maintaining modest German GDP growth.

### **6.2.2 Comparison of the development of the German PMI and unemployment**

As can be seen from the development of both indicators shown in Figure 17, unemployment fell slightly during the first technical recession experienced by the German economy in 2012–2013, despite the initial contraction of the PMI. However, the PMI contraction did not last long, and thanks to growth in production and new orders, the PMI began to grow again (Reuters 2013). While other E.U. countries have struggled with higher unemployment rates, low German unemployment has raised consumer morale, rising to its highest level since 2007 (Marsh 2013). The declining trend in the unemployment rate can also be observed in the following years of 2014 and 2015. Nevertheless, the fastest decline in the unemployment rate can be observed in the period of the second technical recession.

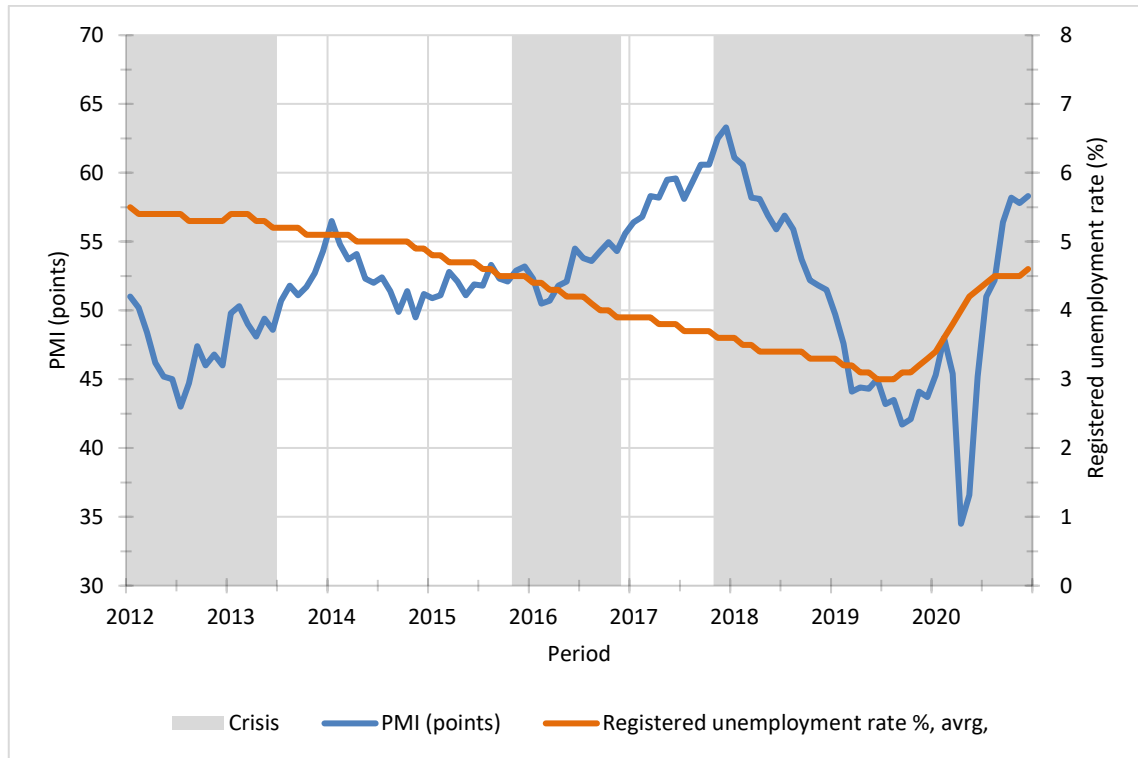


Figure 17: The link between the German PMI, unemployment rate and the economic cycle (Author’s creation)

The initially declining PMI, which, however, started to rise in the second quarter of 2016, was followed by a declining unemployment rate. The decline in the unemployment rate was higher than most economists thought, even despite the arrival of new refugees and the introduction of a national minimum wage of 8.50 euros per hour. Economists believed that new refugees would be challenging to integrate into the labour market, and that the introduction of a national minimum wage would rather discourage employers from recruiting new workers. However, this scenario did not happen, and the German economy, on the contrary, grew due to increased private consumption and higher government spending on refugees (Nasr 2016). The growth of the German economy and the decline in the unemployment rate were also due to the growing PMI, driven by an increase in new orders and an expansion of production. The companies, therefore, started to hire new employees at a faster pace (Reuters 2016).

The decline in the unemployment rate continued further in 2018 and 2019, despite the declining PMI caused by the sales crisis, global trade tensions and Brexit. According to the Federal Employment Agency (Bundesagentur für Arbeit), a change in the declining trend in the unemployment rate can be observed in the second half of 2019, when the unemployment rate slowly rose, mainly due to declining demand for new employees (Bundesagentur für

Arbeit 2020). Despite a slight recovery in the German purchasing managers' index at the beginning of 2020, the German PMI fell to 34.5 points in April. As stated by the Federal Ministry of Economics and Technology (Bundesministerium für Wirtschaft und Energie), this was caused by a robust decline in supply and demand in the world's economies due to the Covid-19 pandemic. The pandemic affected the industrial sector and the labour market, in which it caused an increase in the unemployment rate (Bundesministerium für Wirtschaft und Energie 2020).

Since May 2020, the growth of the German PMI can be observed mainly due to the previously mentioned easing of government restrictions and the resumption of operations in manufacturing companies. Nevertheless, the German unemployment rate continued to rise during this period, to 4.6% in December. The rise in the unemployment rate was marked mainly by the lockdown introduced in mid-December to prevent the further spread of Covid-19.

Based on an analysis of the development of the German PMI, the registered unemployment rate, and economic cycles, the development of the German PMI and the registered unemployment rate are clearly related. An argument supporting this claim was made by Look, who stated that German employment in 2020 was more resilient to the adverse changes caused by the covid pandemic, mainly due to its focus on the manufacturing industry (Look 2021). This statement is also reflected in the development of unemployment in other periods. At a time when the PMI was rising, the unemployment rate was falling faster than at a time when the PMI was fluctuating or falling slightly.

### **6.2.3 Comparison of the development of the German PMI and inflation**

As demonstrated in Figure 18, the German inflation rate was decreasing from 2012 to 2015, despite fluctuations in the PMI. The main reason for the decrease in consumer prices in 2014 was sinking energy costs (AFP 2015). The decline in consumer prices did not stop until the end of January 2015, when the CPI fell below 0% for the first time since 2009. Consumer prices continued to fall, mainly due to falling energy costs and decreasing food prices. To prevent a further fall in consumer prices, the ECB announced a government bond purchase scheme (Martin 2015).

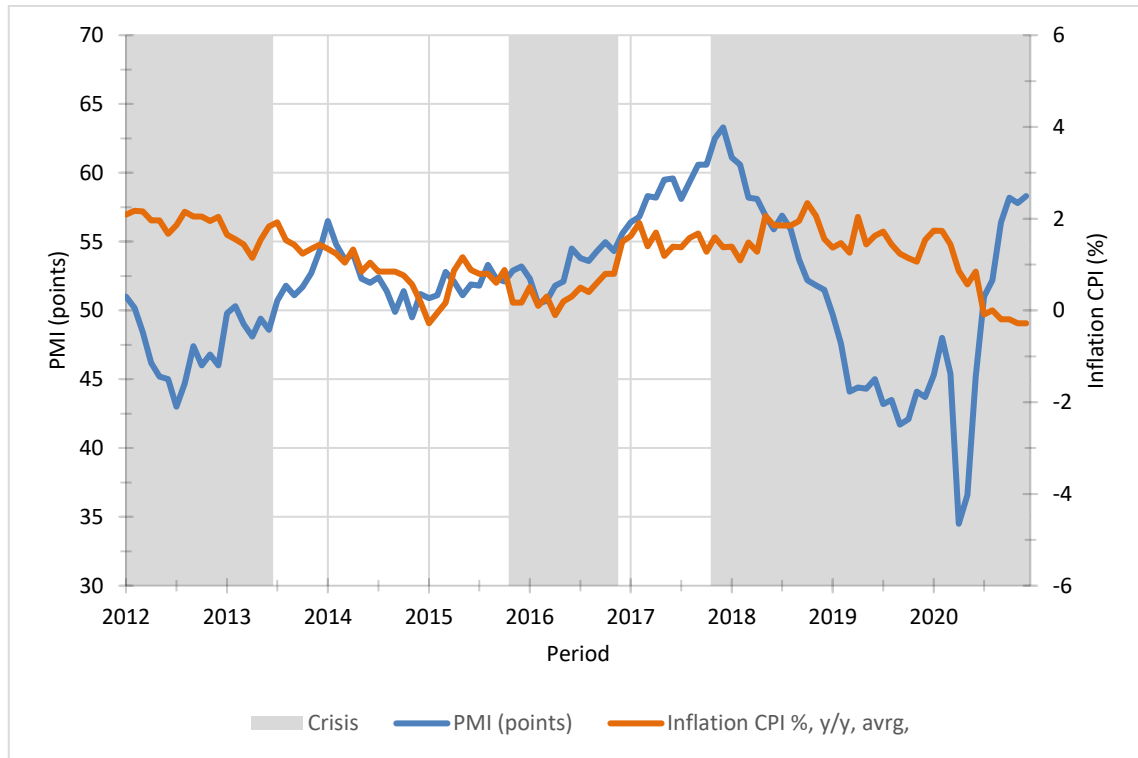


Figure 18: The link between the German PMI, inflation CPI and the economic cycle (Author’s creation)

The renewed growth of the PMI can be observed from March 2016. This growth was caused by increased domestic demand and was complemented by a rising inflation rate, although some companies increased their purchases before the expected start of price increases (Reuters 2016). According to Bartha, low energy prices, which began to rise in March, played a significant role in the low growth of the German inflation rate in the previous period (Bartha 2016). Despite the continuing increase of the PMI in the period from 2017 to 2018, the German government managed to keep the growth of the inflation rate around 1.4% until April 2018, when a gradual decrease of the PMI can be observed. According to Lammersen, the decline in the PMI was caused by the reduced expansion in manufacturing output (Lammersen 2018). In the following months, an increased growth of the inflation rate was observed, which lasted until October 2018, when the German inflation rate peaked at 2.34%. According to Destatis, a higher inflation rate was recorded only in 2008. As in the previous months, the rise in consumer prices was caused by the growing prices of energy products, food, and goods and services as a whole (Destatis 2018).

According to the Federal Ministry of Economics and Technology, the German industrial sector has been recovering from a rapid decline in new orders since the beginning of the second quarter. This recovery of the manufacturing industry was driven by the

aforementioned easing of government restrictions and the resumption of operations in manufacturing companies. Thus, the German PMI rose again above 50 points in July, marking the end of its contractions. In addition, the German inflation rate fell once again below 0%, mainly due to a renewed decline in the prices of energy products and foodstuffs (Bundesministerium für Wirtschaft und Energie 2020). However, according to Nasr, the decline in prices will not last long as experts expect a renewed rise in prices before the end of 2021 (Nasr 2021).

Based on this comparison, the development of both indicators follows an opposite trend. An example is the development of both indicators during the first and last technical recessions, which shows that inflation is rising when the PMI falls and vice versa. Nevertheless, as the actions of companies in 2016 show, inflation has an impact on managerial decision-making in practice. During this year, some companies pre-stocked in anticipation of rising prices. Moreover, the development of the German inflation rate was not as drastic as in the case of the Czech inflation rate. The growth of the German inflation rate never exceeded 2.4%, yet several periods of deflation occurred within the German economy, which may have resulted in lower economic growth. Finally, the most significant influence on the growth of the CPI in the observed period was the increase of prices of energy and energy products.

### **6.3 Comparison of the development of the macroeconomic environment and the PMI in Japan**

This chapter determines whether or not the development of the macroeconomic environment of Japan had an impact on the development of Japan's PMI. Three graphs will be used for this, in which the development of these macroeconomic indicators will be compared with the development of the PMI against the background of technical recessions in Japan's economy.

#### **6.3.1 Comparison of the development of the Japan's PMI and GDP**

As demonstrated in Figure 19, Japan's declining PMI in 2012 reduced the growth of Japan's GDP with a one-month delay. Japan's manufacturing industry in 2012 experienced one of the most significant contractions since 2009. The PMI fell from 51.1 points to 45 points. The main reason for this decline was weak domestic and foreign demand. Economists predicted that this gradual decline in the PMI will be reflected in a decrease in Japan's GDP in the fourth quarter, which would be the third consecutive quarter of contraction. Economists also

identified a decline in exports, territorial disputes with China, and a slowdown in domestic consumption as the main causes of the decline in GDP growth (Australian Financial Review 2012).

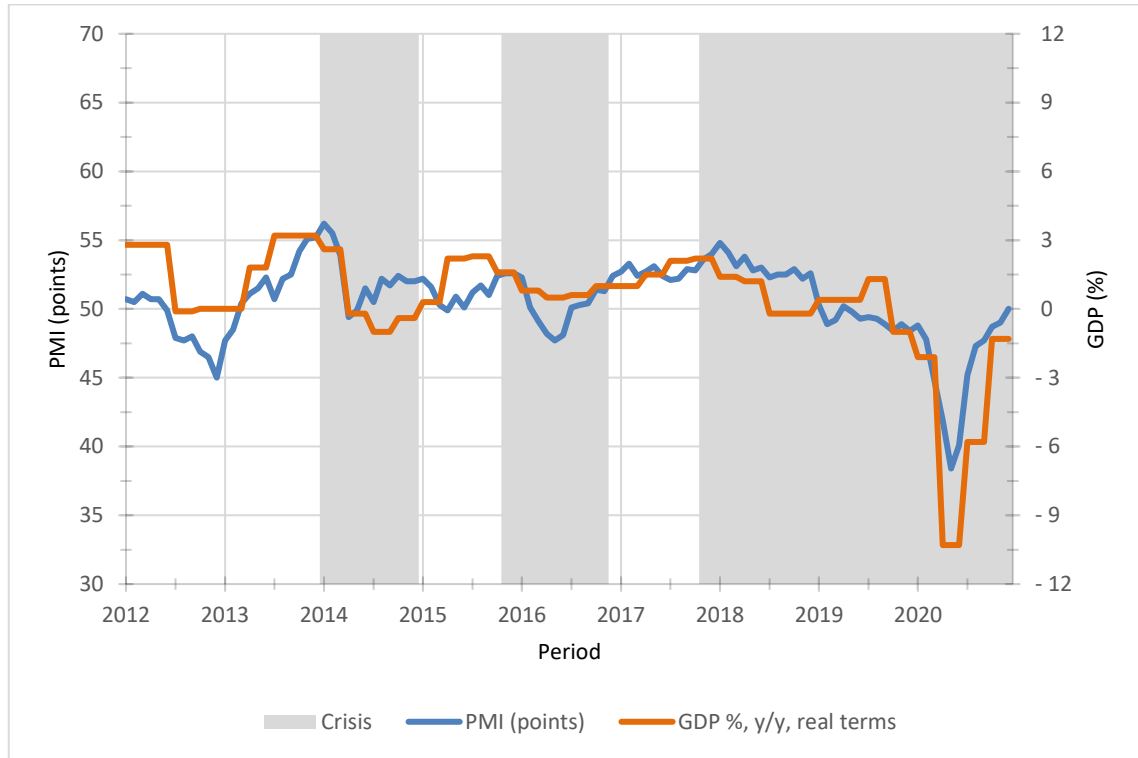


Figure 19: The link between the Japan’s PMI, GDP and the economic cycle (Author’s creation)

However, a change in the PMI trend can be observed as early as the beginning of 2013, when Japan’s PMI grew mainly due to increased exports. The PMI growth was reflected in an increase in Japan’s GDP growth three months later. This statement corresponds with Tabuchi’s statement that Japan’s rapid GDP growth in the first half of 2013 was mainly due to increased exports and consumer spending, which slowed in the second half of the year, resulting in a slowdown in GDP growth. In addition, the monetary and fiscal policy of Prime Minister Shinzo Abe’s government also contributed to the rapid growth of Japan’s GDP in the first half of 2013 (Tabuchi 2013). Increased exports and consumer spending also had an impact on PMI growth in the second half of 2013. PMI growth in the second half was affected mainly by increased domestic demand and exports, largely to Thailand and Hong Kong (Reuters 2013).

Despite the positive growth of domestic and foreign new orders, which was the driving force behind the growth of both indicators in 2013, a rapid decline of the PMI can be observed in the first half of 2014. However, according to Ro, this decline was expected by

many economists, as an increase in the sales tax came into force in this period (Ro 2014). This increased sales tax was also reflected in Japan's GDP growth, which declined throughout 2014; thus, Japan's economy entered the first technical recession (The Star 2014). In the last quarter of 2014, an improvement in Japan's GDP growth can be observed. This growth was mainly due to an increase in private consumption, which accounts for up to 50% of Japan's economy. Furthermore, new orders and export opportunities increased during this period, which affected the growth of the PMI (Ians 2015).

Another sharp decrease in the PMI, followed by a decline in the growth of Japan's GDP, can be observed during the second technical recession. The main reason for the sharp drop in PMI was a decrease in new orders and the occurrence of earthquakes in Kyushu, the central region of the semiconductor and automotive industry (FocusEconomics 2016). The reduction in new orders also affected the decrease in GDP growth. Although the decline in GDP growth was lower than was formerly expected, the reduction in Japan's GDP growth showed the slowing momentum of Japan's economy. A decline in net exports and reduced factory output were the main causes of the reduction in GDP (CNBC 2016).

This was followed by a period of growth, which ended at the beginning of 2018 when both indicators declined. The decline in GDP growth about a month before the decline in the PMI pointed to a possible crisis due to the declining performance of the domestic sector. Japan's GDP growth was also affected by several natural disasters in the country in the third quarter. The decline in PMI, which can be observed from February, was due to softer growth in output and a reduced number of export orders, which declined at the fastest pace in over two years (FocusEconomics 2018; FocusEconomics 2019).

A fall in Japan's PMI continued further in 2019 when the PMI fell below 50 points, which means that the manufacturing sector entered a period of contraction. This decline was due to a continuous decrease in domestic demand and export orders. Despite this decline in the PMI, an increase in GDP growth can be observed in 2019 (CNBC 2019). The renewed GDP growth was due to increased private consumption, higher government spending, and construction activities related to the Tokyo Olympics. On the other hand, according to Japanese economists, a further decline in real exports was expected, caused by the trade war between China and the United States (FocusEconomics 2019).

The decline in both indicators continued in 2020 when the global sales crisis due to the Covid-19 pandemic caused Japan's PMI to fall from 48.8 points at the beginning of the year to almost 38 points in May. This decline was mainly caused by a sharp drop in production, the number of new orders, and pending orders (Reuters 2020). However, this



fall in the PMI was preceded a month earlier by a decline in Japan's GDP growth. The decrease in Japan's GDP was mainly due to a decline in private consumption, which, as already mentioned, accounts for more than half of Japan's economy. Reduced net exports from the previous period also contributed to the decline in GDP growth (*Japan Times* 2020). Despite the change in the PMI trend in the second half of 2020, the expected recovery of Japan's economy has not yet occurred. And, even though the PMI rose to 50 points in December, which can be described as the end of the contractions of Japan's manufacturing industry, Japan's economy was still in a recession.

As can be seen from the development of Japan's PMI and GDP growth, the development of Japan's PMI is strongly influenced in the same way as the Czech PMI, specifically by foreign demand. Nevertheless, other factors can be observed influencing the development of both of Japan's indicators. An example is the government's actions, which caused both indicators to decline during the first technical recession. Although this decline was expected by many economists, it was not expected to have such significant consequences. Another example is the occurrence of natural disasters, which mainly affected the development of the PMI during the second technical recession. In conclusion, unlike in the case of the Czech and German economies, where the decline in GDP growth was often caused by a preceding decline in the PMI, the decline in Japan's GDP growth preceded the decline in the PMI itself. This may be due to the fact that private consumption accounts for up to 50% of Japan's economy.

### **6.3.2 Comparison of the development of the Japan's PMI and unemployment**

As shown in Figure 20, both the PMI and the unemployment rate fell in 2012. The decline in industrial production, which was affected by the euro area debt crisis and the slowdown in the Chinese economy, can be cited as the reason for the decline in the PMI. However, despite the decline in the PMI and the decline in industrial production, Japan's unemployment rate fell over the course of 2012 as the average unemployment rate was 4.3%, which was 0.1% more than in 2011 (Japanese International Labour Foundation 2013).

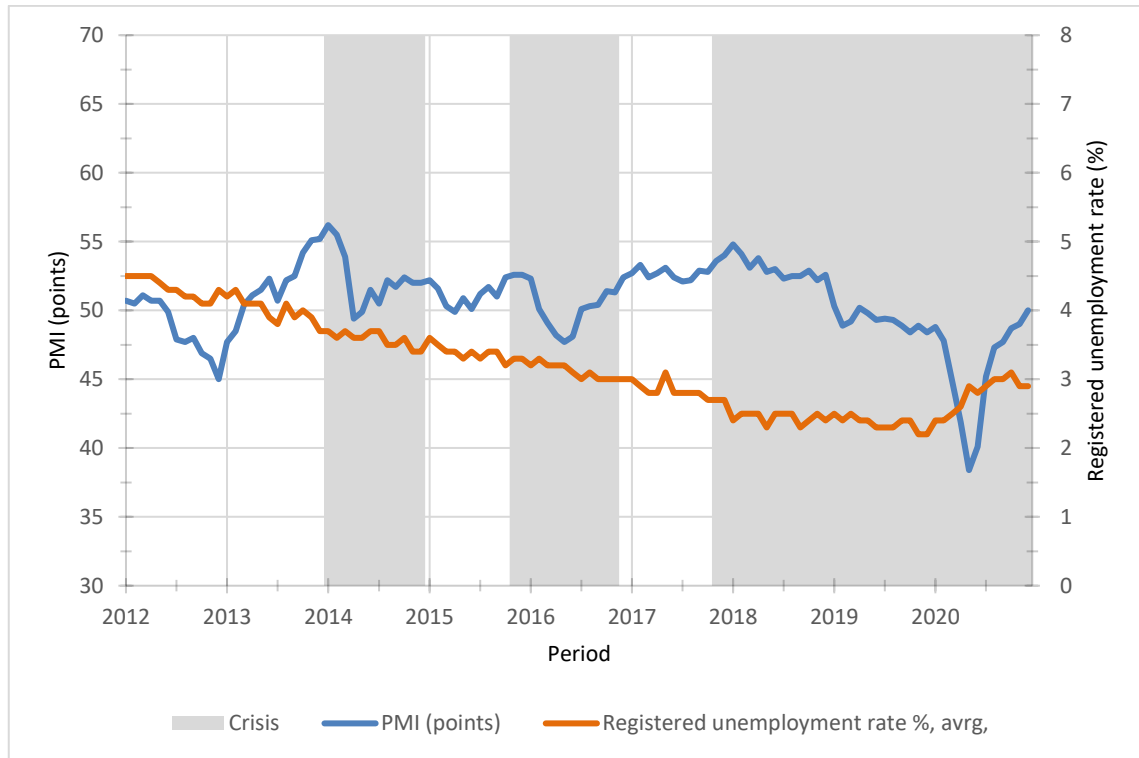


Figure 20: The link between Japan’s PMI, unemployment rate and economic cycle (Author’s creation)

Japan’s unemployment rate maintained its declining trend even in the period of the first technical recession, during which a decrease in the PMI and GDP growth can be observed. Japan’s economy declined mainly due to the previously mentioned increased sales tax, which came into force in April 2014. This led to a reduction in industrial production and private spending. The decline in private spending was reflected in rising unemployment in the entertainment and wholesale and retail sales sectors (*Japan Times* 2014).

The decline in the unemployment rate continued further, even during the second technical recession, which occurred at the end of 2015 and lasted until almost 2017. During this period, a decrease in the PMI to 47.7 points can also be observed. As mentioned in the previous chapter, this decline was a consequence of the earthquake that hit southern Japan in April and a sharp drop in foreign demand (*Business Insider* 2016). The decline in the unemployment rate was mainly due to job growth in health and welfare, wholesale and retail sales, and the finance and insurance sectors. On the contrary, the reduction of the unemployment rate was not supported by the manufacturing sector, which saw a decline in the number of jobs during this period (*Japan Times* 2016).

The declining trend of Japan’s unemployment rate was also maintained in 2018 and 2019 despite a gradual decline in the PMI. Japan’s average unemployment rate in 2018 was

2.4%, which is 0.4% less than in 2017. The main reason for the decline in the unemployment rate in 2018 was the improvement in labour market conditions and the fact that a large part of job vacancies had been filled by older people and women working part-time. Furthermore, the number of new employees grew at the fastest rate in the hotel and service industries (Staffing Industry Analyst 2019). The decline in the PMI can be attributed to the previously mentioned slower growth in production and the declining number of new orders.

In 2019, the decline in the PMI continued further due to a decline in domestic demand and export orders, mainly from China (CNBC 2019). Nevertheless, this decline in the PMI did not affect the declining unemployment rate, which fell to 2.2% at the end of the year. The main reason for the decline of the unemployment rate in 2019 was that an increasing number of women and elderly men found employment. This reflects the fact that Japan's labour market in recent years has experienced a labour shortage caused by the rapidly ageing Japanese population (*Japan Times* 2020).

After a long period of decreasing unemployment, the beginning of an upward trend can be seen at the beginning of 2020. This increase in the unemployment rate in January was not due to the coronavirus crisis, but rather to an increase in the number of mid-career jobseekers and the fact that some employers decided not to hire new staff due to more cumbersome paperwork. Nevertheless, some economists believed that a future increase in the number of unemployed in the accommodation, hospitality, and tourism sectors due to the covid-19 outbreak was probable (*Japan Times* 2020). This assumption proved true, and thus an increase in the unemployment rate can be observed in 2020, supported by a decline in the PMI caused by a sharp decline in production, the number of new orders, and pending orders. Nevertheless, an improvement in the situation can be observed in the last two months of the period under review. According to Nakamura, after the rise in the unemployment rate (the first in 11 years), the outlook for the employment rate remains uncertain (Nakamura 2021). The *Japan Times* agrees, stating that the decline in the unemployment rate in the last two months is due to the Go-To Travel campaign, which aimed to reduce the unemployment rate in the services sector. However, it was temporarily cancelled at the end of the year due to the increasing number of infected (*Japan Times* 2020).

As follows from the analysis of the development of both indicators, the development of Japan's unemployment did not have an influence on the development of Japan's PMI. Evidence and sources used in the comparison show that the unemployment rate had risen mainly in the accommodation, hospitality, tourism, entertainment, and wholesale and retail

sectors. The analysis also shows that despite the decline in the PMI, Japan's economy has seen a decline in the unemployment rate, which is mainly due to a large labour shortage.

### 6.3.3 Comparison of the development of the Japan's PMI and inflation

As demonstrated in Figure 21, illustrating the development of Japan's PMI and the inflation rate against the background of the recessions in Japan's economy, both indicators declined in 2012. As mentioned in chapter 6.3.1, the decline in the PMI was due to weak domestic and foreign demand. This statement is in accordance with an article published by the BBC stating that the Bank of Japan in January 2013 decided to raise its inflation target to 2% and ease monetary policy due to two decades of deflation and falling prices. The BBC also states why this long-term decline in prices has become undesirable for the future development of Japan's economy. According to economists, deflation encourages consumers to postpone purchases in anticipation of lower prices. This makes the situation more difficult for Japanese companies that borrowed money in the past, as they cannot earn enough money to pay off their debts (BBC 2013). Ultimately, deflation can cause the PMI to fall, despite lower product prices. This phenomenon can be observed in this period.

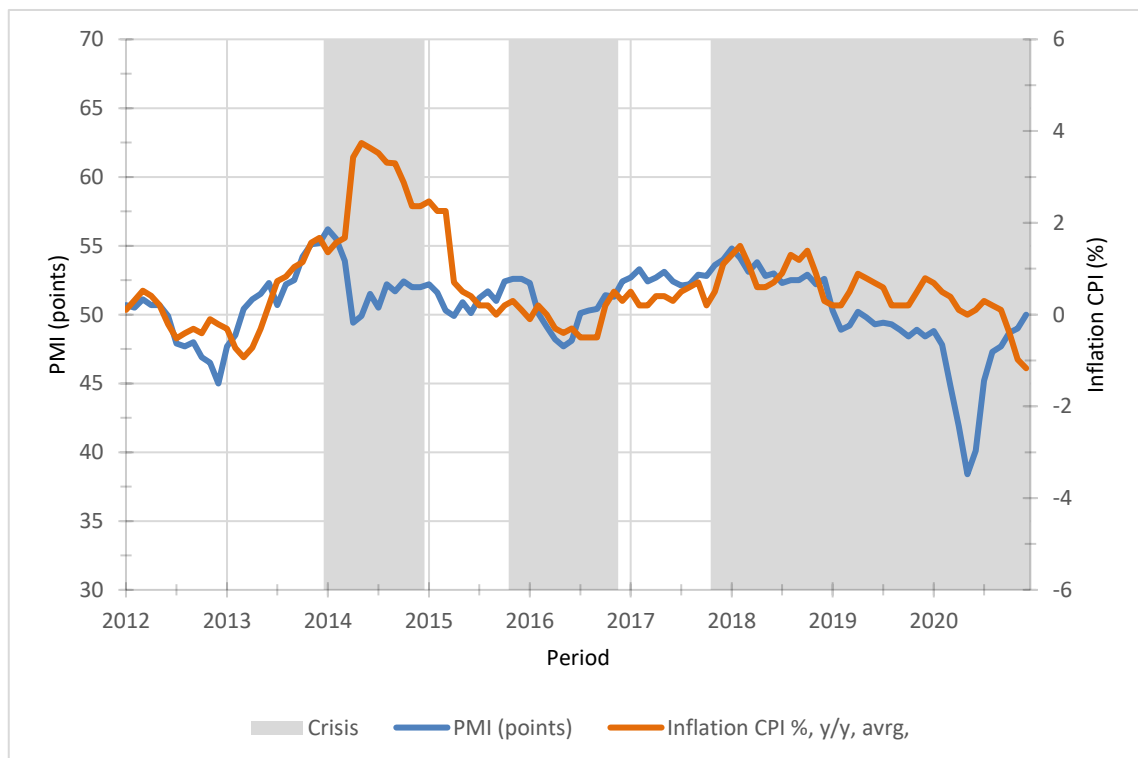


Figure 21: The link between the Japan's PMI, inflation CPI and the economic cycle (Author's creation)

Although the decline in the inflation rate continued in the first quarter of 2013, a rapid increase can be observed for the rest of the year. Phillips attributes this rise in inflation to so-called Abenomics, a series of policy measures introduced by Prime Minister Shinzo Abe in April 2013 to boost Japan's economy (Phillips 2013). The rise in consumer prices continued in the first half of 2014 when Japan's inflation rate peaked at 3.74% in May. Consumer prices rose at their fastest pace in 23 years due to the introduction of increased sales tax by Abe's government. However, this caused a decline in consumer spending in the first half of the year, as many consumers made their purchases before the tax increase. This decline in consumer spending is then evident in the fall in the PMI over this period. Japan's government then made new reforms in crucial sectors of Japan's economy in order to sustain the recovery of the economy in the long run (BBC 2014). It succeeded in this task because, from 2015 to 2017, Japan's PMI and GDP both grew. However, shortly after reaching its peak, Japan's inflation rate began to fall sharply, and in April 2016, the declining inflation rate turned into deflation. The main reason for this decline was the price of oil in this period and the decline in prices of other goods. Japan's economy only slightly avoided a recession in the first quarter of 2016. In the same period, a drop in the PMI can also be observed, which was caused by an earthquake and a decline in foreign demand (CNBC 2016).

However, the decline in the inflation rate did not stop until the end of October 2016, when the inflation rate fell to -0.5%. According to Kihara, the continuing decline in consumer prices was mainly due to falling petrol and electricity prices. The prices of other items constituting the CPI increased. Kihara also reported that a fiscal stimulus would be needed to resume the growth of the inflation rate, as the aggressive easing by the Bank of Japan in the period from 2013 to 2016 failed to raise the inflation rate to the desired 2% (Kihara 2016). From the end of 2016 until February 2018, the inflation rate increased, fuelled largely by rising energy prices. While higher oil prices increased the pressure on CPI growth, the decline in mobile phone charges and public service costs reduced the growth of the inflation rate (Strait Times 2017). In the same period, an increase in the PMI may be observed, which was ultimately caused by an increase in export orders (Guy 2017).

The growth of both indicators reached its peak in the first two months of 2018. In January, Japan's PMI rose to 54.8 points, which was its highest value since 2014. Furthermore, a month later, the inflation rate rose to its peak of 1.50%, which was its highest value since April 2015. The increase of the PMI was mainly due to increased output and employment growth (Simonet 2018).

Reportedly, the main reason for rising consumer prices was energy-related costs, including electricity fees and petrol prices. However, future inflation rates were primarily threatened by the yen's increasing value and the threat of a global trade war (*Japan Times* 2018). This came true, as the trade war between the United States and China did affect Japan's economy, especially Japan's PMI, which gradually declined over the course of 2018 and 2019. While a gradual decline can be observed in the development of the PMI, a decline with several fluctuations can be observed in the development of Japan's inflation rate.

The first such fluctuation occurred at the end of 2018. According to Kihara, the main reason for this fluctuation was the deteriorating development of Japan's economy due to the continuing Sino-U.S. trade war, which prevented the BOJ from using its policies to increase the inflation rate to 2%. Further, the main reason for the rise in consumer prices was the increased price of vegetables due to summer typhoons. Economists also believed that future price developments would be influenced by external factors such as the yen exchange rate and the price of oil (Kihara 2020). The other two fluctuations occurred in 2019. The first of them reached its peak in April when the CPI rose to 0.89%. Despite the growth of Japan's economy during this period, many politicians feared the consequences of the ongoing trade war on Japan's export economy. The growth of Japan's economy was overshadowed by the reports of declining capital expenditures and private consumption. The reduced consumption could prevent any future attempts by the BOJ to increase the inflation rate, as companies would be discouraged from raising prices for fear of discouraging cost-sensitive customers (CNBC 2019). Japan's inflation rate peaked in December 2019 at 0.79%, still well below the 2% target of the Bank of Japan. As noted by Kihara, customers paid the most for sushi and ice cream. Nevertheless, many economists questioned the future inflation growth due to the economic slowdown in the last quarter of 2019. In the same month, a decline in production can be observed, which is in line with the decline in the PMI (Kihara 2019).

Economists' concerns about the future inflation growth have proved justified, as the inflation rate continued to decline in 2020. In the last quarter, the declining inflation rate turned into deflation again, and its decline stopped at -1.17% in December. The decline in consumer prices in 2020, the fastest since 2010, was due to weak private demand, caused by cautious consumers who stayed home to minimize the risk of Covid-19 infection (Kaneko 2020).

In conclusion, a low inflation rate is a significant problem for Japan's economy. Although the situation may seem rather beneficial at first glance, it is rather the opposite because the most affected area is Japan's manufacturing sector, which plays a significant

role in Japan's economy. Japan's manufacturing sector is, as has been proven by the analysis of the development of both indicators and by a number of reports and articles, most affected by the fall in consumer prices. This price reduction encourages consumers to postpone their purchases in anticipation of lower prices, and therefore the number of orders is falling, which ultimately has an impact on the development of the economy.

## **7 FINAL EVALUATION, PROPOSALS AND RECCOMENDATIONS**

In this part of this thesis, the development of the PMIs and macroeconomic indicators of all three countries will be evaluated. Based on this evaluation, proposals and recommendations for a possible solution will be proposed.

### **7.1 Evaluation of the development of the Czech PMI and macroeconomic indicators**

An evaluation of the development of the Czech PMI and selected macroeconomic indicators will be performed. Furthermore, based on this evaluation, proposals and recommendations for a possible solution will be made.

#### **7.1.1 Evaluation of the development of the Czech PMI and GDP**

Based on a joint comparison of the development of the Czech PMI and GDP, the development of the Czech manufacturing PMI precedes the development of Czech GDP by three months. Therefore, the influence of Czech GDP on managerial decision-making has not been proven. The influence of one indicator on another is rather the opposite. This statement is in line with the definitions of Viet (2009) and CZSO (2015). The interdependence of the Czech manufacturing industry and GDP is also evident from the MFCR macroeconomic forecast (Ministerstvo financí 2021), which identifies one of the risks threatening the development of Czech GDP in 2021 as the cyclical nature of the Czech automotive industry.

Furthermore, it was proven that the Czech PMI is most affected by domestic and foreign demand, especially German. For this reason, I recommend that the Czech managers of manufacturing companies carefully monitor developments in foreign markets. However, the development of demand should not only be monitored in Germany but also in other countries, since the change in the demand trend will initially have an impact on the German economy and then on the Czech economy itself. Czech managers should therefore adjust their production and purchasing strategies based on the development of demand in foreign markets. In addition, in the event of a long-term decline in demand caused by a recession, I recommend increasing the marketing investments, as advertising media reduce their prices for time and space in times of recession, making such investments more profitable.

Based on theoretical assumptions and a number of empirical observations, demand and the associated development of the Czech PMI, affecting Czech GDP, can be influenced by the government itself through monetary and fiscal policies. An example of this is the use of



monetary policy by the U.S. Federal Reserve System in response to the Covid-19 pandemic. According to the Congressional Research Service, the Federal Reserve System boosted demand by increasing the availability of credit in the economy and decreasing short-term interest rates, encouraging businesses to make new investments and individuals to buy new goods, as lower interest rates allowed for cheaper money borrowing (Congressional Research Service 2021).

### **7.1.2 Evaluation of the development of the Czech PMI and unemployment**

As follows from the analysis of the development of the Czech PMI and unemployment, the development of both indicators is closely related. Nonetheless, the influence of Czech unemployment on the PMI has not been proven. Furthermore, changes in the development of the Czech PMI are soon reflected in the development of Czech unemployment. Evidence of this statement is the development of unemployment during the second and third technical recessions when the decline in the PMI caused a slowdown in the decline of the unemployment rate.

Based on these findings, I recommend that managers use countercyclical staffing strategies because, at a time when other companies are laying off their employees due to declining revenues and orders, a company using such strategies can hire experienced staff at reduced costs. I also recommend that the government support the competitiveness of the Czech manufacturing sector, as the Czech economy is largely dependent on this sector, and at the same time, this sector has shown the smallest increase in unemployment during technical recessions. This support should take the form of grants, guarantees and programmes that would not violate the competition law. An example of such a program is the Operational Program Technology and Applications for Competitiveness (OP TAC), which aims, among other things, to develop businesses and their competitiveness, increase the efficiency of resources, but also to develop the digital infrastructure (Api 2021). On the contrary, I do not recommend the use of increased tax breaks, as this would reduce the GDP growth.

### **7.1.3 Evaluation of the development of the Czech PMI and inflation**

As part of the analysis of the development of the Czech PMI and inflation, I proved that both indicators showed the opposite development trend for a large part of the observed period. However, inflation has an impact on the development of the PMI and thus on managerial decision-making. This statement can be substantiated by the development of Czech inflation in 2014–2016; during these years, managers of manufacturing companies were able to take

advantage of low input prices and thus reduce the price of final products. Ultimately, they could increase the demand for their products.

Following the entry of the Czech Republic into the euro area, the CNB committed to meet the 2% inflation target, with an uncertainty band of one percentage point in either direction (Česká národní banka 2021). According to Král, this target was largely met (Král 2020). And so, in contrast to Japan's inflation rate (which is below its inflation target), the Czech inflation rate has a positive effect on the Czech economy and mainly on the PMI. Thus, I recommend that managers monitor CNB forecasts, which can give them an overview of the goals and tools used by the CNB to influence inflation. This may help the managers to predict future developments in inflation trends and ultimately use this advantage to pre-stock in anticipation of price growth.

## **7.2 Evaluation of the development of the German PMI and macroeconomic indicators**

In this section, an evaluation of the development of the German PMI and selected macroeconomic indicators will be performed. Furthermore, based on this evaluation, proposals and recommendations for possible solutions will be made.

### **7.2.1 Evaluation of the development of the German PMI and GDP**

Based on a joint comparison of the development of the German PMI and GDP, the influence of this macroeconomic indicator on managerial decision-making has not been proven because the development of the German PMI precedes the development of the German GDP. However, this link between these two indicators is not as strong as the link between the Czech PMI and GDP. The main reason for the decline in the German PMI in the period under review was the decline in foreign orders. Therefore, German managers of manufacturing companies should monitor developments in foreign markets, such as the United States, France and China. Furthermore, in the event of a recession, the managers ought to use counter-cyclical demand strategies, which include marketing investments, prices, and R&D investments, as these strategies can increase a company's visibility and demand for products. Thus, I recommend that the German government use monetary and fiscal policies to support demand growth and thus stimulate the PMI growth, as PMI developments have been found to have an impact on German GDP developments.

### **7.2.2 Evaluation of the development of the German PMI and unemployment**

As follows from the joint analysis of the development of the German PMI and unemployment, the influence of German unemployment on managerial decision-making in practice has not been proven. However, based on my analysis, I assume that both indicators are closely related; while the German PMI was rising, the unemployment rate in Germany was declining at a faster rate than it was at a time when the German PMI was decreasing. It is the German manufacturing industry that has the most significant impact on unemployment in Germany, a fact substantiated to some extent by Look (Look 2021). For German managers, I recommend the use of counter-cyclical staffing strategies that would allow companies to hire workers at a lower cost at a time when other companies are laying off their employees. I also recommend that the German government use the Kurzarbeit programme, which, according to the International Monetary Fund, despite high fiscal costs, effectively keeps the rising unemployment rate in check (International Monetary Fund 2020).

### **7.2.3 Evaluation of the development of the German PMI and inflation**

Based on the performed analysis of the development of the German PMI and the inflation rate, German inflation has an impact on managerial decision-making in practice. Evidence for this claim is the behaviour of companies in 2016. In that year, companies, in the anticipation of future growth of prices, decided to pre-supply. The inflation rate has never exceeded 2.34%. Yet, according to Nasr, a number of experts expect inflation to rise above the European Central Bank's target by the end of 2021 (Nasr 2021). Therefore, based on broader findings and the performed analysis, I recommend that German managers buy goods and materials before the expected rise in prices.

## **7.3 Evaluation of the development of Japan's PMI and macroeconomic indicators**

In this section, an evaluation of the development of Japan's PMI and selected macroeconomic indicators will be performed. Furthermore, based on this evaluation, proposals and recommendations for a possible solution will be made.

### **7.3.1 Evaluation of the development of Japan's PMI and GDP**

As follows from the executed analysis of the development of Japan's PMI and GDP, the influence of GDP on the development of the PMI in Japan has not been proven. Nevertheless, it was found that, unlike the Czech and German PMI, the development of Japan's PMI does not precede the development of Japan's GDP. This is due to the fact that more than 50% of

Japan's economy is made up of accounts of private consumption which has been typical for Japan's economy since 1980. According to Vihriälä, the main reasons for such a high level of private consumption are weak income growth, a deflationary mindset, and population ageing (Vihriälä 2017). In the medium term, this specificity cannot be expected to change, mainly due to the increasingly ageing population in Japan. In addition, it was found that Japan's PMI is just as affected by changes in foreign demand as are the Czech and German PMIs. To address the possible decline in demand, I recommend that Japanese managers monitor the development of demand in foreign markets, especially in China and the United States.

Natural disasters, especially earthquakes, have proven to be another factor influencing Japan's PMI. This factor limiting the PMI development was not encountered in the case of the Czech and German economies; therefore, the lack of experience with this factor makes it difficult to propose a possible solution. Nonetheless, this factor extremely and fundamentally affects the relationship between the PMI and GDP, even to such an extent that it is at the forefront of broader recommendations for Japanese managers. Hamajima recommends the training of employees, maintaining transparency about the effects of disasters on a company, sharing results and interacting with related companies, implementations of measures to boost the protection of products, usage of equipment designed to mitigate earthquake damage, and the implementation of a management plan for earthquake preparedness to ensure the resistance of production line against damage and a stable supply to customers (Hamajima 2019). I agree with these solutions, because they are designed and in real conditions also applied by the directors of companies that have recently been affected by this type of natural disaster.

### **7.3.2 Evaluation of the development of Japan's PMI and unemployment**

Based on the analysis of the development of Japan's PMI and unemployment, the influence of unemployment on the development of Japan's PMI has not been proven. Furthermore, a broader analysis has shown that Japan's labour market has been facing labour shortages, which has been reflected in a further decline in the unemployment rate despite the decline in the PMI during the period under review. Labour shortage is a serious problem for Japan's economy; therefore, many jobs need to be filled by women and workers aged sixty and over. This problem is mainly caused by an ageing population and a long-term negative birth rate. This negative birth rate deepened further in 2020 as a consequence of Covid-19 (Kyodo News 2021). Therefore, as a possible solution, I recommend expanding the already

established government support programmes for families with new-borns and the creation of government programmes to support the interest of young Japanese in starting families and having children.

### **7.3.3 Evaluation of the development of Japan's PMI and inflation**

As has been proven in the analysis of the development of Japan's PMI and inflation, Japan's inflation has an influence on the development of Japan's PMI. In addition, it has been proven that Japan's economy struggled with a low inflation rate for most of the period under review, during which the rate has often turned into deflation and caused a decline in prices. This was reflected in the development of Japan's manufacturing industry, which never exceeded 56.5 points. Japan's manufacturing industry can therefore be described as the most affected by the adverse development of the inflation rate. Based on a broader macroeconomic analysis and empirical conclusions, falling prices may affect the performance of the manufacturing industry, as consumers may postpone purchases in anticipation of further declines in prices (BBC 2013). As a reason for the low rate of inflation, it is possible to identify the long-overvalued yen. The high value of the yen also threatens the future development of Japan's inflation, which the BOJ would like to increase. Therefore, I consider it appropriate or even necessary to use quantitative easing as a possible solution for the reduction of the value of the yen.

## CONCLUSION

This bachelor thesis sought an answer to whether or not the macroeconomic environment has an influence on managerial decision-making in practice. For this purpose, the thesis was divided into two parts. In the theoretical part, terms from the field of macroeconomics and management were defined. Furthermore, the purchasing managers' index was introduced, which was later used in the practical part as a representative of managerial decision-making in practice.

In the introduction of the practical part of the bachelor thesis, it was explained why the PMI was chosen as a representative of managerial decision-making in practice and why the analysis of PMI development was performed for a cyclical industry. Furthermore, it was explained why the development of selected macroeconomic indicators such as GDP, unemployment and inflation were monitored in the Czech Republic, Germany, and Japan. Subsequently, analyses of the development of the PMI and macroeconomic indicators in these countries were performed. However, in order to find an answer to whether or not the macroeconomic environment influences managerial decision-making in practice, it was necessary to compare the development of all indicators. Therefore, in the second half of the practical part, comparisons of the development of the PMIs and macroeconomic indicators against the background of business cycles in given countries were performed. These developments were summarized, and based on their results, recommendations were made. These specific proposals were designed on the basis of the strategies of managers described in the theoretical part, but also on the basis of real practices.

Ultimately, it was proven that the macroeconomic indicator which, of the examined factors, most influences managerial decision-making in practice is inflation, which in the Czech economy plays an important role in the growth of the manufacturing industry. In the German economy, inflation also plays an important role in the growth of the manufacturing industry, as inflation growth has always been kept within the central bank's inflation target. However, inflation is most affecting Japan, where long-term low inflation, on the other hand, does not support the growth of Japan's manufacturing industry. I believe that this bachelor thesis is beneficial, given that it provides an answer to the question of which of the main macroeconomic indicators has an impact on managerial decision-making in practice and also lists possible strategies for managers.

**BIBLIOGRAPHY**

- AFP. 2015. "German Inflation Sinks to Five-Year Low." *DW*. Accessed April 3, 2021. <https://www.dw.com/en/german-inflation-sinks-to-five-year-low/a-18171480>.
- AFP. 2018. "German GDP Growth Disappoints in First Quarter of 2018." *The Local*. Accessed April 12, 2021. <https://www.thelocal.de/20180515/german-gdp-growth-disappoints-in-first-quarter/>.
- API. 2021. "Operační program Technologie a aplikace pro konkurenceschopnost (OP TAK) 2021 – 2027." Accessed April 30, 2021. <https://www.agentura-api.org/cs/op-tak/>.
- Australian Financial Review. 2012. "Japan December PMI at Lowest Level in over 3 Yrs." Accessed April 5, 2021. <https://www.afr.com/policy/foreign-affairs/japan-december-pmi-at-lowest-level-in-over-3-yrs-20121228-jig64>.
- Bartha, Emese. 2016. "German Consumer Prices up 0.4% in February." *MarketWatch*. Accessed April 3, 2021. [https://www.marketwatch.com/story/german-consumer-prices-up-04-in-february-2016-03-11?mod=MW\\_story\\_latest\\_news](https://www.marketwatch.com/story/german-consumer-prices-up-04-in-february-2016-03-11?mod=MW_story_latest_news).
- Bassetti, Massimo. 2020. "Czech Republic PMI October 2020." *FocusEconomics*. Accessed April 8, 2021. <https://www.focus-economics.com/countries/czech-republic/news/pmi/manufacturing-pmi-improves-at-fastest-pace-in-two-years-in-october>.
- Battu, Daniel. 2016. "GNP, GNI and GDP." *Communication Networks Economy*. 241–42. Accessed November 6, 2020. <https://doi.org/10.1002/9781119361411.app1>.
- BBC. 2013. "Japan Agrees 2% Inflation Target and Asset Purchases." Accessed April 8, 2021. <https://www.bbc.com/news/business-21136866>.
- BBC. 2014. "Japan Inflation Rate Hits 23-Year High." Accessed April 8, 2021. <https://www.bbc.com/news/business-27615551>.
- Blažek, Ladislav. 2014. *Management: organizování, rozhodování, ovlivňování*. Prague: Grada.

Bundesagentur für Arbeit. 2020. "The Labour Market in December 2019 - the Economic Downturn Can Still Be Felt." Accessed April 2, 2021. <https://www.arbeitsagentur.de/en/press/en-2020-1-the-labour-market-in-december-2019>.

Bundesministerium für Wirtschaft und Energie. 2020. "The Economic Situation in Germany in April 2020." Accessed April 2, 2021. <https://www.bmwi.de/Redaktion/EN/Pressemitteilungen/Wirtschaftliche-Lage/2020/20200415-the-economic-situation-in-germany-in-april-2020.html>.

Bundesministerium für Wirtschaft und Energie. 2020. "The Economic Situation in Germany in August 2020." Accessed April 3, 2021. <https://www.bmwi.de/Redaktion/EN/Pressemitteilungen/Wirtschaftliche-Lage/2020/20200814-the-economic-situation-in-germany-in-august-2020.html>.

Business Info. 2019. "Japonsko: Obchodní a ekonomická spolupráce s ČR." Accessed March 10, 2021. <https://www.businessinfo.cz/navody/japonsko-obchodni-a-ekonomicka-spoluprace-s-cr/>.

Business Insider. 2016. "Japan May Factory Activity Shrinks Most in over Three Years as Orders Slump: Flash PMI." Accessed April 6, 2021. <https://www.businessinsider.com/r-japan-may-factory-activity-shrinks-most-in-over-three-years-as-orders-slump-flash-pmi-2016-5>.

Callen, Tim. 2008. "Finance and Development." *International Monetary Fund*. Accessed December 8, 2020. <https://www.imf.org/external/pubs/ft/fandd/2008/12/basics.htm>.

CNBC. 2016. "Japan Q2 GDP Growth Revised up Slightly but Momentum Weak." Accessed April 5, 2021. <https://www.cnbc.com/2016/09/07/japan-q2-gdp-growth-revised-up-slightly-but-momentum-weak.html>.

CNBC. 2016. "Japan's Inflation Falls for 2nd Straight Month, Stoking Pressure on BOJ." Accessed April 8, 2021. <https://www.cnbc.com/2016/05/26/japan-core-cpi-inflation-falls-in-april.html>.



- CNBC. 2019. "Japan Factory Activity Shrinks in November as Export Slump Deepens." Accessed April 5, 2021. <https://www.cnbc.com/2019/12/02/japan-manufacturing-pmi-factory-activity-shrinks-in-november.html>.
- CNBC. 2019. "Japan's Core Consumer Inflation Ticks up in April, BOJ's Price Goal Stays Distant." Accessed April 8, 2021. <https://www.cnbc.com/2019/05/24/japan-economy-core-consumer-price-index-inflation-in-april.html>.
- Colato Javier. 2020. "Czech Republic PMI March 2020." *FocusEconomics*. Accessed April 9, 2021. <https://www.focus-economics.com/countries/czech-republic/news/pmi/manufacturing-pmi-slides-to-11-year-low-amid-covid-19-impact>.
- Congressional Research Service. 2021. "Introduction to U.S. Economy: The Business Cycle and Growth." *In Focus*, 1–2. Accessed November 20, 2020. doi: <https://crsreports.congress.gov/product/pdf/IF/IF10411>.
- Conti, Claudio Ramos, Rafael Goldszmidt, and Flávio Carvalho Vasconcelos. 2014. "STRATEGIES FOR SUPERIOR PERFORMANCE IN RECESSIONS: PRO OR COUNTER-CYCLICAL?" *Revista De Administração De Empresas* 55 (3): 275–77. doi:10.1590/s0034-759020150304.
- Coyle, Diane. 2014. *GDP: A Brief but Affectionate History – Revised and Expanded Edition*. 24–25. Princeton: Princeton University Press.
- Czesaný, Slavoj. 2006. *Hospodářský cyklus: teorie, monitorování, analýza, prognóza*. Linde.
- Česká národní banka. 2011. "Německo – hlavní obchodní partner ČR." Accessed March 10, 2021. <https://www.cnb.cz/cs/menova-politika/zpravy-o-inflaci/tematicke-prilohy-a-boxy/Nemecko-hlavni-obchodni-partner-CR>.
- Česká národní banka. 2013. "Zpráva o inflaci III/2013." Accessed April 9, 2021. [https://www.cnb.cz/export/sites/cnb/cs/menova-politika/.galleries/zpravy\\_o\\_inflaci/2013/2013\\_III/download/zoi\\_III\\_2013.pdf](https://www.cnb.cz/export/sites/cnb/cs/menova-politika/.galleries/zpravy_o_inflaci/2013/2013_III/download/zoi_III_2013.pdf).

- Česká národní banka. 2014. "Zpráva o inflaci II/2014." Accessed April 9, 2021. [https://www.cnb.cz/export/sites/cnb/cs/menova-politika/.galleries/zpravy\\_o\\_inflaci/2014/2014\\_II/download/zoi\\_II\\_2014.pdf](https://www.cnb.cz/export/sites/cnb/cs/menova-politika/.galleries/zpravy_o_inflaci/2014/2014_II/download/zoi_II_2014.pdf)
- Česká národní banka. 2016. "Zpráva o inflaci/IV." Accessed April 9, 2021. [https://www.cnb.cz/export/sites/cnb/cs/menova-politika/.galleries/zpravy\\_o\\_inflaci/2016/2016\\_IV/download/zoi\\_IV\\_2016.pdf](https://www.cnb.cz/export/sites/cnb/cs/menova-politika/.galleries/zpravy_o_inflaci/2016/2016_IV/download/zoi_IV_2016.pdf)
- Česká národní banka. 2018. "Zpráva o inflaci II/2018." Accessed April 10, 2021. [https://www.cnb.cz/export/sites/cnb/cs/menova-politika/.galleries/zpravy\\_o\\_inflaci/2018/2018\\_II/download/zoi\\_II\\_2018.pdf](https://www.cnb.cz/export/sites/cnb/cs/menova-politika/.galleries/zpravy_o_inflaci/2018/2018_II/download/zoi_II_2018.pdf)
- Česká národní banka. 2018. "Zpráva o inflaci IV/2018." Accessed April 10, 2021. [https://www.cnb.cz/export/sites/cnb/cs/menova-politika/.galleries/zpravy\\_o\\_inflaci/2018/2018\\_IV/download/zoi\\_IV\\_2018.pdf](https://www.cnb.cz/export/sites/cnb/cs/menova-politika/.galleries/zpravy_o_inflaci/2018/2018_IV/download/zoi_IV_2018.pdf)
- Česká národní banka. 2019. "Provázanost ekonomického vývoje ČR a Německa." Accessed March 10, 2021. <https://www.cnb.cz/cs/menova-politika/zpravy-o-inflaci/tematicke-prilohy-a-boxy/Provazanost-ekonomickeho-vyvoje-CR-a-Nemecka>
- Česká národní banka. 2019. "Zpráva o inflaci IV/2019." Accessed April 10, 2021. [https://www.cnb.cz/export/sites/cnb/cs/menova-politika/.galleries/zpravy\\_o\\_inflaci/2019/2019\\_IV/download/zoi\\_2019\\_IV.pdf](https://www.cnb.cz/export/sites/cnb/cs/menova-politika/.galleries/zpravy_o_inflaci/2019/2019_IV/download/zoi_2019_IV.pdf)
- Česká národní banka. 2021. "Hrubý domácí produkt ve 4. čtvrtletí 2020 mírně nad prognózou ČNB." Accessed April 8, 2021. <https://www.cnb.cz/cs/verejnost/servis-pro-media/komentare-cnb-ke-zverejnenym-statistickym-udajum-o-inflaci-a-hdp/Hruby-domaci-produkt-ve-4.-ctvrtleti-2020-mirne-nad-prognozou-CNB/>
- Česká národní banka. 2021. "Inflation Targeting in the Czech Republic." Accessed April 8, 2021. <https://www.cnb.cz/en/monetary-policy/inflation-targeting/>
- Česká televize. 2020. "Nouzový stav. Vláda zakázala akce s více než 30 lidmi, omezí se provoz restaurací po osmé večer." Accessed April 9, 2021.

<https://ct24.ceskatelevize.cz/domaci/3061328-zive-brifink-po-mimoradnem-zasedani-vlady-kvuli-koronaviru>.

Český statistický úřad. 2012. "Recession, depression – Methodology." Accessed April 8, 2021. [https://www.czso.cz/csu/czso/recession\\_depression](https://www.czso.cz/csu/czso/recession_depression).

Český statistický úřad. 2013. "Národní účty - 4. čtvrtletí 2012." Accessed March 11, 2021. <https://www.czso.cz/csu/czso/cri/narodni-ucty-4-ctvrtleti-2012-8hccjyjqan>.

Český statistický úřad. 2013. "Tvorba a užití HDP - 3. čtvrtletí 2013." 2021. Accessed March 11, 2021. <https://www.czso.cz/csu/czso/cri/tvorba-a-uziti-hdp-3-ctvrtleti-2013-s3quywwcap>.

Český statistický úřad. 2013. "Zaměstnanost a nezaměstnanost podle výsledků VŠPS - 1. čtvrtletí 2013." Accessed April 8, 2021. <https://www.czso.cz/csu/czso/cri/zamestnanost-a-nezamestnanost-podle-vysledku-vsps-1-ctvrtleti-2013-2k4tmev3hr>.

Český statistický úřad. 2014. "Míry zaměstnanosti, nezaměstnanosti a ekonomické aktivity - prosinec 2013." Accessed March 11, 2021. <https://www.czso.cz/csu/czso/cri/miry-zamestnanosti-nezamestnanosti-a-ekonomicke-aktivity-prosinec-2013-2saqgruqvj>.

Český statistický úřad. 2014. "Tvorba a užití HDP - 4. čtvrtletí 2013." Accessed March 25, 2021. <https://www.czso.cz/csu/czso/cri/tvorba-a-uziti-hdp-4-ctvrtleti-2013-wlru6dbgb9>.

Český statistický úřad. 2015. "Hrubý Domácí Produkt (HDP) - Metodika." Accessed March 11, 2021. [https://www.czso.cz/csu/czso/hruby\\_domaci\\_produk\\_t\\_-hdp-](https://www.czso.cz/csu/czso/hruby_domaci_produk_t_-hdp-)

Český statistický úřad. 2015. "Míry zaměstnanosti, nezaměstnanosti a ekonomické aktivity - prosinec 2014." Accessed March 11, 2021. <https://www.czso.cz/csu/czso/cri/miry-zamestnanosti-nezamestnanosti-a-ekonomicke-aktivity-prosinec-2014-ghfsa98rk>.

Český statistický úřad. 2016. "Průmysl - červenec 2016." Accessed April 10, 2021. <https://www.czso.cz/csu/czso/cri/prumysl-cervenec-2016>.

- Český statistický úřad. 2016. "Tvorba a užití HDP - 4. čtvrtletí 2015." Accessed March 11, 2021. <https://www.czso.cz/csu/czso/cri/tvorba-a-uziti-hdp-4-ctvrtleti-2015>.
- Český statistický úřad. 2016. "Zaměstnanost a nezaměstnanost podle výsledků VŠPS - 2. čtvrtletí 2016." Accessed April 8, 2021. <https://www.czso.cz/csu/czso/cri/zamestnanost-a-nezamestnanost-podle-vysledku-vsps-2-ctvrtleti-2016>.
- Český statistický úřad. 2017. "Tvorba a užití HDP - 4. čtvrtletí 2016." Accessed March 11, 2021. <https://www.czso.cz/csu/czso/cri/tvorba-a-uziti-hdp-4-ctvrtleti-2016>.
- Český statistický úřad. 2018. "Tvorba a užití HDP - 4. čtvrtletí 2017." Accessed March 11, 2021. <https://www.czso.cz/csu/czso/cri/tvorba-a-uziti-hdp-4-ctvrtleti-2017>.
- Český statistický úřad. 2019. "Tvorba a užití HDP - 4. čtvrtletí 2018." Accessed March 11, 2021. <https://www.czso.cz/csu/czso/cri/tvorba-a-uziti-hdp-4-ctvrtleti-2018>.
- Český statistický úřad. 2020 "Míry zaměstnanosti, nezaměstnanosti a ekonomické aktivity - březen 2020." Accessed March 11, 2021. <https://www.czso.cz/csu/czso/cri/miry-zamestnanosti-nezamestnanosti-a-ekonomicke-aktivity-brezen-2020>.
- Český statistický úřad. 2020. "Míry zaměstnanosti, nezaměstnanosti a ekonomické aktivity - leden 2020." Accessed March 3, 2021. <https://www.czso.cz/csu/czso/cri/miry-zamestnanosti-nezamestnanosti-a-ekonomicke-aktivity-leden-2020>.
- Český statistický úřad. 2020. "Míry zaměstnanosti, nezaměstnanosti a ekonomické aktivity - listopad 2019." Accessed March 11, 2021. <https://www.czso.cz/csu/czso/cri/miry-zamestnanosti-nezamestnanosti-a-ekonomicke-aktivity-listopad-2019>.
- Český statistický úřad. 2020. "Míry zaměstnanosti, nezaměstnanosti a ekonomické aktivity - leden 2020." Accessed March 11, 2021. <https://www.czso.cz/csu/czso/cri/miry-zamestnanosti-nezamestnanosti-a-ekonomicke-aktivity-leden-2020>.
- Český statistický úřad. 2020. "Tvorba a užití HDP - 4. čtvrtletí 2019." Accessed March 11, 2021. <https://www.czso.cz/csu/czso/cri/tvorba-a-uziti-hdp-4-ctvrtleti-2019>.

- Český statistický úřad. 2021. "Indexy spotřebitelských cen - inflace - prosinec 2020." Accessed April 10, 2021. <https://www.czso.cz/csu/czso/cri/indexy-spotrebitelskych-cen-inflace-prosinec-2020#:~:text=Pr%C5%AFm%C4%9Brn%C3%A1%20m%C3%ADra%20inflace%20vyj%C3%A1d%C5%99en%C3%A1%20p%C5%99%C3%ADr%C5%AFstkem,shodn%C4%9B%20o%203%2C2%20%25>.
- Český statistický úřad. 2021. "Inflace - druhy, definice, tabulky." Accessed March 11, 2021. [https://www.czso.cz/csu/czso/mira\\_inflace](https://www.czso.cz/csu/czso/mira_inflace).
- Český statistický úřad. 2021. "Míry zaměstnanosti, nezaměstnanosti a ekonomické aktivity - prosinec 2020." Accessed March 11, 2021. <https://www.czso.cz/csu/czso/cri/miry-zamestnanosti-nezamestnanosti-a-ekonomicke-aktivity-prosinec-2020>.
- Český statistický úřad. 2021. "Tvorba a užití HDP - 4. čtvrtletí 2020." Accessed March 11, 2021. <https://www.czso.cz/csu/czso/cri/tvorba-a-uziti-hdp-4-ctvrtleti-2020>.
- ČTK. 2016. "Český zpracovatelský průmysl v prosinci zrychlil. Růst indexu PMI předčil očekávání analytiků." *Hospodářské Noviny*. Accessed April 8, 2021. <https://byznys.ihned.cz/c1-65052040-cesky-zpracovatelsky-prumysl-v-prosinci-zrychlil-rust-indexu-pmi-predcil-ocekavani-analytiku>.
- Danjuma, Naisla Hassan, Habakuk Aboki, and Amos Anyesha Audu. 2014. "International Trade a Mechanism for Emerging Market Economies." *International Journal of Development and Emerging Economies* 2, no.4: 26. Accessed November 6, 2020. doi: <https://www.eajournals.org/wp-content/uploads/International-Trade-A-Mechanism-for-Emerging-Market-Economies1.pdf>.
- Destatis. 2016. "Consumer Prices in 2015: +0.3% on the Previous Year." Accessed March 15, 2021. [https://www.destatis.de/EN/Press/2016/01/PE16\\_018\\_611.html](https://www.destatis.de/EN/Press/2016/01/PE16_018_611.html).
- Destatis. 2018. "Consumer prices in October 2018: +2.5% on October 2017." Accessed April 3, 2021. [https://www.destatis.de/EN/Press/2018/11/PE18\\_436\\_611.html](https://www.destatis.de/EN/Press/2018/11/PE18_436_611.html).
- Destatis. 2019. "Consumer Prices in January 2019: +1.4% on January 2018." Accessed March 15, 2021. [https://www.destatis.de/EN/Press/2019/02/PE19\\_062\\_611.html](https://www.destatis.de/EN/Press/2019/02/PE19_062_611.html).

- Destatis. 2020. "Gross Domestic Product in 1st Quarter of 2020 down 2.2% on the Previous Quarter." Accessed April 12, 2021. [https://www.destatis.de/EN/Press/2020/05/PE20\\_169\\_811.html](https://www.destatis.de/EN/Press/2020/05/PE20_169_811.html).
- Destatis. 2020. "Gross Domestic Product in the 3rd Quarter of 2020 up 8.2% on the Previous Quarter." 2020. Accessed April 12, 2021. [https://www.destatis.de/EN/Press/2020/10/PE20\\_432\\_811.html#:~:text=Gross%20domestic%20product%20in%20the,the%20previous%20quarter%20%2D%20Statistisches%20Bundesamt](https://www.destatis.de/EN/Press/2020/10/PE20_432_811.html#:~:text=Gross%20domestic%20product%20in%20the,the%20previous%20quarter%20%2D%20Statistisches%20Bundesamt).
- Destatis. 2021. "Inflation Rate in 2020: +0.5% on the Previous Year." Accessed March 15, 2021. [https://www.destatis.de/EN/Press/2021/01/PE21\\_025\\_611.html](https://www.destatis.de/EN/Press/2021/01/PE21_025_611.html).
- European Central Bank. 2021. "Measuring Inflation – HICP." Accessed April 8, 2021. [https://www.ecb.europa.eu/stats/macroeconomic\\_and\\_sectoral/hicp/html/index.en.html](https://www.ecb.europa.eu/stats/macroeconomic_and_sectoral/hicp/html/index.en.html).
- European Parliament. 2015. "Understanding Deflation: Falling Prices and Their Impact on the Economy." 1–2. Accessed December 20, 2020. [https://www.europarl.europa.eu/RegData/etudes/BRIE/2015/559492/EPRS\\_BRI\(2015\)559492\\_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2015/559492/EPRS_BRI(2015)559492_EN.pdf).
- Eurostat. 2018. "Glossary: Consumer Price Index (CPI)." Accessed April 8, 2021. [https://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Consumer\\_price\\_index\\_\(CPI\)#:~:text=The%20consumer%20price%20index%2C%20abbreviated,the%20European%20Union%20\(EU\),&text=Many%20of%20these%20goods%20and,consumed%20on%20a%20daily%20basis](https://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Consumer_price_index_(CPI)#:~:text=The%20consumer%20price%20index%2C%20abbreviated,the%20European%20Union%20(EU),&text=Many%20of%20these%20goods%20and,consumed%20on%20a%20daily%20basis).
- Eurostat. 2021. "GDP and Main Aggregates – Selected International Quarterly Data." Accessed March 11, 2021. [https://ec.europa.eu/eurostat/data-browser/view/NAIDQ\\_10\\_GDP/default/table](https://ec.europa.eu/eurostat/data-browser/view/NAIDQ_10_GDP/default/table).
- Eurostat. 2021. "Unemployment by Sex and Age." Accessed March 11, 2021. [https://ec.europa.eu/eurostat/databrowser/view/UNE\\_RT\\_M/default/table](https://ec.europa.eu/eurostat/databrowser/view/UNE_RT_M/default/table).

- FocusEconomics. 2016. "Japan: Manufacturing PMI Falls to an over-Three-Year Low in April Following Kyushu Earthquakes." Accessed April 5, 2021. <https://www.focus-economics.com/countries/japan/news/pmi/manufacturing-pmi-falls-to-an-over-three-year-low-in-april-following-kyushu>.
- FocusEconomics. 2018. "Japan: GDP Contracts in Q1, Ending Two-Year Run of Growth." Accessed April 5, 2021. <https://www.focus-economics.com/countries/japan/news/gdp/gdp-contracts-in-q1-ending-two-year-run-of-growth>.
- FocusEconomics. 2018. "Japan: Manufacturing PMI Improves in December." Accessed April 5, 2021. <https://www.focus-economics.com/countries/japan/news/pmi/manufacturing-pmi-improves-in-december>.
- FocusEconomics. 2019. "Japan: External Sector Drags on Economic Growth in Q2." Accessed April 5, 2021. <https://www.focus-economics.com/countries/japan/news/gdp/external-sector-drags-on-economic-growth-in-q2>.
- FocusEconomics. 2019. "Japan: Economy Expands Quicker than Initially Expected in Q4 2018 on Stronger Investment." Accessed April 5, 2021. <https://www.focus-economics.com/countries/japan/news/gdp/economy-expands-quicker-than-initially-expected-in-q4-2018-on-stronger>.
- Fotr, Jiří, and Ivan Souček. 2020. *Scénáře pro strategické rozhodování a řízení: jak se efektivně vyrovnat s budoucími hrozbami a příležitostmi*. Prague: Grada.
- Guy, Robert. 2017. "Japan PMI Rises as New Export Orders Lift." *Barrons*. Accessed April 8, 2021. <https://www.barrons.com/articles/japan-pmi-rises-as-new-export-orders-lift-1492737771>.
- Hamajima, Jim. 2019. "Earthquake Preparedness for Semiconductor Manufacturers – Lessons from SEMI Japan Members Day." *Semi Japan*. Accessed April 15, 2020. <https://www.semi.org/en/blogs/semi-news/earthquake-preparedness-for-semiconductor-manufacturers-lessons-from-semi-japan-members-day>.
- Hassett, Kevin. 2009. "Investment." *The Library of Economics and Liberty*. Accessed December 20, 2020. <https://www.econlib.org/library/Enc/Investment.html>.

- Ians. 2015. "Japan GDP Increased by 0.6 Percent in Q4 of 2014." *Business Standard*. Accessed April 5, 2021. [https://www.business-standard.com/article/news-ians/japan-gdp-increased-by-0-6-percent-in-q4-of-2014-115021601232\\_1.html](https://www.business-standard.com/article/news-ians/japan-gdp-increased-by-0-6-percent-in-q4-of-2014-115021601232_1.html).
- Innes, Christopher Mc. 2017. "Germany GDP Q1 2017." *FocusEconomics*. Accessed April 12, 2021. <https://www.focus-economics.com/countries/germany/news/gdp/gdp-growth-accelerates-at-the-start-of-2017>.
- International Monetary Fund. 2020. "Kurzarbeit: Germany's Short-Time Work Benefit," June 15, 2020. <https://www.imf.org/en/News/Articles/2020/06/11/na061120-kurzarbeit-germanys-short-time-work-benefit>.
- Investiční web. 2014. "Český zpracovatelský sektor v březnu expandoval mírnějším tempem." Accessed April 9, 2021. <https://www.investicniweb.cz/ekonomika-politika/cesky-zpracovatelsky-sektor-v-breznu-expandoval-mirnejsim-tempem>.
- Investiční web. 2014. "Německo: HDP ve čtvrtém kvartálu 2013 podle předběžných dat vzrostl o 0,4 % mezičtvrtletně a o 1,3 % meziročně." Accessed April 12, 2021. <https://www.investicniweb.cz/ekonomika-politika/nemecko-hdp-ve-ctvrtem-kvartalu-2013-podle-predbeznych-dat-vzrostl-o-04>.
- Investičníweb. 2015. "Český zpracovatelský sektor v říjnu expandoval pomaleji než v září." Accessed April 8, 2021. <https://www.investicniweb.cz/ekonomika-politika/cesky-zpracovatelsky-sektor-v-rijnu-expandoval-pomaleji-nez-v-zari>.
- Investičníweb. 2020. "Tempo růstu aktivity v českém průmyslu bylo v listopadu nejvyšší od srpna 2018." Accessed April 8, 2021. <https://www.investicniweb.cz/ekonomika-politika/tempo-rustu-aktivity-v-ceskem-prumyslu-bylo-v-listopadu-nejvyssi-od-srpna-2018>.
- Japanese International Labour Foundation. 2013. "Economic and Labour Situation in Japan (February 2013)." Accessed April 6, 2021. <https://www.jilaf.or.jp/eng/mbn/2013/117.html>.
- Joseph, Anthony, Maurice Larrain, and Claude Turnerc. 2011. "Forecasting Purchasing Managers' Index with Compressed Interest Rates and Past Values." *Procedia*



- Computer Science* 6: 213–18. Accessed November 6, 2020. doi: <https://www.sciencedirect.com/science/article/pii/S1877050911005059>.
- Král, Petr. 2020. “Současná domácí inflace coby odraz předchozích „sedmi tučných let“.” *Česká Národní Banka*. Accessed April 8, 2021. <https://www.cnb.cz/cs/verejnost/serwis-pro-media/autorske-clanky-rozhovory-s-predstaviteli-cnb/Soucasna-domaci-inflace-coby-odraz-predchozich-sedmi-tucnych-let/>.
- Kaneko, Kaori. 2020. “Tokyo Dec Core Consumer Prices Fall at Fastest Pace in over 10 Years.” *Reuters*. Accessed April 8, 2021. <https://www.reuters.com/article/us-japan-economy-inflation-idUSKBN28Z008>.
- Kihara, Leika. 2016. “Japan October Consumer Prices Continue Slide, Yen Falls May Help BOJ.” *Reuters*. Accessed April 8, 2021. <https://www.reuters.com/article/us-japan-economy-inflation-idUSKBN13J2CC>.
- Kihara, Leika. 2018. “Japan Inflation Lacks Momentum, Keeps BOJ’s Target Elusive.” *Reuters*. Accessed April 8, 2021. <https://www.reuters.com/article/us-japan-economy-inflation-idUSKCN1NQ2Q3>.
- Kihara, Leika. 2019. “Japan’s Consumer Inflation Ticks up as Shoppers Pay More for Sushi, Ice Cream.” *Reuters*. Accessed April 8, 2021. <https://www.reuters.com/article/us-japan-economy-inflation-idUSKBN1YO044>.
- Kindleberger, Charles P., and Robert Z. Aliber. 2015. *Manias, Panics, and Crashes: A History of Financial Crises*. 7th ed. Basingstoke, Hampshire: Palgrave Macmillan.
- Konovalova, M.S., and A.G. Maksimov. 2017. “On Sensitivity of Industries and Companies to the State of Economy.” *Cogent Economics & Finance* 5 no.1: 2. doi: [doi.org/10.1080/23322039.2017.1299074](https://doi.org/10.1080/23322039.2017.1299074).
- Koontz, Harold, and Heinz Weihrich. 2012. *Essentials of Management*, 9th ed., 26–27. McGraw-Hill.
- Kyodo News. 2021. “Number of Births in Japan Falls to Record Low in 2020,” Accessed April 13, 2021. <https://english.kyodonews.net/news/2021/02/e06f0b045c90-number-of-births-in-japan-falls-to-record-low-in-2020.html>.

- Ladiray, Dominique, and Regina Soares. 2003. "Cycles in the Euro-Zone," Accessed November 20, 2020. doi: <https://ec.europa.eu/eurostat/documents/3888793/5815981/KS-AN-03-025-EN.PDF.pdf/4c0e0c36-dd3c-4054-b227-0bbd82135545?t=1414778820000>.
- Lammersen, Jan. 2018. "Czech Republic: Manufacturing PMI remains at over six-year high level in January." *FocusEconomics*. Accessed April 10, 2021. <https://www.focus-economics.com/countries/czech-republic/news/pmi/manufacturing-pmi-remains-at-over-six-year-high-level-in-january>.
- Lammersen, Jan. 2018. "Germany: Composite PMI records steep drop in March." *FocusEconomics*. Accessed April 3, 2021. <https://www.focus-economics.com/countries/germany/news/pmi/composite-pmi-crawls-back-up-in-april>.
- Lee, Pete, and Alison McCrae. 2014. "UK National Accounts – a Short Guide." 13–14. Accessed April 6, 2019. <https://www.ons.gov.uk/economy/grossdomesticproductgdp/compendium/unitedkingdomnationalaccountsthebluebook/2014-10-31/usefullinks>.
- Levi, Maurice D. 2014. *The Macroeconomic Environment of Business: Core Concepts and Curious Connections*. Hackensack, NJ: World Scientific.
- Look,Carolynn. 2021. "German Unemployment Unexpectedly Fell During December Lockdown." *Bloomberg*. Accessed April 2, 2021. <https://www.bloomberg.com/news/articles/2021-01-05/german-unemployment-unexpectedly-fell-during-december-lockdown>.
- Love, Patrick, and Ralph Lattimore. 2010. *International Trade*. 8–10. Academic Foundation.
- Mankiw, N. Gregory. 2019. *Macroeconomics*. Worth Publishers.
- Marsh, Sarah. 2013. "UPDATE 1 – German jobless falls underscoring strong domestic economy." *Reuters*. Accessed April 2, 2021. <https://www.reuters.com/article/germany-unemployment/update-1-german-jobless-falls-underscoring-strong-domestic-economy-idUSL5N0F30Z120130627>.

- Martin, Michelle. 2015. "German Inflation Turns Negative for First Time since 2009." *Reuters*. Accessed April 3, 2021. <https://www.reuters.com/article/us-germany-economy-inflation-idUSKBN0L213J20150129>.
- Ministerstvo financí. 2021. "Macroeconomic Forecast - January 2021." 2021. *Macroeconomic Forecast*. doi: <https://www.mfcr.cz/en/statistics/macroeconomic-forecast/2021/macroeconomic-forecast-january-2021-40755>.
- Ministerstvo práce a sociálních věcí. 2021. "Nezaměstnanost v prosinci vzrostla na 4 %." Accessed April 9, 2021. [https://www.mpsv.cz/documents/20142/2061970/08\\_01\\_2020\\_TZ\\_Nezamestnanost\\_prosinec.pdf/](https://www.mpsv.cz/documents/20142/2061970/08_01_2020_TZ_Nezamestnanost_prosinec.pdf/).
- Ministerstvo průmyslu a obchodu. 2020. "Nezaměstnanost zůstává v ČR rekordně nízká." *Týdeník ekonomických aktualit* 44: [https://www.mpo.cz/assets/cz/rozcestnik/analyticke-materialy-a-statistiky/tydenik-ekonomickych-aktualit/2019/11/44--tyden\\_2019.pdf](https://www.mpo.cz/assets/cz/rozcestnik/analyticke-materialy-a-statistiky/tydenik-ekonomickych-aktualit/2019/11/44--tyden_2019.pdf).
- Ministerstvo zdravotnictví. 2020. "V České republice jsou první tři potvrzené případy nákazy koronavirem." Accessed April 8, 2021. <https://koronavirus.mzcr.cz/v-ceske-republice-jsou-prvni-tri-potvrzene-pripady-nakazy-koronavirem/>.
- Mládková, Ludmila, and Petr Jedinák. 2009. *Management*. 13–14. Aleš Čeněk.
- Musílek Petr. 2002. *Trhy cenných papírů*, 293. Praha: Ekopress.
- Nakamura, Keita. 2021. "Japan's 2020 Job Availability Logs Sharpest Drop in 45 Yrs amid Pandemic." *Kyodo News*. Accessed April 6, 2021. <https://english.kyodonews.net/news/2021/01/e472be931d3d-update2-japans-2020-job-availability-logs-sharpest-drop-in-45-yrs.html>.
- Nasr, Joseph. 2016. "German unemployment rate falls to record low in May." *Reuters*. Accessed April 2, 2021. <https://www.reuters.com/article/us-germany-economy-unemployment-idUSKCN0YM0QQ>.
- Nasr, Joseph. 2021. "German Consumer Prices to Surpass ECB Target This Year - Weidmann." *Reuters*. Accessed April 2, 2021. <https://www.reuters.com/article/germany-inflation-weidmann-idUSL1N2KH3D1>.

- Nienaber, Michael, and Thomas Seythal. 2020. "German Growth Slows Sharply in 2019 as Trade Disputes Bite." *Reuters*. Accessed April 12, 2021. <https://www.reuters.com/article/us-germany-economy-gdp-idUSKBN1ZE0Y3>.
- Pavelka, Tomáš. 2007. *Makroekonomie*. 8–9. Melandrium.
- Pettinger, Tejvan. 2019. "Definition of Unemployment." *Economics Help*. Accessed November 25, 2020. <https://www.economicshelp.org/blog/2247/unemployment/definition-of-unemployment/>.
- Phillips, John. 2013. "Japan Inflation at Fresh Five-Year High in November." *CNBC*. Accessed April 8, 2021. <https://www.cnbc.com/2013/12/26/japan-inflation-rises-12-percent-on-year-above-view.html>.
- Reuters. 2013. "Japan November Manufacturing PMI Shows Fastest Expansion in More Than Seven Years." Accessed April 5, 2021. <https://www.reuters.com/article/us-japan-economy-pmi-idUSBRE9AR0SP20131128>.
- Reuters. 2016. "German Factory Growth Close to Three-Year High in October – PMI." *Reuters*. Accessed April 2, 2021. <https://www.reuters.com/article/uk-germany-economy-pmi/german-factory-growth-close-to-three-year-high-in-october-pmi-idUK-KBN12X0X5>.
- Reuters. 2016. "German Manufacturing Growth Hits Four-Month High in May – PMI." 2016. Accessed April 3, 2021. <https://www.reuters.com/article/us-germany-economy-pmi-idUKKCN0YN3NY>.
- Reuters. 2016. "German Private-Sector Growth Headed for Best Quarter in More than Two Years – PMI." Accessed April 12, 2021. <https://www.reuters.com/article/uk-germany-economy-pmi-idUKKBN14417Y>.
- Reuters. 2020. "Japan's May Factory Activity Reels as Pandemic Hits Output, Orders: PMI." Accessed April 5, 2021. <https://www.reuters.com/article/us-japan-economy-pmi-idUSKBN22X01U>.

- Reuters. 2020. "German Manufacturing Output Contracts Again in May: PMI." 2020. Accessed April 12, 2021. <https://www.reuters.com/article/us-germany-economy-pmi-idINKBN2381ON>.
- Reuters. 2020. "German Manufacturing Returns to Growth on Rising Orders - PMI." Accessed April 2, 2021. <https://www.reuters.com/article/us-poll-german-manufacturing/german-manufacturing-returns-to-growth-on-rising-orders-pmi-idUSBRE9700C220130801>.
- Ro, Sam. 2014. "Japan's Manufacturing Output Tumbles to A 14 – Month Low." *Business Insider*. Accessed April 5, 2021. <https://www.businessinsider.com/japan-manufacturing-pmi-april-2014-4>.
- Ro, Sam. 2021. "The German Economy Continues to Get Worse." *Business Insider*. Accessed April 12, 2021. <https://www.businessinsider.com/germany-pmi-2012-8>.
- RTE. 2016. "Growth in German Manufacturing Nearly Halted in February." Accessed April 12, 2021. <https://www.rte.ie/news/business/2016/0301/771741-german-manufacturing-pmi/>.
- Samuelson, Paul Anthony, and William D. Nordhaus. 2010. *Economics*. Boston: McGraw-Hill.
- Sands, Sarah. 2018. "Inside the Germany Manufacturing PMI in January 2018." *Market Realist*. Accessed April 12, 2021. <https://marketrealist.com/2018/02/inside-germanys-manufacturing-pmi-january-2018/>.
- Siebert, Horst. 2014. *The German Economy: Beyond the Social Market*. Princeton: Princeton University Press.
- Simonet, Joffrey. 2018. "Japan PMI January 2018." *FocusEconomics*. Accessed April 8, 2021. <https://www.focus-economics.com/countries/japan/news/pmi/manufacturing-pmi-rises-to-four-year-high-in-january>.
- Staffing Industry Analyst. 2019. "Japan – Jobless Rate Falls to 2.4% in December." Accessed April 6, 2021. <https://www2.staffingindustry.com/row/Editorial/Daily-News/Japan-Jobless-rate-falls-to-2.4-in-December-48848>.

- Statistics of Japan. 2021. "Consumer Price Index Time Series Indices." Accessed March 15, 2021. <https://www.e-stat.go.jp/en/stat-search/files?page=1&layout=datalist&toukei=00200573&tstat=000001084976&cycle=0&tclass1=000001085995&tclass2=000001085936&tclass3=000001085996&tclass4=000001085976&tclass5val=0>.
- Stupavský, Michal. 2018. "Tempo českého průmyslu zpomaluje." *Hospodářské Noviny*. <https://byznys.ihned.cz/c1-66270180-tempo-ceskeho-prumyslu-zpomaluje>.
- Tabuchi, Hiroko. 2013. "After Strong Growth in First Half of 2013, the Japanese Economy Hits a Snag." *The New York Times*. Accessed April 5, 2021. <https://www.nytimes.com/2013/11/14/business/international/after-strong-growth-in-first-half-of-2013-the-japanese-economy-hits-a-snag.html>.
- The Japan Times. 2014. "Jobless Rate Rises to 3.8% on July Surge in Job-Seekers." Accessed April 6, 2021. <https://www.japantimes.co.jp/news/2014/08/29/business/economy-business/jobless-rate-rises-to-3-8-on-july-surge-in-job-seekers/>.
- The Japan Times. 2016. "Japan's Job Availability Hits Record High but Unemployment Rate Remains Flat." Accessed April 6, 2021. <https://www.japantimes.co.jp/news/2016/05/31/business/japans-job-availability-hits-record-high-but-unemployment-rate-remains-flat/>.
- The Japan Times. 2018. "Bank of Japan Gets Halfway to Inflation Target, but Stronger Yen Clouds Outlook." *The Japan Times*. Accessed April 8, 2021. <https://www.japantimes.co.jp/news/2018/03/23/business/economy-business/bank-japan-gets-halfway-inflation-target-stronger-yen-clouds-outlook/>.
- The Japan Times. 2020. "December Jobless Rate Flat at 2.2% as Labour Shortage Continues in Japan." Accessed April 6, 2021. <https://www.japantimes.co.jp/news/2020/01/31/business/december-jobless-rate-japan-flat-2-2-amid-labor-shortage/>.
- The Japan Times. 2020. "Japan First-Quarter GDP Shrank Less than Expected but Deeper Recession Looms." 2021. Accessed April 5, 2021.

<https://www.japantimes.co.jp/news/2020/06/08/business/economy-business/japans-first-quarter-gdp-shrinks-less-than-initial-estimate-but-still-faces-steep-recession/>.

The Japan Times. 2020. “Japan Jobless Rate Falls for First Time in Five Months as Economy Rallies.” Accessed April 6, 2021. <https://www.japantimes.co.jp/news/2020/12/25/business/economy-business/japan-jobless-rate-falls/>.

The Japan Times. 2020. “Japan’s Jobless Rate Jumps to 2.4% in January, Rising for First Time in Four Months.” Accessed April 6, 2021. <https://www.japantimes.co.jp/news/2020/02/28/business/economy-business/japan-jobless-rate/>.

The Star. 2014. “Japan Flash Dec Manufacturing PMI Rises to 52.1 From Final 52 in Nov.” 2019. Accessed April 5, 2021. <https://www.thestar.com.my/Business/Business-News/2014/12/16/Japan-flash-Dec-manufacturing-PMI-rises-to-52pt1-from-final-52in-Nov/>.

The Strait Times. 2017. “Japan Inflation Picks up in November but Still Well below Target.” Accessed April 8, 2021. <https://www.straitstimes.com/business/economy/japan-inflation-picks-up-in-november-but-still-well-below-target>.

United Nations. 2019. “National Accounts, Value Added by Economic Activity, at Current Prices – US Dollars.” Accessed March 15, 2021. <https://unstats.un.org/unsd/snaama/Basic>.

Viet, Quang Vu. 2009. “GDP by Production Approach: A General Introduction with Emphasis on an Integrated Economic Data Collection Framework,” 14–15.” Accessed November 6, 2020. [https://unstats.un.org/unsd/China\\_UNSD\\_Project/GDP%20by%20production%20approach.pdf](https://unstats.un.org/unsd/China_UNSD_Project/GDP%20by%20production%20approach.pdf).

Vihriälä, Erkki. 2017. “Household Consumption in Japan - Role of Income and Asset Developments.” *IMF Working Papers* 17, no. 23: <https://doi.org/10.5089/9781475573084.001>.

**LIST OF ABBREVIATIONS**

GDP	Gross Domestic Product
GNP	Gross National Product
GVA	Gross Value Added
PMI	Purchasing Managers' Index
CRS	Congressional Research Service
MFCR	Ministry of Finance of the Czech Republic
CNB	Czech National Bank
CZSO	Czech Statistical Office
BOJ	Bank of Japan



**LIST OF FIGURES**

Figure 1: Czech PMI (Source: Investing, author's creation, 2020) .....	33
Figure 2: German PMI (Source: Investing, author's creation, 2020) .....	34
Figure 3: Japan's PMI (Source: Investing, author's creation, 2020) .....	35
Figure 4: Czech GDP (Source: Eurostat, author's creation, 2020).....	38
Figure 5: Czech Unemployment Rate (Source: Eurostat, author's creation, 2020) ..	40
Figure 6:Czech Inflation CPI (Source: Czech Statistical Office, author's creation, 2020).....	41
Figure 7: German GDP (Source: Eurostat, author's creation, 2020).....	42
Figure 8: German Unemployment Rate (Source: Eurostat, author's creation, 2020).	43
Figure 9: German Inflation CPI (Source: Statistisches Bundesamt, author's creation, 2020).....	44
Figure 10: Japan's GDP (Source: Eurostat, author's creation, 2020).....	46
Figure 11: Japan's Unemployment Rate (Source: Eurostat, author's creation, 2020)	47
Figure 12: Japan's Inflation CPI (Source: The Statistics Bureau of Japan, author's creation, 2020).....	48
Figure 13: The link between the Czech PMI, GDP and the Economic Cycle (Author's creation).....	50
Figure 14: The link between the Czech PMI, Unemployment Rate and the Economic Cycle (Author's creation).....	52
Figure 15: The link between the Czech PMI, Inflation CPI and the Economic Cycle (Author's creation) .....	54
Figure 16: The link between the German PMI, GDP and the Economic Cycle (Author's creation) .....	56
Figure 17: The link between the German PMI, Unemployment Rate and the Economic Cycle (Author's creation).....	58
Figure 18: The link between the German PMI, inflation CPI and the Economic cycle (Author's creation) .....	60
Figure 19: The link between the Japan's PMI, GDP and the Economic Cycle (Author's creation).....	62
Figure 20: The link between the Japan's PMI, Unemployment Rate and the Economic Cycle (Author's creation).....	65

---

Figure 21: The link between the Japan's PMI, Inflation CPI and the Economic Cycle  
(Author's creation) .....67