LIBERA UNIVERSITÀ INTERNAZIONALE DEGLI STUDI SOCIALI "LUISS – GUIDO CARLI"

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Covid-19 a macroeconomic analysis

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Introduction

2020 was marked by intense social and economic turmoil. For the first time in a century of history, the world has been the victim of a global pandemic that has frozen economic development and destroyed entire markets. This meant that central banks promptly developed monetary policies of a scale and intensity never seen before.

This article analyzes the effects produced by the pandemic from a macroeconomic point of view. Through the theory of economic cycles he tries to explain the reasons for the economic strategies adopted by the ECB, their consequences and possible criticisms. The analysis is based on the whole euro area, with frequent detailed analyzes of the Italian situation taken as the main point of reference. The first chapter is characterized by an in-depth analysis of the consequences that the various lockdowns have had on the economy from a more general vision aimed at explaining the events that have influenced various industries, such as transport and fuel, financial markets and the labor market in general.

The second part of the first chapter explores the topic by analyzing the Italian situation and how the pandemic has affected the economy of the nation. The last part of the first chapter focus on the initiatives undertaken by the central bank to address the short and medium term effects of the pandemic.

The second chapter is entirely devoted to the theory of business cycles. This part will be useful to better contextualize the actions carried out by the European central bank to deal with the problems introduced by the covid. In particular, the focus is on three main theories: the classical one, which nowadays has little space for practical application, the Keynesian, which finds ample confirmation in the strategies adopted to alleviate the effects of the crisis and the Austrian one, useful for understanding the numerous criticisms that have been leveled at these recovery policies. The last part of this paper focuses on the union of theory and practice, showing the various effects of the policies adopted on aggregate supply and demand and on potential output. All this is accompanied by a forecast drawn from the most important economic research institutes on the future and solidity of the European economy and on the effects of the always bigger debt which, in order to cope with the pandemic, was contracted by the most important euro area nations.

1.1 General effects of the economic crisis

The year 2020 was characterized by the outbreak of the Covid-Sars 2019. In a few months, the infection spread all over the World and the majority of countries had to take measures of containment which had been shaping life and habits, in a way that would have never been thought possible before. The economic situation became drastic when numerous lockdowns were imposed on the population, and through various movement limitations and related consumption restrictions, the economic crisis spread to multiple industries.

An interesting example of how the pandemic not only caused direct damage but set in motion a chain of events and was just the beginning of a slippery slope was the havoc of the travel industry.

The pandemic has caused many countries to close their borders, banning all non-essential travel with other nations. There have been instances where Some states have even completely closed their airports[1].

Due to the sudden cancellations, many planes were left almost empty. This unprecedented situation had led to a drastic reduction in the demand for flights and "some airlines such as Air Baltic, LOT Polish Airlines, La Compagnie and Scandinavian Airlines"[2] were forced to stop their service. The industry as a whole has lost over $ 200 billion worldwide and, as reported by the GTBA, the business travel industry would lose $ 820 billion in revenue due to the coronavirus pandemic.

Furthermore, the closure of the borders, the interruption of travel, and the freezing of marches resulted in a decrease in the demand for fuel, coal, and other energy products, which subsequently led to a drop in the price of oil due to low demand.

This predicament caused a strong reaction from those countries whose economy is strongly based on the production of oil and fossil fuel, in particular Saudi Arabia, on March 09 2020, anticipating a strong decrease in the global demand in the next period, started an oil price war with Russia and floods the market with oil. In one single day, the crude oil price plunges by more than 20%.

The stock market situation is not positive either and during the past months, it had been observed a decrease in value for the investments[3]. Specifically, from January 2020, losing "$ 6 trillion in value in six days from 23 to 28 February, according to the S&P Dow Jones indices. Between February 20 and March 19, the S&P 500 index fell by 28% (from 3,373 to 2,409), the FTSE 250 index fell by 41.3% (from 21,866 to 12,830) and the Nikkei fell by 29. % (from 23,479 to 16,552). Over the same period, large international banks saw their share price plummet, for example, Citigroup's share price fell by 49% (from USD 78.22 to USD 39.64), the share price of JP Morgan Chase fell 38% (from USD 137.49 to the US $ 85.30) and Barclays' share price fell 52% (from £ 181.32 to £ 86.45) "[2.]

While the confrontation between Russia and Arabia played a role in the stock market crash of the March period, most of the blame lies with the shareholders themselves who shifted their savings into safer assets,

[1] (Twinn et al., 2021)
[2] (K Ozili and Arun, 2020)
[3] (Ramelli & F. Wagner, 2021)

given the uncertainty of times.
At the same time, the economic crisis has led to a 250 basis point increase in non-performing loans in the banking sector. The increased risk exposure was supported by private banks during the pandemic. Non-performing loans have grown from loans to small and medium-sized enterprises. During the pandemic, there has also been a decrease in banking transactions, a decrease in electronic payments and a decrease in the use of ATMs around the world. The banks, therefore, had to live with fewer fees, which negatively impacted profits.

Covid 19 has also had a negative impact on the supply chain networks, negatively impacting global economies. As can be seen from several markets, the normal functioning of global supply chains has been disrupted by the current crisis. This also applies to suppliers. Particularly affected are therefore the countries that rely more on exports, but also on those that are importers (lack of raw materials). “The World Trade Organization (WTO) expects global trade to drop by as much as 32% this year due to the coronavirus pandemic. Disruption of supply chains will increase the cost of business for manufacturing companies. According to the US Institute for Procurement Management, 75% of companies report disruptions in their supply chains”[4]. Delivery times have doubled for many US companies. Furthermore, there were shortages of raw materials and final products.
The impact of the crisis has been particularly strong for all those countries that depend on raw materials from states such as China, India, and Japan. The freezing of trade and solutions has caused the prices of these commodities to rise, triggering inflationary pressures.
The situation is no better for those economies which export raw materials such as oil. The drastic fall in prices coupled with the intentional decrease in the demand for oil has brought countries whose economies are mainly based on these products to their knees. Increasing the deficit and worsening the balance of payments position of many countries such as Venezuela, Nigeria, and South Africa.
All this led to the devaluation of the currency of these countries and the budget deficits were financed with large loans from the World Bank.
Also not to be underestimated are the social consequences of the pandemic, which reduced the workforce equivalent to 195 million full-time employees by 6.7% in the second quarter of 2020, reaching its peak in April 2020. In America alone, the unemployed increased by 14 million units, from 6.2 million in February to 20.5 million in May 2020. As a result, the unemployment rate in the United States increased from 3.8% in February - among the lowest ever recorded in the United States. 'was post-World War II - at 13.0% in May. That percentage was the second highest at the time after only the level reached in April (14.4%). “In India, according to the Center for Monitoring Indian Economy in urban areas unemployment reached 8.21% to 30.9% from the center of March to the end of month increased almost 23%. The European statistics are very

[4] (Fernandes, 2020)

heterogeneous according to the different European countries. In total, more than 11 million lost their jobs[5]. 470,000 companies in Germany for more than 2 million workers applied for state subsidies, well over the 50% that occurred after the financial crash of 2008, In France 4 million workers receive government subsidies, 1.84 million workers in Germany asked state subsidies and 90,000 workers have lost their jobs. Similar is the situation in Britain, with 1 million people applying for welfare, 0.8 million workers in Finland and Norway have lost their jobs. In Austria, 52.5% unemployment is the highest number since World War II. This is the condition of unemployment in Europe, the most developed part of the modern world, where health facilities are very good. According to the International Labor Organization before COVID-19, 150 million people were employed, 75% of whom in the world are now unemployed.[6]

1.2 **General effects of the economic crisis in Italy**

In Italy, one of the countries most affected by the Covid-19 virus, the situation is even more drastic. The CSC (Centro Studi Confindustria) states that the Italian GDP (Gross Domestic Product) fell by 10% in 2020 bringing the country to the levels of 23 years ago[7].

Productivity dropped dramatically in the first two quarters of 2020 with an average of total working hours, on an annual basis, reduced by 15.1%. This figure is made up of a 13.5% decrease in hours worked per capita and a 1.5% decrease in employed persons.

The data would have been even worse if it were not for the massive use of wage guarantees, primarily the Cassa Integrazione Guadagni (CIG), which the Government has made available, exceptionally, to all companies during temporary work suspensions or reductions in working hours due to the pandemic. Similarly, a 1% decrease in employment is expected in 2021. according to the CSC, Italian exports decreased by 14.3% in 2020 and then increased by 11.3% in 2021. The export of goods improves compared to the May estimates, with a decline of 10.0% and then full recovery. The service sector, on the other hand, has dropped by 31.9% and then recorded a powerful but incomplete rise. Furthermore, the restrictive measures adopted by the Italian government in order to control the spread of the virus have suspended or reduced activity in the sectors which affected, in the last quarter of 2019, 44% of self-employed workers and 33% of employees, affecting as a whole about 34% of the entire workforce.

The negative effects of the pandemic, however, are not shared equally among social classes and the suspension of activities has affected those with lower incomes the longest[8]. According to the data in the possession of the Bank of Italy, the share of workers whose activity has been blocked corresponds to almost ten points more in the poorest 20% of the population, who are self-employed compared to the 20% of citizens who enjoy a higher income. Also, the workers who belong at the lowest fifth percentile in the

[5] (Tiberiu ALBULESCU, 2021)
[6] (Bilal Tahir & Sohaib, 2021)
[7] (Manzocchi, 2021)
[8] (Banca d'Italia, 2021)

distribution of income perform tasks that cannot be performed remotely.
Similar results are also obtained when we take family members as a reference rather than individuals. In In 38% of the families considered in the Bank of Italy survey, there is at least one worker affected by blocking measures. Also in this, the families that are most affected are those with the lowest income: The number of family members who work in those sectors affected by the blocks in relation to the number of family members who are employed in the family is around 37 % in the lowest quintile of distribution, in the highest quintile, the share is around 29%.
Investments are also affected, which fell by 15.8% in 2020. The sharp drop in demand since February, the cancellation of orders and worsening expectations have forced companies to delay their projects. The + 9.7% rebound in 2021 compared to investments is strong but still incomplete. In particular, the increase in spending on machinery will be completed by the improvement of the international context, which will push to increase demand and sustain the confidence of entrepreneurs. It is important to keep the slowdown in credit under control, which could act in the opposite direction if the foreseeable increase in non-performing bank loans due to the recession cannot be adequately managed.
In recent months, credit has returned to growth in Italy, but only thanks to the contribution of liquidity. The stock of corporate bank loans has been growing since March, with a gradual acceleration (+ 4.4% annually in July, approximately + 14.0% estimated by the end of the year). This increase is due to the new public credit guarantees. These guarantees are provided by the government to remedy the lack of liquidity in the corporate system generated by the numerous lockdowns. Italian companies are obtaining the bank loans needed to finance equity, working capital and even debt restructuring. Although this strategy may help in the short term, in the long run the decline in investment slows the growth and ends up weighing on the bank debt of companies, and on the solidity of their balance sheets. The share of bank debt on total liabilities will go from 16.5% to 18.4% in 2020 (according to CSC estimates), canceling part of the deleveraging of the last decade. Governments will therefore have to commit themselves to pursue fiscal policies aimed at reducing debt, starting from 2021 to follow.

1.3 **NextgenerationEU, Pandemic Emergency Purchase Programme, and other measures**

Given the gravity of the situation, the European Union promptly developed a plan to revive and modernize the continent. The plan provides for a 2021-2027 EU budget of 1074.3 billion euros in terms of commitments (at 2018 prices)[9]; Furthermore, the European Commission has the possibility to borrow, on behalf of the Union, loans on the capital markets up to 750 billion euros (at 2018 prices) to be used for the sole purpose of facing the consequences of the COVID-19 crisis. The total therefore becomes 1,824.3 billion euros. of which 750 billion are part of NextGenerationEU, a temporary recovery tool aimed at repairing the immediate economic and social damage caused by the coronavirus pandemic and creating a post-COVID-19 Europe that is greener, digital and resilient for the present and challenges future. The main part of the "NextGenerationEU" is the instrument for recovery and resilience: which will allocate € 672.5 billion in loans and grants to implement the reforms and investments needed to lift the economies of the member states[10]. All this is aimed at reducing the impact that the economy has had on the economic and social sphere by making European economies more sustainable, technological and efficient through a specific set of investments. The funds will be disbursed to individual states following the preparation of a recovery and resilience plan. "The remaining 75.5 billion, on the final package of 750, are distributed between React Eu (47.5 billion), Horizon Europe (5 billion), the InvestEu Fund (5.6 billion), Rural Development (7.5 billion) , the just transition fund (10.5 billion) and RescEu (1.5 billion). The entire sum of 750 billion euros will be raised on the markets with the issuance of common debt, jointly and severally guaranteed by all EU countries "*2.

The agreement reached in the European Council provides that the expenditure to finance the EU budget will be covered by revenue from existing EU own resources (customs duties, VAT resource and GNI resource), and that work will be carried out to a reform of the system.

Three phases will be adopted for the introduction of new own resources:

Initially, a new own resource will be introduced linked to the use of plastic waste (from 1 January 2021): this is a national contribution calculated on the basis of the weight of non-recycled plastic packaging waste; the second is based on a carbon adjustment mechanism at the borders, to prevent carbon leakage, and digital taxation; the other resources are based on forms of taxation on financial transactions.

The recovery plan agreed by EU leaders also includes three additional instruments to support workers, industries and Member States for a total value of € 540 billion. Together with the new EU budget, complemented by the NGEU, the total EU recovery package amounts to € 2364.3 billion.

Among the other main instruments approved by the EU to address the economic and social problems derived

[9] ("Piano per la ripresa dell'Europa", 2021)

[10] (Magnani, 2021)

from the COVID19 crisis, there is, first of all, a European instrument of temporary support to mitigate the risks of unemployment in case of emergency (SURE).

It provides Member States (who request it and who suffer or are at risk of serious economic failure due to the Covid-19 pandemic) financial assistance, amounting to 100 billion euros, in the form of loans granted on favorable terms. , so that we can finance schemes to reduce working hours or similar measures aimed at protecting employees and self-employed workers and therefore at reducing the incidence of unemployment and loss of income. In addition, a pan-European EIB Group Guarantee Fund of € 25 billion was created, consisting of contributions and guarantees from the Member States, able to act as guarantors, act as leverage and collaborate with local credit and financial institutions. A national promotion, with funding of 200 billion euros, designed in particular for small and medium-sized enterprises. Finally, in order to avoid friction on the public debt markets and in order to guarantee the liquidity and conditions of loans to households, businesses, and banks so as to be able to preserve the regular supply of credit to the economy, the European Central Bank has applied numerous measures that are largely reminiscent of the quantitative easing program thanks to which a greater financial commitment can be noted. In particular, in March 2020 the European Central Bank activated a new temporary program for the purchase of securities from the public and private sector called the "Pandemic Emergency Purchase Program"[11] (Pandemic Emergency Purchase Program, PEPP) worth 750 billion euros; thanks to an additional amount of € 600 billion approved in June 2020, the total of the program was increased to € 1,350 billion[12].

[11] (Bank, 2021)

[12] (deputati, 2021)

2.0 **Business cycle theories**

As we have been able to appreciate, the economic plan conceived by the European Union is overflowing with monetary and debt policies. In the following paragraphs the various consequences that these expansive economic policies can lead will be analyzed. In order to obtain a complete picture of the possible effects that the economic policies introduced by the European central bank it is necessary to introduce the various theories of economic cycles and how each policy relates to them. In the following chapter, therefore, the three most influential theories that have influenced contemporary economic thought are presented. Starting from the classical theory, introduced by the economist Jean Charles Léonard de Sismondi in 1819 with his book "Nouveaux Principes d'économie politique", useful more for understanding the bases of the origin of this thought than for practical use today, we move on to analyze the theory, still very relevant, introduced by the English economist John Maynard Keynes in 1930 in his book “The General Theory of Employment, Interest and Money”. The last part of this session is dedicated, however, to the Austrian school of thought, which, although not very applicable, raises some interesting doubts about the use of overly aggressive monetary policies.

2.1 **Quantitative theory of money classical view**

This theory was developed by classical economists between the nineteenth and early twentieth centuries. The quantitative theory of money refers to the way in which the nominal value of aggregate income is determined. Since it also tells us how much money a given amount of aggregate income corresponds to, it is also a theory of the demand for money. The concept that characterizes this theory is the fact that interest rates have no effect on the demand for money.

The idea finds its clearest and most complete exposition in the work of the American economist Irving Fisher, in his book “The Purchasing Power of Money”, published in 1911[13]. Fisher's goal was to examine the relationship between the total amount of money M (the money supply) is the total amount of expenditure on final goods and services produced in the P * Y economy, where P is the price level and Y is the aggregate output (income).

The concept that provides the link between M and P * Y is called the speed of money that is: the average number of times per year that a dollar is spent to purchase the total amount of goods and services produced in the economy

The equation of exchange, which represents the relationship between nominal income, the amount of money and speed is therefore:

[13] (T. Belongia & N. Ireland, 2021)

$M * V = P * Y$[14]

The equation can be summarized by saying that by multiplying the amount of money by the number of economic transactions that take place in a year, we obtain a sum equal to the nominal income. Fisher, therefore, argued that having a velocity that is fairly constant in the short run transforms the exchange equation into the quantitative theory of money, which states that the only factor that determines nominal income is the quantity of money. For classical economists, Fisher's theory provided an explanation for movements in the price level. In fact, they derive exclusively from changes in the amount of money.

DETERMINATION OF AGGREGATE OUTPUT:

Classical economics believes that consumers and firms make decisions in the free market economy in order to maximize their own self-interest. Consumers will make decisions that maximize their own utility and firms will make decisions that maximize their profits. This self-interest drives voluntary exchange in the free market economy setting price levels and quantities and output at an equilibrium where all participants can satisfy their incentive-driven goals. When fluctuations and changes occur the natural market forces of voluntary exchange, known as the invisible hand, allow the market economy to fix itself without outside influences or government intervention.

The cornerstone of the classical theory is the belief inflexible wages and prices. Flexible wages imply that worker's wages increase with inflation and decrease with deflation. According to classical economists, aggregate demand is comprised of consumer spending, investment spending, and net export. And aggregate supply is fixed at the economy's full employment quantity of real GDP output. Changes in aggregate demand cause fluctuations in aggregate price levels and real GDP output produced in the macroeconomy remain the same because the economy always produces its potential GDP output. The classical theory dictates that periods of recession or excessive inflation are temporary and the economy will correct itself through changes in aggregate demand, so there is no need for outside government intervention because the invisible hand works through flexible wages and prices which affect consumption and therefore aggregate demand.

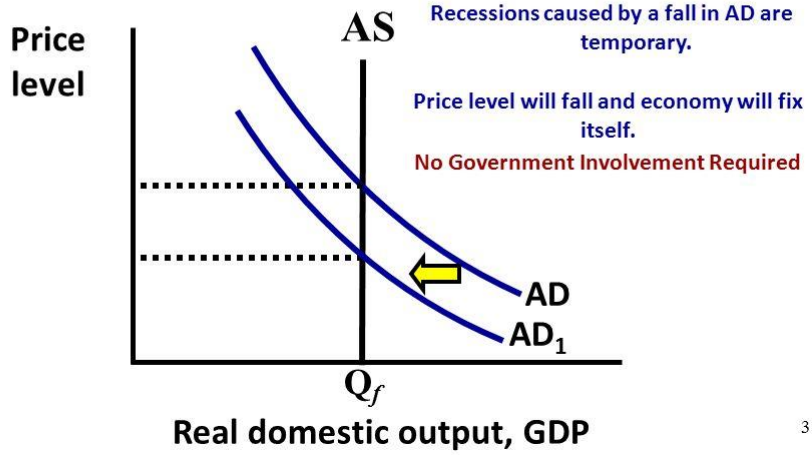
In case of a recession, the state is powerless in fact, given the equation of exchange and considering that the economy is already producing at its maximum capacity, an increase in M(money supply) could only increase P creating inflation[15].

[14] (Hayes, 2021)
[15] (Chuang, 2021)

Debates Over Aggregate Supply

Classical Theory

1. **A change in AD will not change output even in the short run because prices of resources (wages) are very flexible.**
2. **AS is vertical so AD can't increase without causing inflation.**



[3] [16]

2.2 **Keynesian theory**

Keynesian economics takes his name after the British economist John Maynard Keynes.
Keynes was undoubtedly one of the most influential economists of the twentieth century.
Born in Cambridge to an upper-middle-class family. He studied at Eton and Cambridge.
In the field of economics, his first important publication was Indian Currency and Finance (1913), written following his service in the Indian Office of the British government from 1906 to 1908. He is the author of many articles, reviews, and biographical treatises, but his most famous and influential work is "The General Theory of Employment, Interest, and Money".[17]
During the Great Depression of the 1930s, the situation was drastic and the complexity and breadth of the crisis meant that economists were unable to develop a theory that could effectively represent the phenomena that were occurring and consequently provide a political solution to the problem. Keynes revolutionized the economic thinking of the time, overturning the then-prevailing idea that the free market would automatically provide full employment if wages remained flexible. His theory is based on the principle that aggregate demand is the fulcrum of the economy and that free markets do not have self-balancing mechanisms that lead to full employment. Therefore Keynesian economists approve and solicit government intervention through public policies aimed at achieving full employment.[18]

[16] (Hawkins, 2015)
[17] (Friedman, 1997)
[18] (Hicks, 1937)

In his famous 1936 book The General Theory of Employment, Interest, and Money, John Maynard Keynes abandoned the classical view which, as we have seen, he claimed velocity was a constant and developed a theory of the demand for money that emphasized the importance of interest rates. [19]

In Cambridge, he followed the approach developed by his predecessors. His theory of the demand for money, which he called liquidity preference theory, investigated the reasons that led individuals to hold money. Keynes was much more precise in this regard than his predecessors as to what influences individual decisions. He argued that there are three motives behind the demand for money: one is for transactions, another is the precautionary reason, and the last is a speculative one.

According to the classical approach, individuals use money because it is a medium of exchange that can be used to carry out daily transactions. In line with this idea, Keynes pointed out that this component of the demand for money is mainly determined by the level of people's transactions. And Since these transactions are proportional to income, he believed that the transaction component of the demand for money must also be proportional to income. Keynes went beyond classical analysis by understanding that people do not hold money solely for transitions, but also as a cushion against an unexpected need. Keynes believed that the precautionary money balances that people want to keep are determined primarily by the level of transactions they expect to do in the future and that these transactions are proportional to income. Therefore, the demand for precautionary money balances is directly proportional to income.

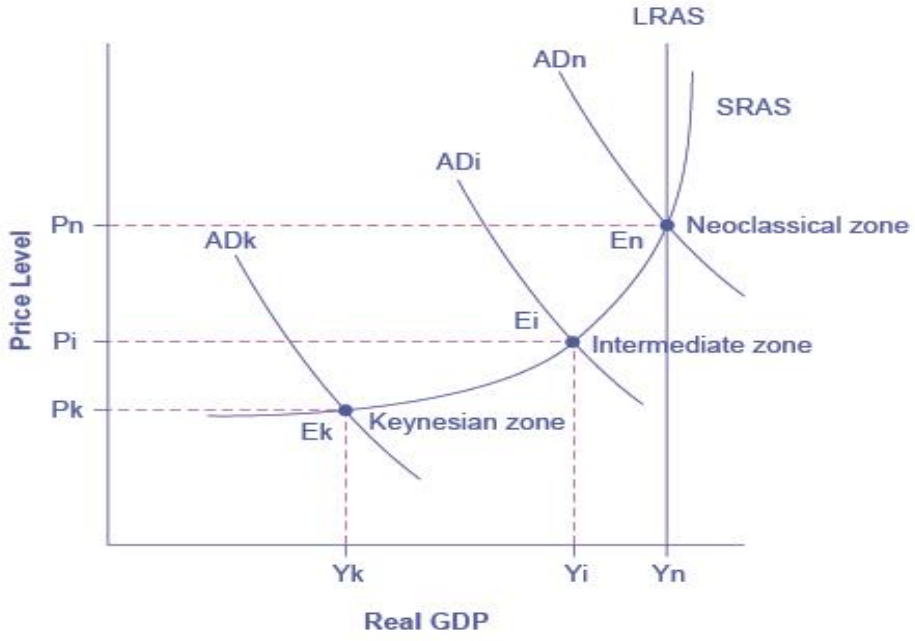
If Keynes had ended his theory with the transactions and precautionary motives, income would be the only important determinant of the demand for money, and he would not have added much to the classical approach. However, Keynes believed that people also hold money as a store of wealth. This particular reason for holding money is called a speculative reason. Initially, it was believed that wealth was closely linked to income, the speculative component of the demand for money would therefore be related to income in turn. However, Keynes, by analyzing more closely the factors that influence decisions regarding the amount of money to keep as a store of wealth, noted that interest rates were particularly decisive. Keynes separated the assets that can be used to store wealth into two categories: money and bonds. Keynes believed that people believed that interest rates gravitate to an average value (a less plausible hypothesis in today's world).[20] When interest rates are below this normal value, individuals expect the interest rate on bonds to rise in the future and therefore expect to suffer holding losses. Thus, investors will tend to keep their wealth in the form of money rather than bonds, and the demand for money will be high. From Keynes's reasoning, we can see that when interest rates rise, the demand for money decreases, and therefore the demand for money is inversely proportional to the level of interest rates. To understand why the intuition of Mr. Keynes is so fundamental it is necessary to make a detour to briefly explain the concept of aggregate demand. With the term “Aggregate demand”, we refer to an economic measurement of the total amount of demand for all

[19] (Jahan et al., 2021)
[20] (Keynes, 1936)

finished goods and services produced in an economy. It is made by four elements: consumption, investment, government spending, and net export[21]. For the purposes of our reasoning, we must focus on only one of the four components: investments. Formed by fixed investment and residential investment, they are positively influenced by the increase in GDP and negatively by interest rates so, in turn, an increase in interest rate decreases investment and thus produces a decrease in output. Adding the fact that in the long run, aggregate demand equals aggregate supply[22], it becomes clear why Keynes's discovery was so revolutionary. He understood that since interest rates are negatively correlated to the quantity of money in circulation and interest rates are also negatively connected to GDP, by increasing existing money it is, therefore, possible to decrease interest rates and increase output.

DETERMINATION OF AGGREGATE OUTPUT:

Keynesian believes that nominal wages and prices are sticky. For a Keynesian economist, there are three stages of aggregate supply in the macroeconomy: The classical range, the intermediate range, and the Keynesian range.



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In the classical range, prices and wages are flexible and the market will correct itself according to the classical theory. When aggregate demand changes, prices, and wages change without real GDP changes. In the intermediate range prices and wages start to lose flexibility however in this range when aggregate demand changes both price and real GDP output changes. When aggregate demand reaches the Keynesian range of the aggregate supply curve, price and wages start to become sticky. Sticky wages imply that wages remain fixed at the same rate regardless of changes in aggregated demand. According to the Keynesian

[21] (Williamson, 2014)
[22] (Mankiw, n.d.)
[23] (khan academy, 2021)

economy when aggregate demand decreases to a point that the economy and enter the Keynesian range of aggregate supply prices have fallen so low that they became sticky and will not deflate any further. Changes in aggregate demand will cause changes in real Gdp output. As consumption continues to fall aggregate demand decreases causing further economic contraction. As the unemployment rate increases and income and consumption level plumbing aggregate demand will continue to fall and because prices and wages are now sticky the invisible hand results broken and the economy can not fix itself. This cycle goes on until the economy collapse or the government intervenes and uses policy to stimulate aggregate demand.

2.3 **Austrian theory**

The Austrian school of economics has developed its own approach to business cycles with its most prominent supporters being Ludwing Mises and Friedrich Hayek. Their theory argued that credit creation by monetary authorities artificially pushes investment beyond the company's long-term saving intent, creating a supply-demand mismatch that will inevitably lead to recession sooner or later. Again, according to Austrian theories, an expansive policy aimed at reversing a recession can generally only postpone the necessary structural adjustment, making the subsequent correction more severe.

The "Austrian" theory of the trade (or business) cycle, which had its roots in the works of Wicksell and Bohm-Bawerk, says that the origin of recessions lay in the interference of monetary authorities in the setting of interest rates. During up tums, credit created with the help of central bank liquidity would fuel investment demand beyond society's long-term willingness to save, thus generating a mismatch between the economy's productive capacity and consumers' intertemporal spending plans[24].

The continuous interaction between the desire to consume of individuals and the investment plans of entrepreneurs has its foundations in the market for "loanable funds". In this way, consumers make their savings available (by renouncing consumption) to entrepreneurs who invest in production technologies to produce future outputs. The intersection between the desire to save of individuals and the need to invest of entrepreneurs provides at equilibrium a certain interest rate, the total reward of savers for their patience - the payment of interest - it corresponds to the expansion of future production yield possible from the added value of longer and more complex production processes.

Interest rates are a very important element for the coordination of agents who take part in the free market. This is particularly evident when we observe the consequences deriving from the shift of people's consumption preferences towards the future, or in other words when the propensity to save of individuals increases. This change in preferences increases the amount of savings available, so there is an increase in the supply of loanable funds. An increase in supply decreases the price of the latter, I.E. the interest rate. This

[24] (Oppers, 2002)

results in a consequential reduction in the cost of investments and therefore an increase in investment spending, which broadens the capital base. When present, a larger capital base allows for longer, elaborate, and efficient production that adds more value, eventually producing a larger flow of consumer goods. This broader flow of future goods would make it possible to satisfy the spending plans of the economy's savers (who have in fact expressed a desire to consume more in the future). When this coordination between the intertemporal spending plans of consumers and the investment plans of entrepreneurs is lacking, a recession occurs that shows the tensions generated by this misalignment. This means that economic activity is unable to recover until the "mistakes" of past investments have been corrected. Austrian views on monetary policy differ significantly from the theories analyzed above: not only do Austrians think that intervention by monetary authorities is the ultimate cause of a recession, but they also argue that expansionary policies in a recession can, in general, only postpone the necessary structural adjustment. In fact, the fulcrum of the allocation problems created during the expansionary phase of the economic cycle lies in the artificial expansion of credit and therefore any political action that seeks to counter a recession or postpone it, creating more credit can only make the subsequent adjustment phase more serious[25].

3.0 **Europian economy**

This chapter analyzes the various economic policies adopted by the ECB. These policies are then studied in relation to the previously presented theories of business cycles. In fact, the monetary and fiscal policies adopted to deal with the pandemic crisis are well suited to the Keynesian theory which suggests a lowering of interest rates to increase aggregate demand. Later, thanks to the contribution made by the Austrian school, the main doubts and risks that these policies bring with them will be exposed. Also in this chapter, various forecasts by experts on the future of the European and non-European economy are presented. It all ends with an analysis of the Italian situation and how it reacted to the pandemic

3.1 **Present situation and theory**

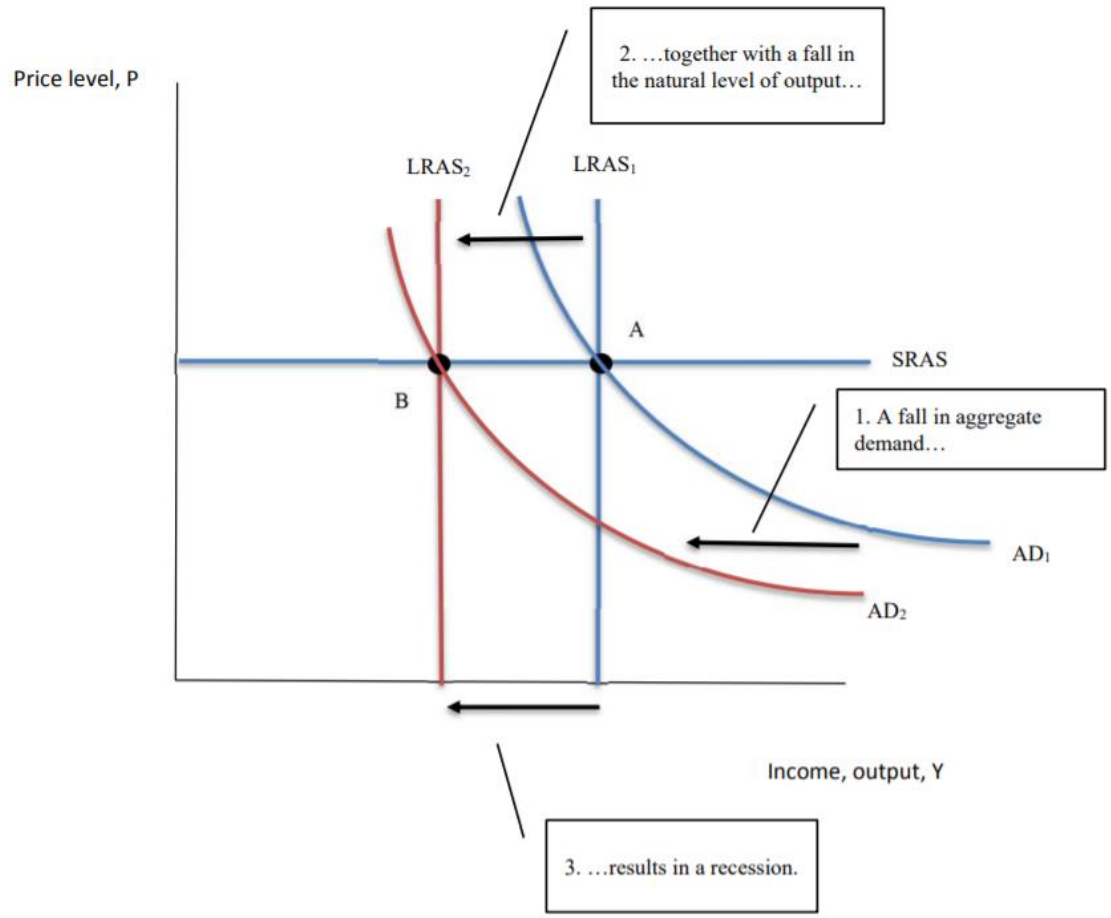
The 2020 economic recession can be analyzed using the aggregate supply and aggregate demand model. The changes that can be appreciated, however, differ in some respects from what would happen in a normal recession, this is due to the fact that the situation we are facing is completely atypical and unusual. In fact, starting from March 2020, many places of consumption, e.g. restaurants and retail stores were closed by government decree. The few businesses that remained open, however, were affected by a lower influx of customers, who, to avoid contagion, avoided going out and consequently decreased consumption[26]. These changes in behavior have led to a reduction in the velocity of money: the currency, therefore, remains stationary for longer because people do not spend on goods and services. (From the fourth quarter of 2019 to

[25] ("What is Austrian Economics?", 2021)
[26] ("Decomposing demand and supply shocks during COVID-19 | VOX, CEPR Policy Portal", 2021)

the second quarter of 2020, the velocity fell by 23%).[27] As a result, the amount of goods and services required is lower at each price level, and the aggregate demand curve shifts to the left. Instead, to analyze the aggregate supply curve, it is necessary to consider both the short-term aggregate supply curve and the long-term aggregate supply curve[28]. The SRAS (short-run aggregate supply) curve represents the prices at which firms are willing to sell their products. Initially, the effects of the crisis on prices were weak if not null. Thus, the SRAS curve remains unchanged. The LRAS curve represents the potential level of production, which corresponds to the level of production of goods and services when the unemployment rate equals its natural rate. Normally, the natural rate of unemployment is constantly maintained while the natural level of production gradually increases over time reflecting the effects of continuous population growth and continuous technological improvement.

In a completely extraordinary way, the health crisis has suddenly led to the closure of many companies and the massive layoffs of workers, so as to sharply and suddenly increase the natural unemployment rate. Unemployment caused by this compulsory closure of many businesses can be seen as a new kind of structural unemployment. This results in a decrease in the economy's potential to produce goods and services, resulting in a leftward shift (decrease) from the LRAS curve. The economy as shown in Figure 1 moves from point A to point B[29]. We are thus witnessing a recession given by the decrease in production. Unlike a typical recession, however, there is no excess of resources compared to demand, in fact, the closures have simultaneously led to a decrease in the natural level of production of the economy.

[27] (Mankiw, 2020)
[28] (Guerrieri et al., 2020)
[29] (Mankiw, 2020)



[30]

In a normal scenario, classical theory suggests that the market is the more efficient tool to allocate resources. Always according to the classical theory, the covid have induced an initial shock of the aggravated supply which has caused a subsequent shock of the aggravated demand. Having said that, a decrease in the potential output would be inevitable at least for the first moment. The aggregate demand curve will tend to decrease reducing the quantity offered for the same price of any good and at the same time, aggregate demand will decrease, demanding a lower price for every single unit of goods. This will go on until a new equilibrium is reached and the decrease stops. Since there has been a decrease in potential output and not a simple fluctuation in demand, recovery will only be possible when social restrictions are over and society can reproduce under normal conditions. However, the pandemic has generated an unprecedented situation. The government has imposed a lockdown and the interruption of productive activities. It is therefore necessary and right, to avoid unfair social situations, that politics intervene, as indeed it has done, to mitigate the effects of this crisis as soon as possible.

[30] (Gregory Mankiw, 2021)

The ECB's plan to heal the economy relates to Keynes in a number of ways. Aggregate data for the major euro area economies say that household spending decreased by more than 10% on average in the second quarter of 2020 compared to the second quarter of 2019[31]. Investment has fallen significantly and in view of the pandemic Covid-19, families are exposed to numerous risks that affect them to different degrees, in relation to a series of characteristics such as the organization of work, the composition of the family unit, access to liquidity, personal health conditions and the region of residence.
To restart the economy, a monetary policy was therefore applied which, due to its scope, we could define as Keynesian in nature.

First through the Pandemic Emergency Purchase Program (PEPP) and then through targeted longer-term refinancing operations (TLTROs)[32]. These initiatives were subsequently intensified and strengthened, due to the persistence of the pandemic and its negative effects on the economy. The PEPP, a public and private sector bond purchase program, was launched in March 2020. It differs from previous purchase programs, such as the APP, in its versatility and flexibility. Therefore, while the APP is rigid and precise in outlining the deadlines and the methods within which the assets are purchased over time and between the different states, during the most critical months of the pandemic, the PEPP allowed concentrating purchases on those countries. whose financing conditions have undergone a greater degree of tightening. These characteristics, combined with its large initial endowment, meaning that on March 18, 2020, the announcement of the creation of the PEPP substantially reduced interest rates on sovereign debt. This lowering of interest rates is inversely related to the level of GDP. The promise of 1.8 trillion euros made it possible to obtain interest even equal to -1%, allowing to increase investments, increase the level of aggregate demand, and consequently the level of production. The combination of these two instruments, the PEPP announced between March and June 2020 and the strengthening of the asset purchase program (APP) decided to March 2020, it is estimated to have reduced the ten-year GDP-weighted sovereign yield for the euro area by almost 45 basis points[33]. At the same time, the positive impact on consumer and business confidence deriving from the rapid and decisive action of the ECB, makes possible to slow down the crisis and supported the transmission of monetary policy and collective growth.
This immense monetary action was promptly supported by European fiscal policies aimed at increasing aggregate demand. The measures taken by countries can be classified into two broad groups: the first is fiscal measures, which generally have an immediate effect on the budget balance, the second are liquidity measures, which generally do not immediately affect the budget balance of the country, year in which they are implemented, but require contingent liabilities that affect the tax positions of various countries. These two fiscal measures affect both the expenditure side and the revenue side of public budgets.

[31] (Christelis et al., 2021)
[32] (Hernández de Cos, 2021)
[33] (Hutchinson & Mee, 2021)

The four most important components of the European Union, namely Germany, France, Italy, and Spain, implemented their first emergency packages in mid-March, immediately after the introduction of the first lockdowns on Italian soil. These relatively homogeneous packages across states aimed to address the effects of the health crisis and support the sectors most affected by the blockade measures. Subsequently, these measures were accompanied by further tax packages to extend liquidity and emergency measures[34]. Once the lockdowns slowed, coinciding with the summer period, Member States progressively announced further packages, focused more on long-term recovery than on countering the negative effects of the pandemic. In particular, "in June Germany announced its" Konjunktur- und Zukunftspaket "with measures amounting to 130 billion euros (ie 3.9% of GDP) and in September France launched its" France Reliance "package. including measures worth € 100 billion, (ie 4.4% of GDP) ". In mid-October, several other Member States submitted draft budgetary plans for 2021 and beyond. Overall, however, the timing of the recovery packages is expected to be much more heterogeneous than that of the emergency measures adopted in the spring. Finally, at the end of October 2020, there was a second wave of cases related to Covid-19. Member States were able to take swift action to announce further emergency measures aimed specifically at companies affected by the new partial blockades.

The first available models suggest that the measures adopted to counter the emergency have been effective in strongly countering the recession and have greatly accelerated the recovery. Stabilization gains from part-time work schemes and guarantees are estimated to have reduced the macroeconomic loss linked to the pandemic by a quarter, in other words an improvement in real GDP by more than 4 percentage points. Still considering the models, it is clear that the reduction of working hours by the workers has allowed a reduction in costs, therefore an increase in liquidity and a stabilization of investments by companies. This also made it possible for companies to avoid a costly recruitment process during the payback period. Furthermore, part-time work has enabled families to fuel consumption during the crisis. Furthermore, liquidity support measures allow the stabilization of investments and employment by companies that are limited by liquidity during the crisis. All this makes it possible to increase public spending and the output factors which in turn allow to increase the consumption of workers and investments which, always linked to the Keynesian theory, are directly connected to aggregate demand, mitigating the effects of the crisis on the economy. In response to the initiatives promoted by the ECB, however, many scholars of the Austrian school have expressed doubts[35].

The criticisms are based on the fact that while it is true that the interventionist measures taken by various governments differ considerably and even though some of these governments have handled the crisis better than others, the differences have actually been more in degree than in nature. The members of the Austrian school believe that governments cannot dissociate themselves from the essential coercion inherent in their

[34] (Haroutunian et al., 2021)
[35] (Soto, 2021)

very nature. Their very existence is based on coercion, and every time they exercise it, and precisely to the extent that they exercise it, the negative consequences predicted by the theory occur. Therefore, the problem lies not in the effectiveness of some governments in managing a recession but is inherent in all authorities when they insist on coordinating society through the use of power and coercive commands. The whole philosophy of the Austrian economic school can easily be enclosed in this concept: problems invariably arise from the exercise of coercive state power, regardless of how well the politician of the moment behaves. The economy has repeatedly proven the state's inability to function dynamically efficiently, and this is due to the lack of information it has to cope with when creating its quality strategies.

To coordinate an entire nation, the state would need an almost infinite amount of information and knowledge. However, this information or knowledge is essentially subjective, practical, and non-quantifiable and therefore not transmissible to state central planning and decision-making agencies.

And even if absurdly one could get hold of this information of all the preferences of consumers and investors, it is constantly evolving according to the circumstances.

This implies that the authorities are always late because once the scarce and distorted information they receive has been accumulated, it has already become obsolete; this makes it impossible to successfully implement targeted policies, as the future is uncertain and depends on practical information that has not yet emerged as it has not yet been created. According to Austrian doctrine, it is difficult, if not impossible, to predict how the market might react without the support of the state.

The recovery must be based on the reaction of the company and its entrepreneurial creativity. Everything would be based on the search for solutions and business ideas aimed at detecting and overcoming the problems that would be generated over time. However, the lack of empirical evidence of this Austrian theory makes it impossible to define the details of the solutions that would be adopted.

Other important criticisms concerning the EU's monetary policies concern the unfair distribution of the money given in order to heal the crisis. Only a few sectors, companies, and economic operators initially receive the new money, which inevitably increases inequalities in the distribution of income in favor of a small group.

Proponents of steady monetary policies believe that sooner or later unless the business cycle is slowed by unmotivated private banks and business sectors, the money produced will reach consumers. However, there is a risk that all of this will be thwarted by the onset of inflationary pressures. phenomenon destined to increase when the initial uncertainty of families is gradually overcome and consumers no longer feel the need to save and spend the money received in the form of subsidies. It is clear that growing monetary demand for declining production due to the pandemic inevitably causes increasing upward pressure on prices. And even if these criticisms are in some points excessively radical, we have some examples that confirm their validity.

In the first months of 2021, the price of agricultural products continued to rise and reached its highest point in the last three years. Transportation costs and the prices of many other commodities such as minerals, oil,

natural gas, etc. have soared.
Continuing with expansionist policies increases the real risk of provoking a serious crisis of public debt and inflation. However, if monetary policies are interrupted, an overvaluation of the public debt markets is likely to occur, leading to a severe financial crisis and an economic recession that is unsustainable for the citizens of the union.

3.2 **Eurpoian economics forecast**

After the decline in activity in the first part of 2020 and the subsequent rebound in the summer, the EU economy faced a new slowdown at the end of 2020, caused by the new closures induced by the second wave of the pandemic. There was therefore a drop in production in the last quarter of 2020 and in the first of 2021, by a cumulative 0.9%, the EU was pushed back into recession. Fortunately, however, through strict restrictions, the decline in activity was much milder than the decline in the first half of 2020. All this was accompanied by a better adaptation of businesses and households to the constraints of the pandemic context, more intense support of global growth and trade, and continued political commitment that has helped economic operators meet the challenges posed by the pandemic[36].
Economic developments in 2021 and 2022 will largely depend on the efficiency of vaccination programs and how they manage to tame the pandemic. Also important will be the speed at which governments will abolish restrictions. For the EU, the forecast assumes that following a relaxation of restrictions during the second quarter, accompanied by progress in vaccinations, they will allow for a more marked relaxation of restrictions in the second half of the year. Despite the large number of people vaccinated in 2022, COVID-19 will remain a public health problem. It is therefore not excluded that limited containment policies may still be applied in the next year.
Another set of factors will also be critical for the prospects to occur. Among which we find the extent to which the EU can gain an advantage from improving the economic situation of neighboring nations; the presence of adequate political support and the response of families and companies. A very important factor will undoubtedly be the speed with which savings accumulated during past lockdown periods will be spent and at what rate the savings rate will decrease once the restrictions ease. It is likely that as most of last year's savings were accumulated by high-income households, as the Commission's consumer surveys show, and as the service sector has been the hardest hit by the restrictions put in place in recent months, the loosening of the restrictions is matched by a large release of pent-up demand that would compensate for the renounced expenditure.
The role of politics will remain very important. As the recovery intensifies, its focus will need to shift from controlling damage to strengthening the recovery and resilience of the EU economy. For this reason, the national recovery and resilience plans have been designed as part of the new generation EU program.

[36] ("European Economic Forecast. Spring 2021", 2021)

Following the final adoption of the Regulation on the Recovery and Resilience Instrument (RRF) in February this year and the significant progress in preparing the National Recovery and Resilience Plans (RRP), the economic and budgetary impact of these plans has been incorporated into the forecasts. The total EU spending that is expected to be funded by RRF grants over the forecast horizon amounts to € 140 billion, or just below 1% of GDP in 2019. The total economic impact generated by the RRF in the forecast horizon is expected to be around 1.2% of EU real GDP in 2019[37].

The latest Commission survey results suggest that activity in the EU economy has already moved up gear in recent months. As containment measures are gradually relaxed and the impact of the RRF kicks in, economic activity is set to accelerate in the third quarter, with countries, including those with large tourism sectors, benefitting from the return to quasi-normality of social activities over the summer. Growth is then forecast to remain solid in the last quarter of 2021, bringing EU GDP back to its pre-crisis level earlier than previously projected.

Data from the latest Commission survey suggests that activity in the EU economy has already improved in recent months. Following the gradual easing of containment measures and thanks to the activation of the impact of the RFR, economic activity is expected to accelerate in the third quarter, with countries, including those based more on tourism, which will benefit from the return to near-normality of social activities during the summer. The third quarter of 2021 is therefore expected to be characterized by solid growth in the last quarter of 2021, thus bringing EU GDP back to pre-crisis level sooner than previously expected.

Overall, the EU economy is projected to grow by 4.2% in 2021 and strengthen to around 4.4% in 2022 (4.3% and 4.4%, respectively, in the EU area. EUR). This improved outlook can be explained by an unexpected rebound in global activity and trade and thanks to the growth impetus provided by NGEU / RRF. The heterogeneous pace of recovery between the various states remains problematic.

However, the increase in domestic and non-domestic aggregate demand, the lowering of interest rates, the recovery of profitability, and the increase in capacity utilization rates are bound to push investment spending. At the same time, the industrial investment could be held back by the greater difficulties induced by the crisis, persistent risk aversion, and spare capacity in some sectors. The NGEU / RRF is expected to finance both public and private investment projects, which will be launched with increasing intensity towards the end of the forecast horizon. The EU public investment-to-GDP ratio is projected to rise to nearly 3.5% in 2022, from 3% in 2019, and return to its highest value since 2010.

The global outlook has improved significantly, but the recovery is expected to be asynchronous and uneven across and within regions. This improvement is also caused by the US economy which, after the progress in vaccination and the two major tax packages adopted at the end of 2020 / early 2021, has seen a great rebound. This rebound is expected to create positive spillovers for the global economy, including the EU.

Taken as a whole, world GDP (excluding the EU) is expected to grow by 5.9% in 2021 and 4.2% in 2022,

[37] (World Bank. 2021)

against a solid expansion of global trade. Forecasts suggest that EU export markets are expected to increase by 8.3% in 2021 and 6.4% in 2022, allowing EU goods exports to increase, while the recovery of services exports will require more time.

At the beginning of 2021, there was an intense increase in inflation in both the EU and the euro area, caused by rising energy prices and a number of temporary factors, including tax changes, base effects, and the impact of a new inflation basket weighting scheme that better matches the substantial changes in consumption patterns triggered by the pandemic. These factors will continue to keep inflation high for the remainder of the year, but should gradually subside next. Strong recovery in demand and, to a lesser extent, high transport costs and other supply-side constraints push inflation up over the forecast horizon. However, inflationary pressures are expected to be countered by a weak and uncertain labor market. HICP inflation in the EU is forecast to increase from 0.7% in 2020 to 1.9% in 2021 and then decrease slightly to 1.5% in 2022. The widespread use of layoff freeze programs has allowed many employees to keep their jobs and this has helped to contain the deterioration of the labor markets in 2020, which has nevertheless been very intense. Labor market conditions began to improve in the second half of the year, with many workers returning to their offices and partial abandonment of part-time work. however this year further redundancies are expected in the many Member States and a generalized rise in unemployment rates. The recovery and increase in employment are expected next year along with a decline in unemployment rates across the EU. The EU unemployment rate is expected to rise to 7.6% this year and fall to around 7% in 2022, above the 6.7% rate in 2019. The future of the labor market does not depend only on the speed of the economic recovery, but also and above all from the time within which the government will stop granting subsidies and the pace of reallocation of workers between sectors and companies. Given the magnitude of the emergency support measures put in place to help families and businesses from the negative effects of the COVID-19 pandemic, EU budgets will continue to be positive this year. This is also expected to happen in 2022 when the fiscal policy in the EU is expected to remain slightly favorable. This is made possible by the planned acceleration of expenditure financed by RRF contributions. Intense and lasting monetary policies complement and strengthen fiscal stimulus as they allow favorable financing conditions to support governments, businesses, and households over the forecast horizon. The aggregate general government deficit in the EU and the euro area increased significantly, from around ½% of GDP in 2019 to around 7% of GDP last year, as a result of the impact of the introduction of automatic stabilizers and large discretionary fiscal measures. The government deficit ratio in both areas is expected to increase further this year, reaching around 7.5% and 8% of GDP respectively, following the extension of support for the emergency policy. However, forecasts suggest that in 2022, deficits in the EU and the euro area will be halved to around 3½% of GDP, thanks to an increasingly solid economy and a phasing out of temporary political support. Furthermore, the EU and euro area debt-to-GDP ratios are anticipated to increase further this year, reaching a new high of around 95% and 102% in the EU and the euro area, respectively, before decreasing in 2022.

3.3 **Italian situation forecast**

The Italian economy is still damaged by the effects of the pandemic and the limitations associated with mobility and economic activity. While the damage during the latest wave of covid-19 proved less intense than expected, the contact-intensive service sector suffered a new setback. Real production growth is expected to pick up cautiously in 2021-Q2, while a speeding-up of the vaccination campaign and the continued and continued easing of restrictions provide an opportunity for an intense rebound. After a sharp decline of 8.9% in 2020, real GDP is expected to recover by 4.2% this year on the back of substantial domestic policy support and the first phase of NGEU-funded investment. In 2022, the investment and reform program set out in Italy's Recovery and Resilience Plan will be put into practice and will help push production growth to 4.4%. The expected recovery should allow the economy to return to its pre-pandemic level by the end of the forecast period. This forecast takes into account the expected use of RRF grants as outlined in the national recovery and resiliency plan presented at the cut-off date. The outlook remains subject to uncertainty and downside risks linked to the pandemic and its potential effects on employment and corporate solvency[38].

The hope is that once isolation measures are eased, the release of pent-up consumer demand will help the economy recover. However, persistent uncertainty and the increase in the propensity to save among higher-income households with a lower propensity to consume could slow the expected recovery in private consumption, as indicated by household surveys. The household saving rate is therefore expected to remain above the long-run average at the end of the forecast period. Capital spending is expected to increase vigorously as RRF-funded spending is designed to stimulate both public and corporate investment, the latter through tax breaks for R&D investments, as well as residential investment. The Italian economy continues to benefit from exports of goods which continue to rise thanks to strong momentum due to an improved external outlook, allowing exporters to regain market share. However, it remains unlikely that services exports, and in particular tourism, will be able to fully recover in 2022.
The government deficit increased from 1.6% of GDP in 2019 to 9.5% of GDP in 2020.
On the one hand, government revenues have fallen significantly, probably due to the decline in private consumption. On the other hand, public spending increased significantly due to the cost of fiscal policy response to the pandemic, which amounted to around 6% of GDP in 2020. The main measures included more resources to address health care, the extension of job retention programs, financial support for the self-employed and the poorest families, partial reimbursement to businesses for losses suffered, budget provisions for state guarantees, and subsidies to the most affected sectors. In 2021, the government deficit is projected to increase to around 11¾% of GDP due to the cost of sustained political support, however necessary as restrictions on economic activity are still imperative to contain the pandemic. The measures

[38] ("Economic forecast for Italy", 2021)

included in the 2021 budget imply an increasing deficit impact of around 1.4% of GDP in 2021. Most of these measures will be financed in part through NGEU resources, "such as a cut in social security contributions to companies operating in the poorest regions (REACT EU) and extended tax credits for investments in equipment and building renovations (RRF) ". In light of the developments in the pandemic, an additional tax package of 1.8% of GDP was adopted in March, once again extending the retention schemes and providing for additional transfers to businesses. The 2021 Stability Program also announced new measures equal to 2.3% of GDP in 2021, with the aim of helping companies in difficulty. Overall, the cost of the additional policy response is expected to largely offset the increase in revenues linked to the expected recovery. Instead, in 2022, the government deficit is expected to decrease to around 5½% of GDP, after a decrease in public spending and an acceleration in revenue growth. After falling from 134.6% in 2019 to 155.8% in 2020, the public debt ratio should rise further to around 159¾% in 2021, driven by the large primary deficit. To then in 2022, drop to around 156½% of GDP, thanks to the economic recovery and despite a still negative primary balance.

4.0 **Sovereign debt crisis**

The monetary policies of the union were financed by contracting a huge debt. This last chapter, therefore, wants to analyze various characteristics of this phenomenon.
Debt, as will be seen below, is not evenly divided between nations. Italy, Spain and Greece are the most affected countries. These countries, even before the crisis, were fighting against a debt that was the highest in Europe.
Also in this chapter, we will therefore see what are the most common risks associated with too high a debt, what are the consequences that we will see in the near future and finally the possible solutions to get out of this difficult solution.

4.1 **Effects and consequences of debt**

One of the most serious problems for the economic and social sphere caused by the pandemic is the increase in the public debt of the countries of the euro zone. This phenomenon was favored by intense Eurosystem interventions which lowered the cost of borrowing to historic lows. We do not yet know how long these gigantic monetary policies will be able to support the entire debt market of the European Union, or what the

long-term effects will be on the relations of the different countries, but to alleviate the recession in a decisive way and was radical intervention is needed[39].

In the EU, the public debt / GDP ratio increased from 77.5% at the end of 2019 to 90.7% at the end of 2020, while in the euro area it increased from 83.9% to 98.0%. %. In both areas, one can appreciate the greater increase in debt on an annual basis, as well as the highest level recorded in the historical series available. A total of fourteen EU Member States reported debt-to-GDP ratios above 60% of GDP at the end of 2020: the highest of these was recorded by Greece (205.6%), followed by Italy (155.8 %), Portugal (133.6%), Spain (120.0%), Cyprus (118.2%), France (115.7%) and Belgium (114.1%). The lowest public debt / GDP ratio was recorded in Estonia (18.2%), Luxembourg (24.9%), Bulgaria (25.0%), Czechia (38.1%), Sweden (39.9%)). %), Denmark (42.2%) and Latvia (43.5%). Although the intensity is heterogeneously distributed among the countries of the union, at the end of 2020, the public debt-to-GDP ratio increased for all states compared to the end of 2019. The largest increases in the debt-to-GDP ratio concern Greece (25.1 percentage points), Spain (24.5 percentage points), Cyprus (24.2 percentage points), Italy (21.2 percentage points), and France (18.1 percentage points). the smallest increases in the debt / GDP ratio, on the other hand, can be observed in Ireland (2.2 percentage points), Luxembourg (2.8 percentage points), Bulgaria, and Sweden (both 4.8 percentage points)[40].

The negative consequences of excessively high debt are manifold, ranging from fewer national savings and incomes to higher interest payments, less ability to respond to future problems, and a greater risk of a financial crisis[41]. When the government borrows too much money, a large chunk of the available savings, which would normally be devoted to investments, are invested in government bonds. This, in turn, reduces the amount of money that is invested in private enterprises, making it harder for companies to accumulate the money needed to evolve and improve their technologies and production processes by making the workforce less productive. As the CBO notes, this has a negative effect on wages. In fact, wages are closely related to the productivity and efficiency of workers. The reduction of investments, therefore, leads to a reduction in wages and consequently decreases the incentive of people to work. On the other hand, higher interest rates change the propensity to consume of citizens who now have an incentive to save. However, it must be considered that the increase in savings by households and businesses fails to match the increase in indebtedness represented by the variation in the deficit, hence national saving in the end (ie the total saving of all sectors of the economy) decreases and with it private investments. Furthermore, although deficits manage in the short term to increase the demand for goods and services, this increase cannot persist in the long term. Indeed, once the economy has recovered, stabilizing forces such as inflationary increases in prices or interest rates push production back to its potential growth path.

[39] (International Monetary Fund, 2021)
[40] ("Government finance statistics - Statistics Explained", 2021)
[41] ("CBO: Consequences of a Growing National Debt", 2014)

In addition, as debt increases, interest payments also increase. This means that there is less scope for public spending or liquidity to finance further subsidiary or growth programs. it is therefore imperative for the governments of the union to find alternative revenues if they want to maintain the same amount of public spending over the next few years, without further increasing the deficit. There are several tools through which this goal can be achieved. one of them is the increase in government revenues through higher marginal tax rates. However, much higher rates would negatively affect citizens' propensity to consume, pushing people to work less and save more. This would lead to a further reduction in production and income. Another option would be to reduce public spending by offering fewer services, thereby reducing costs and decreasing the deficit.

However, if these cuts reduce public investment, there would be a further reduction in future income. In addition, governments often borrow funds to insure against unexpected events, such as wars, financial crises and natural disasters. This becomes more difficult when the debt is too high or growing. In this case the government has fewer options available and the stability of a country's economy is subjected to higher risks. One example is the 2008 financial crisis when US debt accounted for only 40 percent of GDP. In that case, the government was able to address the crisis by increasing public spending and cutting taxes to stimulate the economy. However, as a result, the federal debt has increased to nearly double its share of GDP.

With too high debts, this leeway ceases to exist. If debt continues to rise, investors will at some point lose faith in the government's ability to pay off their debts. If there is a lack of confidence in the solvency of the debt, there is a sudden and abrupt hike in interest rates. This has wider and more difficult economic consequences to face. An example of the damage that a lack of trust in institutions can cause is the devaluation of the market value of government bonds already in circulation (caused by the increase in interest rates).

This possible devaluation would lead to losses for investors and therefore a more rapid advance of the financial crisis which in turn creates losses for mutual funds, pension funds, insurance companies, banks and other holders of public debt.

The phenomenon of the increase in public debt in European economies is a problem that dates back to the 1970s. The sustainability of the member states' debt has been largely favored by the adoption of a single currency among the countries belonging to the European Union. The introduction of the euro made interest rates on government bonds lower and made public debt more sustainable[42].

The situation began to worsen only in 2008, with the financial crisis and then with the euro crisis which led to a significant new increase in the debt ratio in most euro area countries. The situation is now repeating itself with the current pandemic which has brought debt to historic highs, raising questions about the sustainability of the debt and the stability of the euro area. However, the view of public debt in the recent

[42] (Tokarski & Wiedmann, 2021)

period is also changing. In fact, the causes of this crisis, unlike that of 2008, are not attributable to the negligence or mismanagement of public affairs of a single state.
This time the increase in public debt resulting from the pandemic is preparatory to mitigating the enormous negative economic and social impacts generated by covid-19 and is necessary to allow a more rapid return to economic growth.
The doubt that excessive public debt will be one of the most worrying threats to the stability of the union after the pandemic crisis is still present. The common view was that with debt ratios above 90% of GDP, the increase in public debt would have particularly negative consequences for future economic growth, as there would be no incentives for private investment and public finances worsened by the cost of servicing the debt. Many eurozone members, including Greece, Italy, France, Spain and Portugal, have exceeded this level. However, as debt servicing costs are currently artificially very low, the problematic consequences of debt for public finances have also not yet materialized.
However, to make a risk assessment of excessive public debt, it is not enough to calculate only the debt ratio. it is necessary to consider whether the economic growth rate of a given state is higher than the interest on the debt incurred. it is therefore important that its business model is flexible enough to adapt to new challenges such as digitization and green transformation. Another important factor on which debt solvency depends is the public sector balance sheet. This includes assets such as shares of state-controlled enterprises and financial assets, but also liabilities (especially long-term). However, it must be borne in mind that the negative consequences of the Covid-19 crisis for public finances will only become apparent later. The consequences can manifest themselves in many ways such as, for example, poorer demographic development, including a sharp drop in birth rates. Falling birth rates cause an increase in implicit debt, for example by increasing costs for health care, social assistance and the pension system. A particularly negative outlook in this context is that of highly indebted euro area countries such as Italy, Portugal and Greece. In these countries, the dependency ratio of the elderly, ie the ratio between the over 50s and between the ages of 20 and 64, is increasing worryingly.

In fact, the higher the levels of public debt, the more public finances are sensitive to a change in the cost of services. When confronted with a new recession, fiscal policymakers will have to choose between stabilizing the business cycle and debt sustainability. However, if the government is no longer able to meet some or all of its debt obligations in time, it will lose access to financial markets. The current situation is particularly risky as the entire debt sustainability of many Eurozone countries is based exclusively on the Eurosystem's expansionary monetary policy.
Since a € 1.850 billion PEPP was announced, the ECB has implicitly pledged to keep interest rates on government bonds low. The ECB's monetary policy has, for now, been successful and Member States have the option of financing their debt at very low-interest rates. Even when states are subjected to problematic situations interest rates tend to remain low and stable. For example, we can see that not even the recent

political crisis in Italy has led to an increase in the premium on Italian government bonds. However, it is natural to ask how long the ECB will be able to keep the Eurozone debt market artificially stable. "The Governing Council of the ECB has stated that the purchase of government bonds will last at least until March 2022, when the crisis phase of Covid-19 will be over and the principal payments owed by the government bonds will be reinvested by the end of 2023 ". It remains an unknown, however, how the policy will behave towards these buying programs, it is difficult, for example, to imagine that asset purchases will be stopped in the ending phase of the presidential elections in France in 2022. Furthermore, one should not think that the effects of the pandemic will be transient and short-lived. Phenomena such as rising debt and unemployment levels are likely to require monetary and fiscal policy support for a long time to come.

The future of debt solvency also depends heavily on inflation and will determine whether the ECB can sustain the Eurozone debt market for a longer period. In fact, as long as inflation remains constantly below the ECB's target, which is below but close to 2%, expansionary monetary policies can continue to be applied. However, should inflation suddenly start to rise, it would become necessary to make a choice between the monetary policy objective and the stability of the monetary union. Inflation in the euro area is currently at a low level. However, if you look at the five-year inflation swaps, an indicator of inflation expectations, you can see how they have steadily increased in recent months. However, the future of inflation remains unknown, and economists still debate whether its level will approach the goals of the union or not. The European Union is not the only victim of inflation. In fact, there is a risk that basing the Euro debt stabilization strategy on monetary policy could negatively affect the entire Eurozone.
The debt has a highly heterogeneous distribution and is highly decentralized and part of the risk is the responsibility of the participating central banks. Like previous public sector asset purchase programs, the PEPP is characterized by limited risk-sharing. Indeed, the ECB only covers 20% of government bond purchases under the PEPP. Most of the risks are borne by the central banks of the individual states. Taking the Italian central bank as an example, we note that it has to buy mainly Italian bonds on the secondary market, in order to assume the entire risk. If losses due to a period of the recession begin to occur, a central bank that holds a large amount of national sovereign debt would be forced to re-evaluate its holding in the Eurosystem. Another factor that must be considered is the danger that the ECB if it takes too much risk by owning too much of a state's debt, will become too involved in national politics. doing so would encourage reckless behaviors on the part of national actors who, due to economic disincentives, would increase their propensity to take risks, entering the condition known to all economists defined as moral hazard, with all the ensuing problems. While market pressure has not deterred long-term structural reforms, it has been useful in keeping governments alert in implementing plans to mitigate the effects of the crisis. If the ECB owned a large portion of a country's public debt, the government could no longer just reverse structural reforms. Assuming an extreme case, a country could relax public fiscal policy, relying on the intervention of the ECB in the debt market, which would be forced to intervene to avoid a possible destabilization of the entire euro

area. However, excessive participation by the European Central Bank in euro debt markets would again raise many legal issues. An example is the decision of the German constitutional court in May 2020, which expressed itself on the merits of limiting the number of purchases per issuer or on the quantity of usable capital of the ECB. Similar legislative problems arise regarding the need for the ECB to outline the concrete time horizon of its intervention, it is not possible to extend the purchase of bonds with the PEPP indefinitely or a sort of "perpetual debt" would be created in the euro area.
However, it is difficult to establish whether there are alternative remedies to stabilize the Eurozone debt market. Forecasts show that it will be very difficult if not impossible for the most indebted states to grow at the same rate as the debt in order to be able to reduce it. This is due to the fact that many of these countries were already extensively developed and their growth rates in the Eurozone were already modest. A solution to this problem could be a debt restructuring. The bonds of states belonging to the euro area are issued under national law and the recent reform of the collective action clauses in bond agreements could facilitate their restructuring. However, in the case of Italy, where most of the public debt is bought by domestic investors, too aggressive restructuring could destabilize the financial system, as investors such as banks would have to accept heavy losses. A different strategy could be to take advantage of the fact that government bonds were issued under national law. Therefore, theoretically, the laws could be changed by extending the maturities of the bonds. This initiative, too, would subject the country to serious risks, angering many investors and greatly negatively affecting the financial markets and increasing the financing costs of other heavily indebted Eurozone countries.
It has even gone so far as to suggest, an initiative pushed above all by France, complete abolition of the public debt incurred during the pandemic period in order to support public finances. In recent months it has often been suggested, especially in France, that the ECB should go further in supporting public finances. While this is not theoretically impossible, given that Article 123 of the Treaty on the Functioning of the European Union does not directly prohibit monetary financing. Such an abrupt cancellation of such a high debt would be contrary to the spirit in which the aforementioned treaties were drawn up. Such an initiative could lead to a complete loss of investor confidence and a general reluctance to buy future bonds. it would inevitably lead to higher interest rates on debt. Such a precedent would lead to an increase in interest rates and raising capital would become increasingly complex. The moral hazard problem is constant. Nothing would prevent the most indebted countries from continuing to ask the ECB to cancel debt instead of implementing complex structural reforms.

Considering all these factors, it is clear that this option should be the last resort for possible extreme cases, for example, if the current pandemic proves to be permanent. if this were to happen the debt would increase exponentially all the affected sectors should be completely restructured.
It has also been proposed to involve the European Stability Mechanism (ESM) to monitor debt developments. This instrument could capture the share of bonds purchased by the Eurosystem and provide

an alternative to expansionary monetary policy. However, current policies are based on granting funding on the basis of precise and rigorous conditions and to apply it and to modify them would be necessary to upset the entire political situation achieved. If the ESM were to be used for debt stabilization, the ESM Treaty, which is currently exempt from the EU legal system, would need to be completely revised. The process for this operation is very complex and such a solution should be accepted and ratified by all members of the union.

We are likely to live with high levels of debt, in the near future, and this situation is likely to last for a long time. Forecasts indicate that countries' liabilities will further increase even in those member states of the EU-19 as the pandemic continues rampant and vaccinations proceed slower than expected. The financial situation will not only be aggravated by lower revenues and lower spending levels. In the near future, there will also be a need to provide support to the banking sector which, among others, can contribute to the increase in debt. In fact, since the banking sector is a reflection of the real economy, it is likely that it will not be spared from the negative effects of the crisis. Simulations are being carried out by the European Banking Authority to verify the extent of possible future damages. The results of these tests will be available at the end of July 2021.

At this time, there are no more efficient alternatives to monetary policy for debt stabilization, which allow member states to counteract the negative effects produced by Covid-19. It is essential, at least for the next few years, to continue to make use of the fiscal policies useful for promoting recovery. Among the countries of Europe, the germ plays a decisive role and its recovery will guarantee spillover effects on all neighboring countries. For this reason, it is important that you keep a fiscal policy intact for as long as possible. However, it is necessary to balance the negative effects caused by excessive passivity and therefore to limit the use of monetary policy in the debt market as much as possible so as to allow responsible development of the economic policy of other countries. Public resources must therefore be used effectively so as to limit damage and ensure participation in the workforce and create a sufficient basis for economic recovery through just investments, i.e. those investments that contribute to increasing the debt that the prime minister of the state Italian defines as "good". It is no coincidence that the European Union is concentrating its forces to increase human resources, particularly in digital skills. Only an increase in productivity can guarantee faster economic growth and offer the possibility of stabilization and debt reduction. Wise use of funds is essential especially in the case of the reconstruction fund. If the countries most affected by the pandemic fail to use the money made available by the EU effectively to stimulate growth and carry out structural reforms, they will be forced to face the same problems in the near future, once the pandemic it will be concluded, but with a much higher public debt. A country, particularly at risk whose situation must be closely monitored, is Italy, and how it uses the reconstruction fund will depend on its future success. The country's hopes, therefore, fall on the new government chaired by former ECB chief Mario Draghi, who nevertheless bodes well that these funds will be used in a useful and responsible way. The situation in Italy in the medium-long term is still worrying, also due to the approach of the elections which always remain an unknown factor. All

these factors aggravate the financial stability of the country and diminish the stability of the European Union. Countries with particularly weak economies are decreasing the incentives of other European states to continue a deeper fiscal integration.

Surely in order to manage the debt, it is necessary that the most indebted euro area countries take advantage of the current very low-interest rates and issue bonds with the highest possible maturity. While this is not a definitive solution, it would certainly help ensure the sustainability of public finances in the face of the strong volatility expected in the short term in financial markets.

Conclusion

The pandemic has confronted us with a situation without precedent. Many industries have seen the collapse of their markets, unemployment has increased, and the public debt of many nations has soared.
In this context, the ECB has therefore committed itself to reducing the negative effects of the crisis. A program aimed at the allocation of 1824.3 billion euros has been made available, of which the most conspicuous part is made up of the 750 billion made available by the "NextgenerationEu".
These policies, which in many ways resemble the initiatives proposed by the English economist John Maynard Keynes, are based on lowering interest rates to increase aggregate demand in combination with a huge increase in public spending. Although the initial results are encouraging, the risks and uncertainties regarding the future remain manifold. Some predict that this sudden injection of money into the economy could be detrimental in the long run. In fact, it interferes in the balance that should exist between investments and consumer savings in a solid and healthy economy. When this coordination between the intertemporal spending plans of consumers and the investment plans of entrepreneurs is lacking, usually a recession occurs that shows the tensions generated by this misalignment.
However, Europe must find a way to cope with the decrease in aggregate demand if it wants to guarantee decent conditions for its citizens. Aggregate data for the major euro area economies say that household spending decreased by more than 10% on average in the second quarter of 2020 compared to the second quarter of 2019
Investment too has fallen significantly and in view of the pandemic Covid-19, families are exposed to numerous risks that affect them to different degrees, in relation to a series of characteristics such as the organization of work, the composition of the family unit, access to liquidity, personal health conditions and the region of residence.
The promise of 1.8 trillion euros made it possible to obtain interest even equal to -1%, allowing to increase investments, increase the level of aggregate demand, and consequently the level of production. The combination of these two instruments, the PEPP announced between March and June 2020 and the strengthening of the asset purchase program (APP) decided to March 2020, it is estimated to have reduced the ten-year GDP-weighted sovereign yield for the euro area by almost 45 basis points[43]. At the same time, the positive impact on consumer and business confidence deriving from the rapid and decisive action of the ECB, make possible to slow down the crisis and supported the transmission of monetary policy and collective growth.
Economic developments in 2021 and 2022 will largely depend on the efficiency of vaccination programs and how they manage to tame the pandemic. Also important will be the speed at which governments will abolish restrictions. For the EU, the forecast assumes that following a relaxation of restrictions during the second

[43] (Hutchinson & Mee, 2021)

quarter of 2021, accompanied by progress in vaccinations, they will allow for a more marked relaxation of restrictions in the second half of the year. Despite the large number of people vaccinated in 2022, COVID-19 will remain a public health problem. It is therefore not excluded that limited containment policies may still be applied in the next year.

Another set of factors will also be critical for the prospects to occur. Among which we find the extent to which the EU can gain an advantage from improving the economic situation of neighboring nations; the presence of adequate political support and the response of families and companies. A very important factor will undoubtedly be the speed with which savings accumulated during past lockdown periods will be spent and at what rate the savings rate will decrease once the restrictions ease.

The near future will be heavily affected by the huge debt that many member states have incurred.

The negative consequences of excessively high debt are manifold, ranging from fewer national savings and incomes to higher interest payments, less ability to respond to future problems, and a greater risk of a financial crisis. However, to make a risk assessment of excessive public debt, it is not enough to calculate only the debt ratio. it is necessary to consider whether the economic growth rate of a given state is higher than the interest on the debt incurred. it is therefore important that its business model is flexible enough to adapt to new challenges such as digitization and green transformation. The future of debt solvency also depends heavily on inflation and will determine whether the ECB can sustain the Eurozone debt market for a longer period. Inflation in the euro area is currently at a low level. However, if you look at the five-year inflation swaps, an indicator of inflation expectations, you can see how they have steadily increased in recent months. However, the future of inflation remains unknown, and economists still debate whether its level will approach the goals of the union or not. The European Union is not the only victim of inflation. In fact, there is a risk that basing the Euro debt stabilization strategy on monetary policy could negatively affect the entire Eurozone.

The debt has a highly heterogeneous distribution and is highly decentralized and part of the risk is the responsibility of the participating central banks.

Moreover, it is difficult to establish whether there are alternative remedies to stabilize the Eurozone debt market. Forecasts show that it will be very difficult if not impossible for the most indebted states to grow at the same rate as the debt in order to be able to reduce it. This is due to the fact that many of these countries were already extensively developed and their growth rates in the Eurozone were already modest. The solutions to this problem are multiple and complex. A solution could consist in a debt restructuring. A different strategy could be to take advantage of the fact that government bonds were issued under national law. Therefore, theoretically, the laws could be changed by extending the maturities of the bonds. It has also been proposed to involve the European Stability Mechanism (ESM) to monitor debt developments or to delate the debt contracted during the Covid-19 crisis all together.

However, we must accept the fact that we would have to live with particularly high debt for many years and there is no magic formula capable of solving the problem. The scars inflicted by the pandemic are, as we

have seen, many and although the initial policies introduced by the European Union are initially giving positive results, there is no guarantee that this will last over time.

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