THE REAL ESTATE INDUSTRY IN EUROPE IN THE PRE- AND POST-PANDEMIC PERIOD

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Abstract: *Real estate represents one of the most profitable and of interest areas of investment. In 2019, the year before the pandemic, real estate represented 3.1% of Europe's GDP, and investment in new constructions or in the renovation of old ones accounted for more than 10% of all investment products in the European economy. This paper analyses the evolution of the real estate industry in the post-pandemic period, the trend being a favourable one, of growth. Real estate constitutes the basis for the proper functioning and development of the other sectors of the economy, therefore it is important to analyse the reaction of the industry in relation to an economic crisis, such as the one caused by the Covid-19 pandemic. The crisis has been the subject of debate for the past two years, as it has caused unprecedented changes in Europe's economy and, of course, in residential markets. Currently, the geopolitical situation in Europe, represented by the conflict in Ukraine and the refugee crisis, has the effect of increasing energy costs, the price of building materials and labour costs. In the given context, we reflected how the real estate market in Europe evolved in the pre- and post-pandemic period, following a series of essential indicators in the field: the evolution of constructions, real property prices, mortgage rates, rents and purchasing power of investors.*
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Introduction

The Explanatory Dictionary of the Romanian Language defines the term "real estate" as "something that cannot be transported, immovable". From a legal point of view, the term refers to land and anything that is permanently fixed on a land (buildings). Previously, "immovable" was considered synonymous with "real estate". The distinction between the two is that real estate refers to the ownership rights over the real estate. Real estate is also defined as property that can be bought, sold, rented, or exchanged for other goods or services. More simply, real property is defined as "land and things attached thereto" (Floyd and Allen, 2002). The term defines any property that can be bought, sold, rented or exchanged for other goods or services (Graaskamp,1981, pp. 23). Over time, the structure of housing has changed according to economic, political, demographic and technological changes.

The development of private real estate property has turned real estate into an extremely attractive field for business, which is in continuous evolution. There are five types of activities related to the real estate industry: real estate valuation – professional valuation services; brokerage - assistance to buyers and sellers in transactions; development – improvement of the land for use, by adding or replacing buildings; property management – management of a property for its owner, and relocation services – relocation of people or businesses to different countries.

In Romania, the real estate market is on an upward slope since 2003, when the appearance of mortgage loan meant not only the creation of a financing mechanism that stimulated purchases, but also, obviously, connected the local market to international financial markets, introducing the principles of the global real estate market. Over time, architectural and urban changes have been an indicator of the degree of civilization and cultural progress of mankind. At the end of the 18th century, in the context of the first Industrial Revolution, the production process began to be mechanized, allowing other industries to increase their productivity. Implicitly, the increase in the standard of living in European countries followed, which led to prosperity and the need for population migration to urban centres. Furthermore, in the first decades of the 20th century, accelerated urbanization led to the need to build collective spaces in urban areas, such as factories, hospitals, schools, but also blocks of flats. The moment coincided with the emergence of architectural functionalism, according to which buildings should be designed exclusively based on their purpose and function. This innovative concept aims to harmoniously combine the building's shape and its function, minimizing the costs of its design and construction (Craven, 2018).

Urban residential development began to slow starting with the year 1914, with the start of World War I, at which point Europe's GDP began to decline dramatically. The return of the economy to the pre-war level did not occur until a decade later (Edelstein and Edelstein, 2020). Geographically, many countries have changed their borders, and in terms of real estate, entire cities have been destroyed as a result of the war (Smith, 2021). This led to the continuation of the industrialization process, requiring the reconstruction of destroyed cities and the restoration of severely damaged infrastructure (Eichenberg, 2019). In this way, after the end of the World War I, a part of Europe enjoyed a period of relative prosperity, which ended in 1939, with the start of World War II. The bombings destroyed much of the existing real estate construction, and the war-affected population had to relocate in order to survive.

After the end of the war, most jobs and the main educational or health establishments were concentrated in the main cities of Europe. Urbanization has thus increased the demand for housing, especially in the suburbs of cities. Furthermore, the decolonization of Africa and Asia by Europe after the end of World War II also led to demand for housing for people freed from those colonies. A similar phenomenon is visible nowadays: the migration of people from small towns or the countryside to big cities, mainly for the purpose of working. For this reason, the residential market must constantly adapt, in order to integrate the arriving population into the main poles of economic development. Practically, urbanization experienced two main stages. The first stage corresponds to the industrial revolution at the end of the 18th century, when cities attracted the rural population to work, and the second is the stage of the development of European metropolises after the great destruction of the World War II.

Reaction of the real estate market to the COVID-19 pandemic

Unlike other economic crises known to mankind over time, the Covid-19 pandemic had direct visible effects in the real estate industry. Beyond the health consequences and the psychological influence that the pandemic has exerted on the population, the need to continue professional activity in a safe environment, physically isolated, in order to stop the spread of the virus, has produced unprecedented changes in the real estate market. The health crisis has been the determining factor for the changes produced in the last two years in terms of preferences, motivation and attitude of customers towards real estate. The decision to buy a dwelling is no longer influenced only by the need to have a home for the hours spent outside of work, but now it also includes the need for additional space for carrying out the professional activity.

The emergence of a crisis, which in one form or another destabilizes the real estate market, becomes an important and urgent problem for the respective market economy, and for this reason it is necessary to take measures to mitigate its harmful effects. In the case of the COVID-19 pandemic, the model and specifics of the crisis are atypical, because the phenomenon has not been encountered before in history. Thus, we are not referring to the economic or biological effects, which are visible and extremely easy to detect by specialists, but we are talking about the psycho-social effects, which are more difficult to notice and measure and which have affected the foundations of social life, primarily by limiting interaction with peers.

In this category we also include the reaction of customers to the residential real estate market in the context of the Covid-19 crisis. Probably for the first time, the active population, now forced to live for several months their whole life within the perimeter delimited by one's house, began to question the usefulness of the living space.

The mandatory isolation of the population to stop the spread of the virus meant the blocking of most economic transactions, including those on the real estate market. Later, the transactions resumed, the trends being positive and promising, in the direction of returning to the volume of sales before the onset of the crisis, in some places even exceeding it. The effects of the pandemic reflect on the urban planning needs of large cities, in the sense that most dwellings are not adapted to the new needs to work from home (De Toro et al., 2021). Working from home has led to new requirements when it comes to purchasing a dwelling, all focused on comfort and the quality of the indoor environment. The desire to improve home comfort focused on the need for thermal, acoustic and visual insulation, indoor air quality and the use of natural light. All these demands have led to the need to improve the energy performance of the dwelling. At the moment, the energy performance certificates are part of the mandatory documentation for the valuation of a real property purchased through bank credit, reflecting the energy performance class, the CO2-equivalent emission index, the heated useful area, the heated volume. Also, valuation reports required by banks must contain an environmental section (environmental compliance and physical risks that may affect the real property).

The COVID-19 pandemic has also brought changes in terms of communication between customers and real estate agencies. The changes occurred as a result of the need to comply with the restrictions imposed by the authorities, as well as the desire of the agencies to protect their employees against the spread of the Covid-19 virus. From this point of view, various online platforms have been used for real estate viewing by customers

of real estate agencies, online communication and the use of electronic signature for sales and purchase transactions. At the same time, applications that allow customers to search for real estate offers updated in real time and platforms dedicated to filling in and sending the electronic documents needed especially in the last part of the sales and purchase process – abstract of title, ground survey, title deeds, energy performance certificate, notary opinion, etc. - have been created (Jovanović-Milenković et al., 2020).

The Covid-19 pandemic has also changed the perspective of banks as regardsthe management of the relationship with their clients, in this case applying for mortgage loans, eager to obtain financing in order to purchase a real property. Through measures such as postponement of loan instalments, more accessible interest rates, financial education, banks tried during the pandemic to take specific measures in the direction of social responsibility (Baicu et al., 2020). In an environment characterized by the uncertainty and insecurity caused by the Covid-19 health crisis, the real estate market recovered perhaps unexpectedly both on a European and a national level. In this study, we conducted a retrospective of the real estate market on a sample of European countries, including Romania, including the pre-pandemic (2017-2019) and post-pandemic (2020-2021) periods. In order to carry out the analysis, we used data provided at the European level by Eurostat, at the local level by the National Institute of Statistics in Romania, as well as various analyses carried out by companies and websites such as Deloitte, Colliers International, analizeimobiliare.ro.

The analysis carried out in this paper focuses on a number of 14 countries in the European Union (Austria, Belgium, the Czech Republic, Denmark, France, Germany, Hungary, Italy, Latvia, the Netherlands, Poland, Portugal, Spain and United Kingdom), where adds Romania, whose evolution will be analysed in terms of some indices relevantfor the residential real estate market they are part of (the housing development intensity, the housing starts in the current year, the housing stock, the variation in sales prices, the variation in rental prices, the housing purchasing power of the population and the degree of indebtedness of citizens in terms of mortgage loans).

The economic situation in Europe in the period 2017-2021

In order to be able to understand the evolution of the real estate market, it is necessary to analyse the economic conditions that influence the variation in the sale and rental prices of housing, but also the degree to which the construction industry is more or less accelerated. Three years before the outbreak of the Covid-19 pandemic, in 2017, favourable external conditions led Europe's GDP to accelerate from 1.8% in 2016 to 2.6%. Thus, in 2017, the US economy grew from 1.5% to 2.3% compared to the previous year, China's remained around 7%, and Japan's economy grew by 1.5%, from to 0.9% in 2016. In 2017, the European Central Bank kept monetary policy rates at a historically low level, which led to a decrease in bank interest rates and, implicitly, to an increase in household consumption expenditure by 2.2% and an increase in investment across the European Union by 4.1%. Given the ECB's policy of keeping interest rates low, combined with the steady decline in unemployment, the real estate market was on an upward slope in 2017.

The year 2018 brought with it a decrease in the degree to which Europe's GDP increased, its growth being lower than the previous year, of only 2.6%. As usual, the decline occurred amid the international economic situation, which was also declining. Basically,

throughout 2018, China's economy slowed down from 6.9% to 6.6%, and Japan's slowed down from 1.9% to 0.8%. More prosperous was the US economy, which grew during 2018 from 2.4% to 2.9%. In 2018 also, the European Central Bank kept monetary policy rates at a historically low level, and the unemployment rate was similar to that of 2017, conditions that positively influenced the real estate market, with prices also remaining at a relatively constant level.

Starting with 2012, for six years, the Eurozone economy has been on an upward slope, ended in 2019 by the Covid-19 pandemic, which spread from China to the whole world. Europe has been one of the most affected regions, with countries such as Italy and Spain suffering the most human and economic losses due to the necessary restrictions that have been imposed. The governments of European countries reacted quickly, managing to stabilize the economic situation. Among the most popular measures taken were employment subsidies (kurzarbeit), which supported companies during the period when they could not operate due to government restrictions, and deferred payment of bank instalments. The real estate market is sensitive to economic conditions, especially to increasing GDP and interest rates. After the 2008 crisis, increased GDP and interest rates kept at a relatively constant level led to higher housing prices by up to 83%.

The economy of 2020 must be seen first of all from the point of view of the influence of the Covid-19 pandemic, already triggered for a year all over the world. The impact of this economic crisis is different from that of the global financial crisis of 2008-2010. This time, the most affected sectors were those directly related to people's need to socialize and travel – the HoReCa industry and tourism. Regarding the residential real estate market, both in our country and throughout Europe, the influence of the Covid-19 pandemic has basically the same causes. During the 2020 spring wave of the pandemic, countries' governments imposed restrictions to limit the transmission of the virus, so almost all non-essential workers stayed at home. The result was a decrease in consumption for certain goods and services, a situation that allowed the population to save up to 20% more compared to the pre-crisis period.

During the restrictions period, most public institutions involved in the building permit process were closed, so that a small number of projects received the necessary approvals at the time, the supply decreasing in favour of the increased demand. Despite the general uncertainty in the economy, the vast majority of residential real estate markets experienced slight growth. The need for additional space to work from home, the desire to move from an apartment to a house to have access to the outdoors, giving up city homes in favour of those located on the outskirts, are reasons that have led to an increase in the demand and prices of residential real properties. The low interest rates charged by banks in 2020 and, implicitly, the convenient rates on mortgage loans have led investors to purchase dwellings in the midst of the pandemic crisis.

In the rental market, the most important aspect to note in 2020 is the decrease in the price per square meter in the big cities. With the tourism industry severely affected by the pandemic, demand for short-term accommodation in European metropolises has dwindled to zero, leading to a drop in long-term rents. In 2020, one year after the outbreak of the Covid-19 pandemic, Europe's GDP shrank by 6.8%, a more significant drop than the one seen in the financial crisis of 2008-2009. The biggest decreases can be seen in the economies of Spain and Italy, severely affected by the Covid-19 pandemic. The decline in GDP was seen in the first two quarters of 2020, followed by a rebound in the third quarter

and a further decline in the last quarter. The service sector was more affected than the manufacturing sector. The unemployment rate also increased in 2020, from 7.6% in 2019 to 8%. Government policies to support the economy started in 2019 continued throughout 2020, through employment subsidies (kurzarbeit), to support companies during the period when they could not carry out their activity, due to the restrictions, and the postponement to payment of bank instalments. Against the background of all these aspects, in 2020 prices on the residential real estate market did not decrease, in fact, they experienced a slight increase.

In 2021, the euro zone economy partially recovered, with GDP growing by 5.4%, while global growth was also substantial, of 6.1%. However, the rapid economic expansion did not lead to reaching the economic level of the pre-pandemic period. The Covid-19 pandemic has disrupted supply chains, and a shortage of semiconductor chips has slowed production in the automotive system. Further, it was only a step to the increase in the prices of raw materials and building materials. The forecast of the International Monetary Fund is for the global economy to grow by 3.2% in 2022, then by 2.9% in 2023, which translates into a sharp slowdown after the 6.1% recorded in 2021. A possible recession could come from the risk that the flow of Russian gas to Europe will be stopped because of the war in Ukraine and because of the sanctions that the EU has imposed on Russia. Even if this does not happen, high energy prices will be a drag on economic growth, with Russia now providing 20% less gas than the 2021 levels. Both in 2021 and at present, supply chain issues and the energy crisis only increased inflation. According to Eurostat's preliminary estimate, the annual inflation rate in the Eurozone increased up to 8.1% in May 2022, from a level of 7.4% in April. Thus, the inflation level is four times higher than the target objective of the European Central Bank (ECB), i.e. a price increase of 2%. This is the strongest annual increase in consumer prices recorded by the Eurozone since 1997, when statistical data on the single area began to be published. Thus, inflation has become by far the biggest macroeconomic problem worldwide. Central banks around the world have been under pressure to adapt to rising inflation by raising interest rates.

As always, the real estate market is currently reacting to rising GDP and interest rates. Tight monetary policy is currently having the effect of raising mortgage rates, which could reduce demand in the residential real estate market, slowing price growth.

Evolution of the main indices in the real estate industry

Housing Completion Index (Housing Development Intensity)

The housing development intensity index defines the degree of housing development on the residential market, being calculated as the housing completions per 1,000 citizens in a given country. With 7.4 completed apartments per 1,000 citizens, i.e. a total number of approximately 498,000 dwellings, France leads the 2017 ranking. Second ranks Poland, with 4.6 apartments/1,000 citizens, and third is Belgium, with 3.9 apartment/1,000 citizens. At the opposite pole is Latvia, with approximately 1,500 apartments built in 2017, i.e. 0.8 housing spaces/1,000 citizens. The index is also weak for Spain, where in 2017 less than one apartment per 1,000 people was built. Romania is ranked in the middle of the ranking, with 53,347 housing completions, i.e. 2.72/1,000 inhabitants, thus being located between the Czech Republic and Germany.

In 2018 too, France is the country leading the list in absolute values, with 459,000 housing completions (6.86 dwellings/1,000 citizens), followed by Germany with 300,000 dwellings (3.61 housing completions/1,000 citizens). At the bottom of the ranking is Latvia again, with only 3,000 completed apartments, but nevertheless the value means a 100% increase compared to the previous year, 2017. The value of the index is also low in the case of Portugal – only 1.2 completed apartments/1,000 citizens, i.e. an absolute value of 12,300 housing spaces. As previously shown, the highest value of the housing development intensity index is achieved by France (6.86), followed by Poland (4.81) and Belgium (4.64). Poland is in the top of the most housing completions per thousand citizens for the second year in a row. In 2019, of all countries analysed, Portugal, Spain and Latvia have less than one completed apartment per 1,000 inhabitants, but this is understandable, since Portugal and Spain are among the countries with the largest housing stock anyway. Like the years 2017 and 2018 previously analysed, in 2019, France is still the one that has the highest number of housing completions, in absolute values, respectively 450,000 (6.7 dwellings/1,000 citizens). In absolute values, Germany and Poland follow in the 2019 ranking, with 293,000 and 207,500 completed apartments, respectively. Latvia is at the bottom of the ranking, with 3,300 housing completions (1.73 dwellings/1,000 citizens).

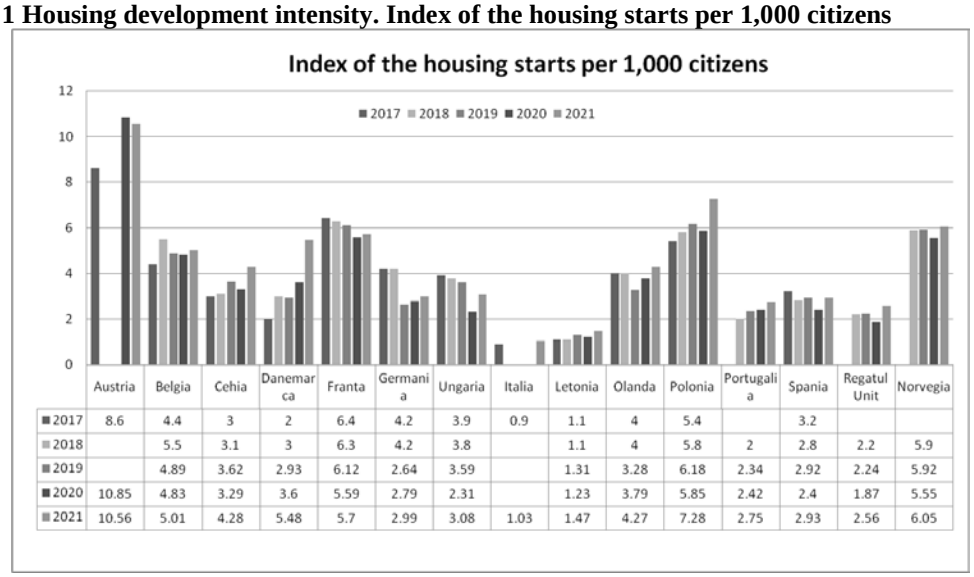
The year 2020, atypical from an economic point of view, due to the peak situation of the Covid-19 pandemic, positioned Poland at the top of the housing development intensity ranking, of all countries analysed in this paper, with 5.79 apartments/1,000 citizens. We also note values above 5 in France (5.66 apartments/1,000 inhabitants) and Belgium (5.45 apartments/1,000 inhabitants). In absolute values, France maintains its position as the European leader in housing completions, with 381,600 dwellings delivered to the residential market in 2020. The following two places in the ranking are held by Germany, with 306,376 apartments, and Poland, with 221,400 housing completions in 2020. This year too, Spain and Portugal are ranked last two, with less than two completed apartments per 1,000 citizens (1.63 and 1.68, respectively).

In 2021, the analysis of the countries in the selected sample shows that less than two apartments were completed for every 1,000 inhabitants in Latvia (1.51), Spain (1.77) and Portugal (1.83). The highest intensity of housing completions belongs to France, with 6.95 apartments/1,000 citizens, and Poland, with 6.16 apartments/1,000 citizens. In absolute values, France is also the European leader in housing completions in 2021, with 471,000 apartments completed last year. The following two places are held by Germany (310,000 dwellings) and Poland (234,700 dwellings). Unlike 2020, we note significant increases in the index in France, by 23.4%, the United Kingdom, by 18%, and Portugal, by 12.9%. In the lower part of the ranking we identify Hungary, with a decrease of -29.5%, Latvia (-8.0%), Denmark (-7.3%) and the Czech Republic (-0.7%).

Housing starts Index

Unlike the previously analysed index, which indicates the number of completed apartments, regardless of the year in which their design was started, housing starts refers to apartments for which construction began in the year in question (Graphic 1).

Figure 1 Housing development intensity. Index of the housing starts per 1,000 citizens



	Austria	Belgia	Cehia	Danemarca	Franta	Germania	Ungaria	Italia	Letonia	Olanda	Polonia	Portugalia	Spania	Regatul Unit	Norvegia
2017	8.6	4.4	3	2	6.4	4.2	3.9	0.9	1.1	4	5.4		3.2		
2018		5.5	3.1	3	6.3	4.2	3.8		1.1	4	5.8	2	2.8	2.2	5.9
2019		4.89	3.62	2.93	6.12	2.64	3.59		1.31	3.28	6.18	2.34	2.92	2.24	5.92
2020	10.85	4.83	3.29	3.6	5.59	2.79	2.31		1.23	3.79	5.85	2.42	2.4	1.87	5.55
2021	10.56	5.01	4.28	5.48	5.7	2.99	3.08	1.03	1.47	4.27	7.28	2.75	2.93	2.56	6.05

(Source: Own processing, after Property Index: Overview of European Residential Markets, Available at: <https://www2.deloitte.com/>)

In 2017, the first place is held by Austria, with 8.6 dwellings/1,000 citizens, followed by France and Poland, with 6.4 and 5.4 apartments/1,000 people, respectively. At the opposite end of the ranking are Italy and Latvia, with 0.9 and 1.1 apartmentsstarted/1,000 citizens, respectively. From a numerical point of view, the first place is held by France, where the construction of 429,000 apartments was started, and the last by Latvia, with 2,000 housing spaces. For 2018, the value of the index at the level of the whole of Europe is 3.8 housing starts per thousand inhabitants. The average is exceeded by the Netherlands (4.0), Denmark (4.2), Belgium (5.5), Poland (5.8) and France (6.3). As last year, the highest absolute values are recorded in France (419,000 compared to 429,200 dwellings the previous year), Germany (347,300 dwellings compared to 348,100 the previous year) and Poland (221,900 dwellings compared to 206,000 in 2017). Belgium and Denmark have experienced the largest increases, as follows: from 4.4 housing starts/1,000 citizens to 5.5 housing starts in Belgium, respectively from 11,600 housing starts to 17,400 housing starts in Denmark. The lowest intensity of the index is registered in Latvia (1.1), this country ranking last also in absolute values (2,100 housing starts).

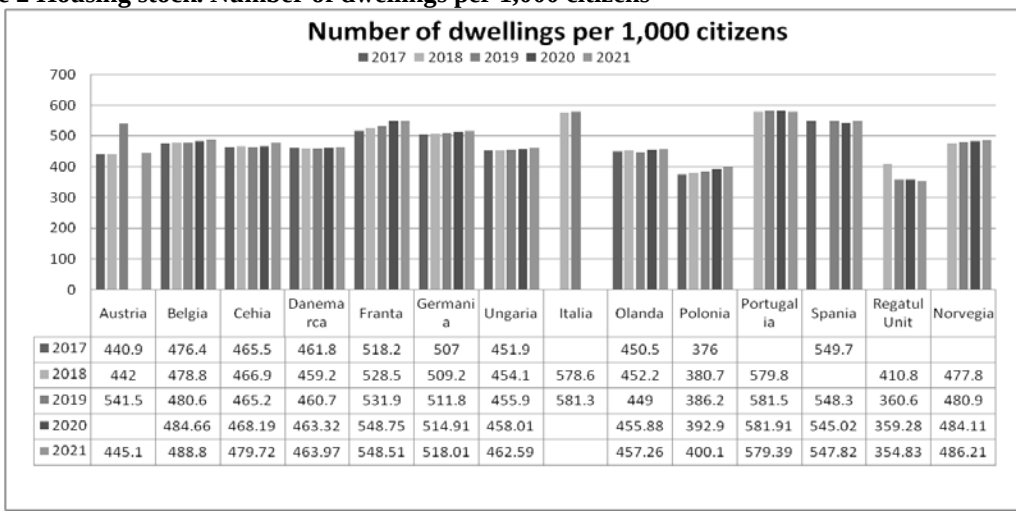
In 2019, Poland and France have an index of 6.2 and 6.1 housing starts per 1,000 citizens, respectively. Among the analysed countries, Latvia has an index of 1.3 housing starts per 1,000 citizens, which translates into 2,500 housing starts in 2019. In absolute values, the highest number of residential housing starts in 2019 is 410,300 and belongs to France, followed at quite a distance by Poland (237,300) and Germany (219,500). In fact, these countries are the only ones with more than 200,000 housing starts in 2019. In 2019, Germany lost second place held the previous year, with a 37% decrease in the number of housing starts. Double-digit decreases in the housing development intensityare also noted in the Netherlands (-18%), the United Kingdom (-10%) and Belgium (-10%). A decrease in housing construction projects started could also be noted in 2019 in Hungary, Denmark and France. In Portugal and the Czech Republic, we could note an acceleration of housing construction of 18% and 17%, respectively.

The highest number of housing units started per 1,000 citizens was registered in 2020 in Austria (10.9 dwellings/1,000 citizens), followed by Poland (5.9 dwellings/1,000 citizens) and France (5.60 dwellings/1,000 citizens). We identify the lowest intensity of new housing construction in the United Kingdom (1.87), Hungary (2.31) and Spain (2.4). In absolute values, the first three places are held by France (376,700 housing starts), Germany (232,100) and Poland (223,000). The United Kingdom, with 127,600 housing starts, ranks fourth, but a recalculation per 1,000 citizens skews this ranking due to its large population. The most important decreases in the intensity of the development of residential activity compared to the previous year are noted in Hungary (-36%), Spain (-17%) and the United Kingdom (-16%). We identified the highest number of housing starts per 1,000 citizens in 2021 in Austria (10.56 apartments/1,000 citizens), followed by Poland, with 7.28 apartments/1,000 citizens and France, with 5.70 apartments/1,000 citizens. The lowest construction activity in 2021 belongs to Italy, with 1.03 apartments/1,000 citizens, a country deeply affected by the Covid-19 pandemic. Less than two apartments per 1,000 citizens were started in 2021 in Latvia as well (1.47 apartments/1,000 citizens). Latvia holds the last place also in absolute values, in 2021 less than 3,000 dwellings being started, 2,800 to be exact, at the opposite pole being France, with 386,700 apartments started, practically over 137 times more. The following two places are held by Poland (277,400) and Germany (248,700), the only countries in the analysis with more than 200,000 housing starts to be built in 2021. Despite the fact that 2021 was affected by the crisis caused by the Covid-19 pandemic, the trend was upward, with the exception of Austria, where housing construction experienced a slight decrease of 3.80%. The most important increases in 2021, compared to the previous year, were noted in the United Kingdom (+37.1%), Hungary (+32.7%), the Czech Republic (+27.6%), Italy (+24.7%), Poland (+23.9%), Spain (+22.0%) and Belgium (+21.3%).

Housing Stock

Apart from the number of housing completions and starts in each analysed country, the size of the total housing stock is often perceived as the basic pillar of the quality of life and the level of economic development in that country (Graphic 2).

Figure 2 Housing stock. Number of dwellings per 1,000 citizens



	Austria	Belgia	Cehia	Danemarca	Franta	Germania	Ungaria	Italia	Olanda	Polonia	Portugalia	Spania	Regatul Unit	Norvegia
2017	440.9	476.4	465.5	461.8	518.2	507	451.9		450.5	376		549.7		
2018	442	478.8	466.9	459.2	528.5	509.2	454.1	578.6	452.2	380.7	579.8		410.8	477.8
2019	541.5	480.6	465.2	460.7	531.9	511.8	455.9	581.3	449	386.2	581.5	548.3	360.6	480.9
2020		484.66	468.19	463.32	548.75	514.91	458.01		455.88	392.9	581.91	545.02	359.28	484.11
2021	445.1	488.8	479.72	463.97	548.51	518.01	462.59		457.26	400.1	579.39	547.82	354.83	486.21

(Source: Own processing, after Property Index: Overview of European Residential Markets, Available at: <https://www2.deloitte.com/>)

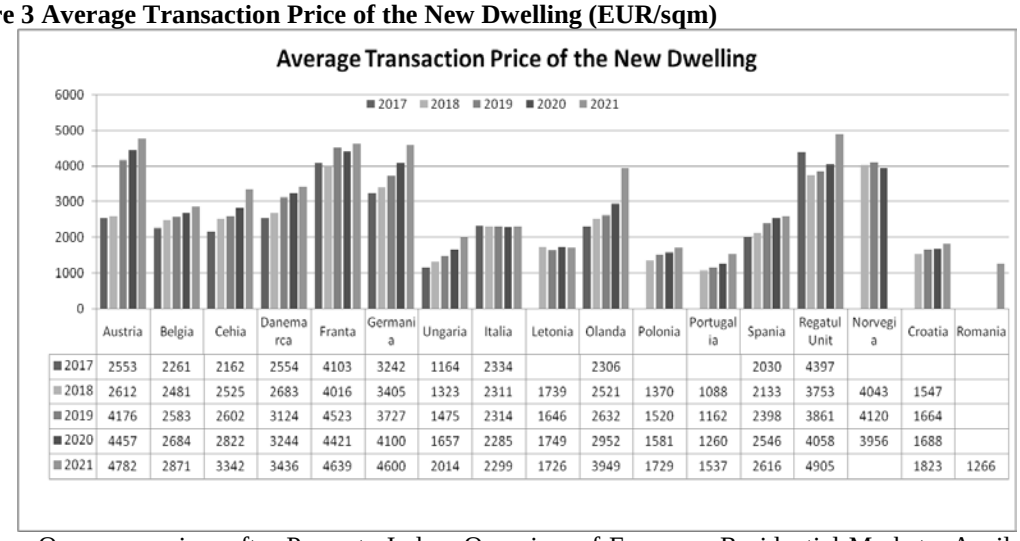
Throughout the European Union, the housing stock in 2017 was 489.4 apartments per 1,000 citizens, with France and Spain at the top of the ranking. Thus, Spain has in 2017 a number of 549.7 apartments per thousand inhabitants, and France ranks first in absolute values, with 34.8 million apartments. Despite the fact that Poland has seen a year-on-year increase in its housing stock, it ranks last in terms of this index, with 14.5 million apartments, which means 376 dwellings/1,000 citizens. Across the European Union, the housing stock in 2018 was 478 apartments per 1,000 citizens, with stocks higher than average in Germany, France, Italy and Portugal. Practically at the top of the ranking is Portugal, with approximately 580 dwellings per 1,000 citizens, closely followed by Italy, with 578 dwellings/1,000 citizens, and France, with 528 dwellings per 1,000 citizens. In 2019, we identified the largest housing stock in Portugal and Italy, with just over 581 dwellings/1,000 inhabitants, a situation much better than that of the United Kingdom, which has 361 apartments per 1,000 citizens. Poland also has less than 400 dwellings in 2019, but given its degree of real estate development, the coming years will bring an increase in the housing stock. Germany has the largest housing stock, with no less than 42.54 million dwellings, followed by France (35.67 million) and Italy (35.09 million). Countries with a housing stock of more than 10 million we also identified are Spain (25.78 million), the United Kingdom (24.35 million) and Poland (14.82 million). Less than 5 million dwellings existed in 2019 in: Hungary (4.46 million), Denmark (2.68 million), Czech Republic (4.98 million), Austria (4.82 million).

As last year, in 2020 the largest housing stock per 1,000 citizens was identified in Portugal (582), followed by Belgium (571 dwellings) and France (549 dwellings). In absolute values, Germany ranks first, with more than 42.2 million apartments in stock, followed by France with 37 million, Spain with 25.7 million, the United Kingdom with 24.2 million and Poland with 15 million. The last three places in the ranking, with less than 4.5 million dwellings, are held by Denmark (2.71), Belgium (3.98) and Hungary (4.47), countries with a dense population. In 2021, the largest housing stock is in Portugal (579 dwellings/1,000 citizens). We also identified more than 500 dwellings per 1,000 inhabitants in Spain (548 dwellings/1,000 citizens), France (549 dwellings/1,000 citizens) and Germany (518 dwellings/1,000 citizens). The lowest housing stock per 1,000 citizens is found in the United Kingdom, namely 355 apartments/1,000 inhabitants. In absolute values, Germany ranks first, with 43.11 million housing units, followed by France (37.20 million), Spain (25.97 million) and the United Kingdom (24.9 million). The smallest housing stock belongs to Denmark, with a total of 2.73 million dwellings.

Variation in Sales Prices of New Real Properties

According to the “Property Index” report for 2017, published by Deloitte, which includes the analysis of property prices in 14 European countries and 41 cities, the United Kingdom is at the top of the ranking, with an average of no less than EUR 4,397 /sqm (Graphic 3). At the opposite pole is Hungary, where a real estate transaction takes place at an average price per square meter of EUR 1,164. The biggest price increases for new apartments compared to the previous year were recorded in 2017 in Germany (by 9.6%), Poland (by 9%) and the Czech Republic (by 8.4%).

Figure 3 Average Transaction Price of the New Dwelling (EUR/sqm)



	Austria	Belgia	Cehia	Danemarca	Franta	Germania	Ungaria	Italia	Letonia	Olanda	Polonia	Portugalia	Spania	Regatul Unit	Norvegia	Croatia	Romania
2017	2553	2261	2162	2554	4103	3242	1164	2334		2306			2030	4397			
2018	2612	2481	2525	2683	4016	3405	1323	2311	1739	2521	1370	1088	2133	3753	4043	1547	
2019	4176	2583	2602	3124	4523	3727	1475	2314	1646	2632	1520	1162	2398	3861	4120	1664	
2020	4457	2684	2822	3244	4421	4100	1657	2285	1749	2952	1581	1260	2546	4058	3956	1688	
2021	4782	2871	3342	3436	4639	4600	2014	2299	1726	3949	1729	1537	2616	4905		1823	1266

(Source: Own processing, after Property Index: Overview of European Residential Markets, Available at: <https://www2.deloitte.com/>)

The centre of London leads the capital to the top of the most expensive cities in Europe, with no less than EUR 16,512 /sqm. Compared to other cities of the country, this price is in some places even 376% higher than the national average. Neither the centre of Paris gives as good as one gets, here the price per square meter reaches EUR 10,967 /sqm. In this case, the value of a dwelling in the centre of Paris is 2.5 times higher than the national average. The third place in the list of the most expensive cities is held in 2017 by Munich, with EUR 7,500 /sqm, double compared to the national average of housing prices in Germany. It is worth noting that cities such as Milan, Barcelona, Hamburg, Frankfurt and Munich are more expensive in terms of housing prices than the capitals of Italy, Spain and Germany. The cheapest dwellings in 2017 are found in Debrecen, Hungary (EUR 1,080 /sqm), Győr, Hungary (EUR 1,142 /sqm) and Łódź, Poland (EUR 1,186 /sqm). In 2018, the leading position goes to France, with an average of EUR 4,016 /sqm, thus outranking the United Kingdom, whose price of EUR 3,753 /sqm places it second. In 2018, Portugal is at the bottom of the ranking, with an average transaction price of EUR 1,088 /sqm. From the point of view of price variation, the highest increase was recorded in the Czech Republic, with the value per square meter being 16.8% higher in 2018 compared to 2017. Considerable price increases can also be noted in Hungary (13, 7%), but also in the Netherlands (9.3%). The biggest decrease in transaction prices per square meter was evident in 2018 in the United Kingdom (14.7%), and we note insignificant reductions in France (2.1%) and Italy (1%). The highest price per square meter in 2018 was recorded in the centre of Paris, in this case EUR 12,910 /sqm. The second highest price can be identified in the centre of London, respectively EUR 11,185 /sqm. Like last year, Munich is the third most expensive city, with an average of EUR 7,800 /sqm. And in 2018, cities such as Milan, Barcelona and Munich surpassed the capitals of their countries, Rome, Madrid and Berlin, respectively. The bottom of the ranking is held, as in 2017, by Debrecen, Hungary (EUR 1,110 /sqm), Győr, Hungary (EUR 1,195 /sqm) and Łódź, Poland (EUR 1,237 /sqm). The highest price per square meter of new residential property can be noted in 2019 in France, with EUR 4,523 /sqm, followed by Austria, with EUR 4,176 /sqm. In 2020, the United Kingdom and Germany fall within the EUR 3,700-3,900

/sqm range. Latvia, Poland, Hungary and Portugal are countries whose prices in 2019 were between EUR 1,000/sqm and EUR 2,000/sqm. Three countries in the sample, France, Spain and Hungary, had price increases of around 10% compared to 2018. As in the last two years, in 2019 Paris is the leader in terms of the sales price per square meter of new housing, with EUR 12,863 /sqm, with a slight decrease of 0.4% compared to 2018. No other city from the selected countries had prices above EUR 10,000 /sqm in 2019. The EUR 7,000 /sqm threshold is exceeded by Munich in Germany (EUR 8,250 /sqm) and London in the United Kingdom (EUR 7,699 /sqm). The significant price differences between the cities suggest an increased demand, driven by population migration to these areas, poles of economic development in Europe. The lowest prices, under EUR 1,500 /sqm, we identified in Gyor, Hungary (EUR 1,368 /sqm), Debrecen, Hungary (EUR 1,266 /sqm) and Łódź, Poland (EUR 1,360 /sqm). The degree of economic development of some cities at the expense of others causes the citizens of the respective countries to direct their attention to the purchase of dwellings in the respective areas. Thus, we could note large disproportions between the national average in a country and the price per square meter in some cities. For example, we identified the biggest difference in Lisbon, which exceeded the national average by 336%. We find double prices in Paris (284%), Barcelona (240%), Munich (221%), Amsterdam (202%) and Copenhagen (200%). Price levels in Manchester, Lille, Turin, Graz, Birmingham, Debrecen and Łódź were all 10-30% lower than the national average in 2019, although their importance to the economies of their countries is undeniable, they are not attractive for the population to live there.

In 2020, Austria takes the lead for the first time in the list of the most expensive square meter of residential property, with EUR 4,457 /sqm, surpassing France by only EUR 36 (EUR 4,421 /sqm). An average price of over EUR 4,000 was also recorded in Germany (EUR 4,100 /sqm) and the United Kingdom (EUR 4,058 /sqm). Like last year, the countries in the Eastern European region recorded prices between EUR 1,000-2,000 (Latvia, Hungary, Poland). The highest increase in prices for new dwellings, of 12.3%, was registered in Hungary. 2020 was on average a year of growth for the countries analysed in this paper. In 2020, Paris is again the most expensive city analysed, reaching a price of EUR 12,917 /sqm for a new dwelling, up by 0.4% compared to 2019. No other city in the study carried out exceeds in 2020 the EUR 10,000 threshold. In 2020, we identified prices over EUR 6,500 /sqm in Munich (EUR 8,700 /sqm), London (EUR 7,916 /sqm), Frankfurt (EUR 7,700 /sqm) and Copenhagen (EUR 6,708 /sqm). Cities such as Ghent in Belgium, Munich in Germany, Milan in Italy, Jūrmala in Latvia and Barcelona in Spain show thatin 2020 neither it is not a rule that the highest prices on the real estate market are in the country's capital. The lowest prices, under EUR 1,500 /sqm, we identified in 2020 were in Debrecen, Hungary (EUR 1,281 /sqm), Gyor, Hungary (EUR 1,296 /sqm) and Łódź, Poland (EUR 1,426 /sqm). After comparing the average national prices with the prices in the most expensive cities of the countries included in our analysis, we find that the greatest disproportion can be noted in Portugal, where Lisbon is 356.13% above the national average. Paris also exceeds the national average by 292.17%. We identify double levels compared to the national average in Copenhagen, Munich and Barcelona, all economically important cities for the states they belong to.

Any variation in prices since the outbreak of the Covid-19 pandemic is heavily ascribed to it, being a new and unprecedented matter in the modern economy. In addition, prices in the European residential real estate market were affected by the war in Ukraine,

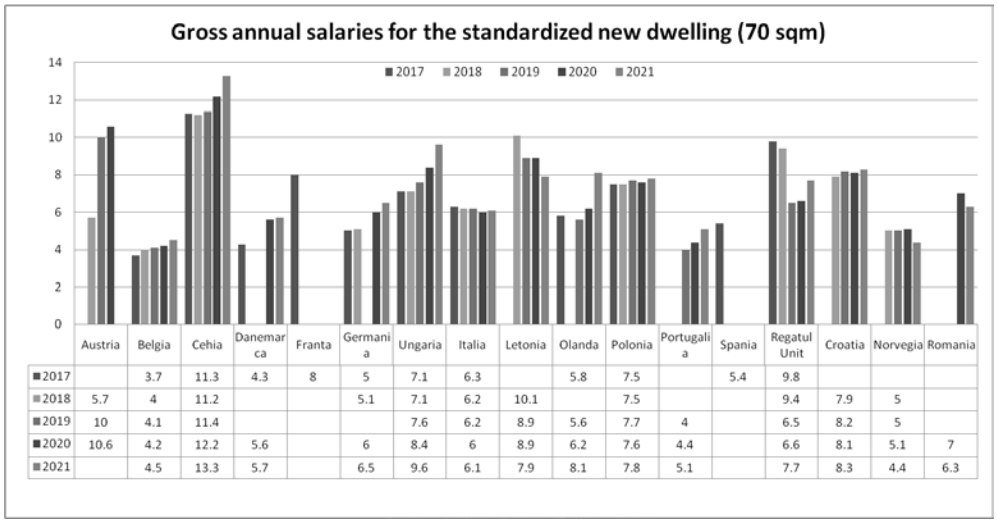
which also led to increases in the prices of energy, building materials and labour. The United Kingdom is in 2021 the most expensive country in terms of price per square meter, with EUR 4,905, alongside Austria (EUR 4,782 /sqm), France (EUR 4,639 /sqm), Germany (EUR 4,600 /sqm). Like last year, Eastern European countries recorded prices between EUR 1,500 and EUR 2,500 /sqm in 2021 (Latvia, Hungary and Poland). The most intense price growth in 2021 can be seen in Hungary, by 21.5% compared to 2020. A 20% increase in the residential real estate market in 2021 is also obvious in the United Kingdom and the Czech Republic. Overall, the year 2021 is characterized by the general increase in the price per square meter on the entire residential real estate market in Europe.

Regarding the comparison of European cities, Paris remains the leader in the category of the most expensive cities, with an average price of EUR 13,462 /sqm for a new dwelling. The threshold of EUR 10,000 was exceeded only by Munich, with an average price of EUR 10,500 /sqm. The average price level of EUR 7,500 was exceeded only in London (EUR 8,426 /sqm), Frankfurt (EUR 8,400 /sqm) and Amsterdam (EUR 7,600 /sqm). Of all the cities analysed, only Debrecen in Hungary does not reach the threshold of EUR 1,500 /sqm, the city's average being EUR 1,456 /sqm. The biggest price increases compared to 2020 are noted in Rotterdam (+27.3%), Brno (+22.4%) and Prague (+20.1%). The only city characterized by a price drop is Marseille (-6.0%) in France. The highest exceedance of the national average of a square meter of new residential property is identified in Lisbon, by 306.77%. Close to this performance is Paris, with a price 290.19% higher than the national average. Other cities with high prices, double compared to the national average, are Copenhagen, Munich and Barcelona.

Housing Purchasing Power

The affordability of a dwelling depends on the number of average annual gross salaries needed to purchase a 70 sqm housing space. In principle, the higher the salary, the shorter the time needed to save for the purchase of an apartment (Graphic 4).

Figure 4 Affordability of own housing. Gross annual salaries for the standardized new dwelling (70 sqm)



	Austria	Belgia	Cehia	Danemarca	Franta	Germania	Ungaria	Italia	Letonia	Olanda	Polonia	Portugalia	Spania	Regatul Unit	Croatia	Norvegia	Romania
2017		3.7	11.3	4.3	8	5	7.1	6.3		5.8	7.5		5.4	9.8			
2018	5.7	4	11.2			5.1	7.1	6.2	10.1		7.5			9.4	7.9	5	
2019	10	4.1	11.4				7.6	6.2	8.9	5.6	7.7	4		6.5	8.2	5	
2020	10.6	4.2	12.2	5.6		6	8.4	6	8.9	6.2	7.6	4.4		6.6	8.1	5.1	7
2021		4.5	13.3	5.7		6.5	9.6	6.1	7.9	8.1	7.8	5.1		7.7	8.3	4.4	6.3

(Source: Own processing, after Property Index: Overview of European Residential Markets, Available at: <https://www2.deloitte.com/>)

Thus, in 2017, the most affordable dwelling can be purchased in Belgium, where a family has to save on average 3.7 years for this desired, followed by Denmark (4.3 years) and Germany (5.0 years). Relatively affordable housing in 2017, which requires 6 years of savings, can be bought in Spain and Austria. Italy, Hungary, Poland and France are countries where a household has to set aside money for 6-8 years. The United Kingdom (9.8 years) and the Czech Republic (11 years) are at the bottom of the housing affordability ranking. In 2018, a household in Portugal saves 3.8 years to buy a dwelling, thus surpassing Belgium, which requires saving for 4 years. Citizens of Germany and Austria save between 5 and 6 years in 2018, and between 6 and 8 years those of Italy, Hungary, Poland and the United Kingdom. We identify the least affordable housing in 2018 in Latvia (10.1 years) and the Czech Republic (11 years). In 2019 also, we identify the least affordable housing in the Czech Republic, as it is necessary to save 11.4 years of average annual salaries for the purchase of a standard housing. Austrians will also save for 10 years to buy a housing space. Citizens of Portugal (4 years) and Belgium (5 years) will most easily purchase a dwelling in 2019.

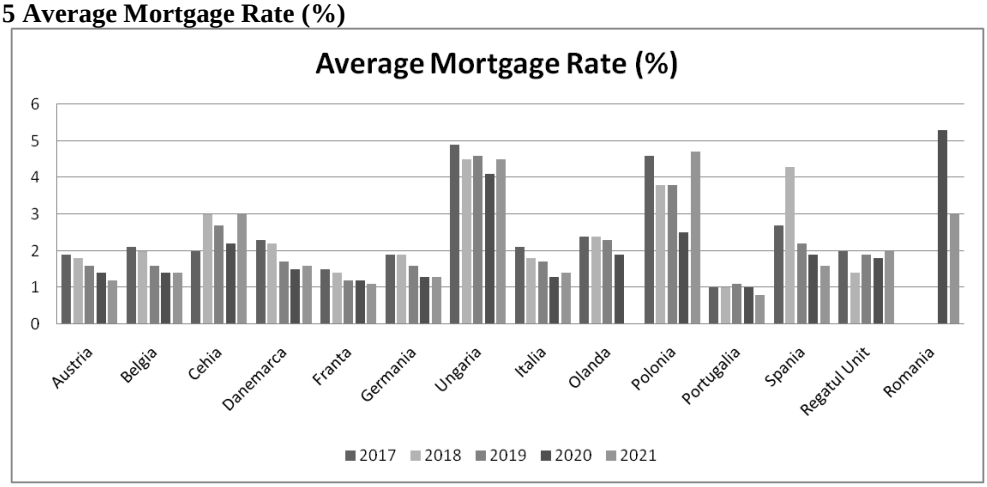
The situation in 2020 is not much different from the previous year. Czechs manage to buy a dwelling in the longest time of all countries analysed, namely in 12.2 years, which means saving another 10 average gross monthly salaries. Austria is still ranks second, with 10.6 years of savings. The third place is held by Latvia, where citizens have to save 8.9 years to purchase a residential housing space. At the opposite pole we find Belgium (4.2 years), Portugal (4.4 years) and Denmark (5.6 years).

In 2021, the Czech Republic is the least affordable country in the selected sample, with buyers needing 13.31 gross annual salaries to purchase a new dwelling. Thus, affordability decreased compared to the previous year by 1.11 gross annual salaries. Buyers in Hungary and the Netherlands need to save between 8 and 10 gross annual salaries to be able to buy their own apartment. Between 6 and 8 gross annual salaries will be saved by residents of Latvia, Poland, the United Kingdom, Germany and Italy. Our country also falls within this range, with 6.3 years of savings. In Denmark, Portugal and Belgium, in 2021 it was necessary to save between4 and 6gross annual salaries.

Degree of Indebtedness of the Population with Mortgage Loans

The mortgage loan market is a vital part of the residential market in every country. One of the most important indicators of the residential market is the degree of household indebtedness, that is, what percentage of mortgage debt represents the total income of households. The ability of households to take on new debt is a determinant of price growth. Practically, the higher the degree of indebtedness, the higher the housing price will be (Graphic 5 and Graphic 6).

Figure 5 Average Mortgage Rate (%)



(Source: Own processing, after Property Index: Overview of European Residential Markets, Available at: <https://www2.deloitte.com/>)

We will start the analysis with the year 2017, where we identified the lowest level of indebtedness among the countries included in the analysis in Hungary, where 22.4% of a household's income is represented by mortgage loans. Countries with a low indebtedness level, below 50%, are also Latvia, Italy, Poland, the Czech Republic and Austria. In 2017, the highest degree of indebtedness was identified in the Netherlands and Denmark, with over 100%. Regarding interest rates, 2017 was a favourable year, in which the European Central Bank kept them at a low level, with influences on the population's ability to purchase a dwelling. By default, increased demand results in a high price for a residential property. This aspect is more visible in developed countries. For example, in 2017 Portugal is the country where the most profitable loan could be obtained for the purchase of a dwelling, with an interest rate of only 1%. The second lowest interest rate level, 1.5%, can be identified in 2017 in France. Ranking last is Hungary, whose interest rate of 4.9% places it among the countries with the least affordable mortgage financing.

The situation analysed in 2018 is similar to that of the previous year. Among all analysed countries, the lowest level of indebtedness, of 20.0%, is identified in Hungary, and Latvia, Italy, Poland, the Czech Republic and Austria also have an indebtedness level below 50%. The Netherlands and Denmark are at the top in 2018 as well, with indebtedness ratios of over 170%. Interest rates are also not significantly different in 2018 compared to 2017. The cheapest mortgage loan identified, with an interest rate of 1%, belongs to Portugal, and in France and the United Kingdom interest rates do not go higher than 1.4%. In 2018, we identify a less accessible mortgage financing in Hungary, with an average interest rate of 4.5%, followed by Spain, with 4.3%. We identify the lowest indebtedness ratio in 2019 in Hungary (18.1%). Mainly, the countries of Central and Eastern Europe are characterized by a low level of current mortgage loans, below 50% (Poland, Czech Republic). Denmark and the Netherlands have indebtedness levels above 100%, 167% and 188% respectively. In most of the countries analysed, residential loans relative to household available income drop between 2017 and 2018. This could suggest either that household income is growing faster than the amount of debt, or that citizens have become more conservative when deciding to make the decision to purchase a real property.

2019 was a year of economic growth, which allowed some banks outside the Eurozone to increase their reference rates, with an impact on mortgage rates. Instead, the European Central Bank kept interest rates at virtual zero in 2019, introduced in 2016. Thus, banks in some countries lowered interest rates to the minimum, hoping to attract new clients. Average mortgage rates in Portugal and France are below 1.5%, almost reaching the 1% threshold in the case of the first country. Average mortgage rates rose in Hungary and Poland, exceeding 3%, especially since they are not part of the Eurozone. The interest rate in Poland is 3.8% in 2019, and 4.6% in Hungary.

Regarding the indebtedness level in 2020, the indicator is low, below 25%, in Hungary (17.2%) and Latvia (21.5%). An indebtedness level of less than 50% can be found in 2020 in Italy (32.10%), Poland (35.3%) and the Czech Republic (42.1%). The highest levels of indebtedness, over 100%, we identify in 2020 in the Netherlands (183%), Denmark (173.3%) and the United Kingdom (100.6%). Of course, the degree of indebtedness is directly related to the level of average mortgage rates. Thus, in 2020, we identify the cheapest mortgage loans, with an interest rate of less than 1.5%, in Portugal (1), France (1.2%), Germany (1.3%), Italy (1, 3%), Belgium (1.4%) and Austria (1.4%). The least affordable mortgage loan was identified in 2020 in Hungary, with an average interest rate of 4.1%, followed at a considerable distance by Latvia and Poland, each with 2.5%.

In 2021, Romania joins its neighbour, Hungary, in the category of the lowest indebtedness ratio, below 30% of the available household income. Central European countries such as Poland and the Czech Republic have kept their debt-to-GDP ratio below 50%. The highest degree of indebtedness was noted in 2021 in Denmark and the Netherlands, both exceeding the level of 170%. The densest countries in Europe, with the largest housing stock, Germany and France, have indebtedness levels of about 75%.

In terms of residential mortgage rates, Poland and Hungary are at the top of the ranking, exceeding 4.0%. Poland even experienced a steep increase, if we consider that the previous year the interest rate was only 2.5%. With the exception of these two countries, average mortgage rates above 2% were noted in the United Kingdom, Latvia, Hungary, the Czech Republic and our country. The most affordable interest rates on mortgage loans were practiced in 2021 in Portugal (0.8%) and France (1.1%).

Conclusions

The purpose of this paper was to advance some data and information related to the main indicators of the residential real estate market. The data we had at our disposal allowed us to carry out a wider analysis at the level of the sample of countries selected from Europe, the information for Romania being somewhat scarce. Despite the Covid-19 pandemic, the analysed data show us that the trends of transactions carried out on the residential real estate market are positive, with the short- and medium-term scenarios being optimistic. The economic blockade since the outbreak of the pandemic, caused by the isolation imposed to slow down the spread of the virus, has led to the braking of production processes, followed by the increase in the price of raw materials and building materials. A possible recession could come from the risk that the flow of Russian gas to Europe might be stopped due to the war in Ukraine and the sanctions that the EU has imposed on Russia. Even if this does not happen, high energy prices will be a drag on economic growth, with

Russia now providing 20% less gas than the 2021 levels. Both in 2021 and at present, supply chain issues and the energy crisis only increased inflation. Central banks around the world have been under pressure to adapt to rising inflation by raising interest rates.

As always, the real estate market reacts to rising GDP and interest rates. Tight monetary policy is currently having the effect of raising mortgage rates, which could reduce demand in the residential real estate market, slowing price growth. So far, the trends of 2022 have been for the recovery of trade, manufacturing and service sectors, as well as the tourism and HoReCa industry. All these provide stability, which has positive influences on the real estate market, encouraging developers to carry out new real estate projects, despite the negative impact of the conflict in Ukraine this year and all consequences we mentioned before. So, it is obvious up to this point in the study that it was not the Covid-19 pandemic that negatively influenced the demand and supply in the real estate industry, but rather the conflict in our vicinity brought with it a dampening of the real estate boom.
Furthermore, we suggest that it is appropriate to continue our research, by carrying out a quantitative and qualitative analysis on the behaviour of the factors involved in the real estate market. A quantitative research in the form of a survey would be suitable to be carried out on the market behaviour of customers, real estate agencies and developers, in order to create some projections regarding the future of the real estate industry. Also, a qualitative research using the interview technique can be carried out on the real estate developers, in order to capture their intentions for the development of the industry. In the same context, a consumer focus group can be held, both options providing information on consumer behaviour trends and developers' adaptation to new real estate market trends.

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